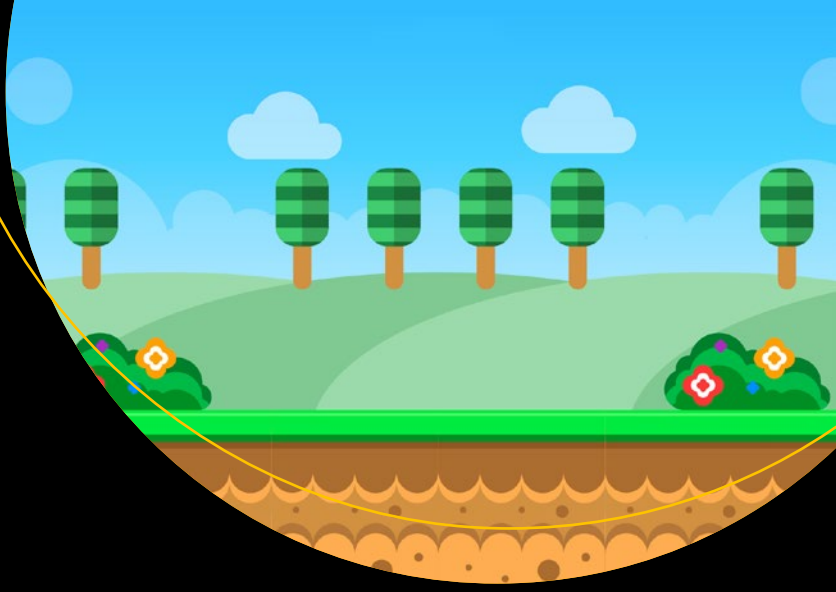

Game Development with Ren'Py

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Printed on acid-free paper

This book is dedicated to my friend
Jukka Virnes (1978–2018).

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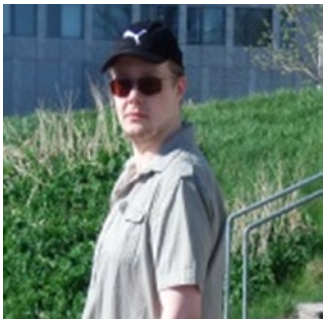
About the Author



Robert Ciesla is a freelance writer from Helsinki, Finland. He has a BA in journalism and a knack for writing urban fiction and directing short films. Robert has worked on many video games on several platforms since being a kid in the mid-1990s. His personal web site is www.robertciesla.com.

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I would like to thank my mother and all of my friends for their support during the intense writing process.

Introduction

If there's one genre that doesn't usually spring to mind when thinking of popular video games (or video games in general), it's anything text-based. Many gamers see these types of games as something archaic or boring, perhaps preferring to indulge in yet another first-person shooter. The reality, however, is very different.

Although an old genre, interactive fiction and its more modern cousin, the visual novel, are an increasingly thriving segment of the industry. For example, *Clannad HD Edition* by developer Key outranked some of the most popular action game franchises in Steam sales charts.[1] Although initially a mostly Japanese phenomenon, today visual novels are sold and/or downloaded in the millions worldwide. *Doki Doki Literature Club!* by Team Salvato, a free visual novel with optional paid add-ons, reached two million downloads in 2018 and continues to exhibit a massive, global fan following.

The three tools presented in this book, Ren'Py, Twine, and TyranoBuilder, offer everything you need for creating interactive fiction or visual novels for multiple platforms. Best of all, the first two are completely free to use. Gaining experience in any of these exceptional tools also opens doors to other development systems, should the need for this arise, as well as grants you with some general-purpose programming skills.

[1] *Clannad HD* climbed on top of *Grand Theft Auto V* and *Call of Duty: Black Ops III* in the Steam sales charts of 2015. The game also received over $540,000 during its crowdfunding phase. Steam by Valve Software is the largest online distribution platform for video games.

With this book I aim to give you, the budding developer, the means you need to create your very own interactive adventures. Yet this book is not only a DIY manual for fans of text-based games, nor is it a history lesson, although that's certainly a part of it. First and foremost, I want to stir your creative capabilities and use language, any language, to its fullest capacity in creating commercially viable and meaningful titles of your own. Whether you choose humor, romance, fear, or some other part of the human experience as your main influence in your initial games, I urge you to hold nothing back, within limits of course, and enter the fray with complete confidence. At best we are, after all, creating immersive universes others can enjoy and relate to, like writers do.

CHAPTER 1

Stories and How to Craft Them

Words, like 3D graphics, are information. Unlike fancy 3D graphics, syllables put to good use convey a strong element of imaginative interpretation from the reader's part. One's imagination is quite simply sent soaring when reading. All of the abstract potential and lived experience stored in our brains surfaces when interpreting syllables and sentences (at least when one is enjoying what one is reading). It can be argued that a person can therefore provoke more complex inner emotions with pure language than with visual representations of things.

There's a reason literary classics like Homer's *Iliad* and Camus' *The Stranger* live on and storylines of 3D game franchises die after a few years in the market. This is not to downplay a huge part of the industry, but to remind developers that it's okay to challenge the player in co-creating your work in this powerful manner. It's okay to focus on emotional impact, which of course is no way limited to text-based games. But quite often too much emphasis is put on visuals at the expense of a gripping storyline and a rewarding dramatic arc. Outward minimalism can be a great co-creator to bringing out one's artistic ambitions in the world of video games as well.

R. Ciesla, *Game Development with Ren'Py*, https://doi.org/10.1007/978-1-4842-4920-8_1

In this chapter we'll first examine some of the most common drama-related concepts that are useful for anyone working in the field of writing fiction. Then, we'll explore the world of Aristotelian poetics. This is followed by an in-depth look at Joseph Campbell's "monomyth," a very popular trope in the world of entertainment, as well as the associated 12 character archetypes. Finally, we'll delve into some useful practices for all visual novelists.

A Little Introduction to Dramatic Elements

Some terms have become canonized throughout the history of literature, dating back to ancient Greece. Let's take a look at some of the most fundamental concepts and how they relate to newer forms of literature and thus also interactive fiction. These terms are useful for all types of storytelling. We'll start with the central concept of protagonist, then take on more terms in an alphabetical order.

Antagonist

An *antagonist* is a villain in a story (see Figure 1-1), that is, someone who makes life that little bit harder for our protagonist(s). Good antagonists challenge our heroes, providing them with obstacles that enable their growth. What usually separates an antagonist from an anti-hero is the end goal. The former may use dubious means to achieve a more or less morally sound goal. The latter will gladly rule over the world by any means necessary.

Note The following antagonists are best avoided due to oversaturation: moustache-twirling (more or less) southern gentlemen, powerful caped space kings, witches, and evil wizards who are definitely in the last age bracket before "dead" on all official documents.

Figure 1-1. *Dr. Unpleasant, an antagonist (at least in the context of this book) at your service. The evil grin is a giveaway.*

Protagonist

A *protagonist* is a leading character (see Figure 1-2) whose actions and decisions are watched most closely by the reader or gamer. Think the enigmatic Gordon Freeman from the *Half-Life* franchise or The Adventurer from the 1980s *Zork* series of interactive fiction games. More complicated projects may naturally include numerous different protagonists, each with their own challenges and dramatic arcs.

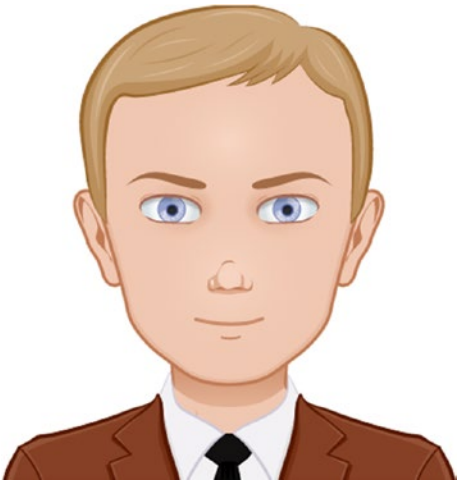

Figure 1-2. *Reginald Pennelegion, the protagonist from Taking Back August, this book's tutorial game*

Not all protagonists are necessarily heroic or even morally sound. The beloved janitor Roger Wilco from the classic *Space Quest* series of games is a bit of a klutz, while Vegeta from the *Dragon Ball Z* universe can be somewhat of a snob (to say the least). Not all main characters need be from the goody-two-shoes school of drama. A bruised and bitter anti-hero can indeed be a fun protagonist to write about and to deliver brutal truths about the human condition in the process.

Alter Ego

An *alter ego* is a personality distinct from a character's usual self and a popular trope in visual novels. Think Clark Kent from the Superman universe. Alter egos may be necessary to hide one's true identity (think secret agent) or they may be borne out of some kind of mental issues, as is the case with characters suffering from multiple personality disorder.

Catharsis

A *catharsis* is sometimes the dramatic purging of a character's emotional baggage and/or stress. It is experienced after the completion of a major task, and it usually grants the character new skills and a peace of mind. In the visual novel sub-genre of dating simulators, forming a relationship or getting married constitutes a form of catharsis. In more fantasy-based games, defeating a powerful dragon or a malicious space lord is perhaps a type of catharsis as well.

Conflict

One of the most important concepts in any type of drama is conflict. Conflict is an often resolvable challenge, pitting a character against other characters or circumstances. The resolution of conflicts results in some type of prize, be it new skills or a better set of prospects for the hero/heroine and their allies.

Conflict isn't limited to the strenuous relationship between a main character and his or her antagonists. It can take place fully within the psyche of the leading character, in the form of phobias, neuroses, or other issues. Conflict can therefore be external or internal or a combination of both. Naturally, conflict can also manifest as political strife or be related to technology; a somewhat popular pop culture trope is "man vs. machine," after all. Great drama often ensues from conflict between humans and society at large, or nature, too.

Cliché

A cliché is an overused concept. Time turns most fresh ideas to clichés eventually. Many fans of visual novels are fine with some of the clichés in the genre, such as the ubiquitous high schooler protagonist. This may be because many people have themselves been an awkward high schooler at some point.

Deus Ex Machina

A relatively popular dramatic device, *deus ex machina* refers to an external, often all-powerful source that resolves some rather unsurmountable difficulties. The expression is Latin for "a god from the machine." Think of a powerful giant robot appearing out of nowhere to help your heroes or perhaps a benign artificial intelligence taking over the proceedings.

Double Entendre

Double entendre refers to a sentence which has two meanings. It can be either intentional or accidental. The former variety is often risqué in its nature, while the latter is not.

- Example #1: *I'm having an old friend for dinner, a cannibal told me once.*
- Example #2: *Something went wrong in the car crash, expert says.*

Exposition

The background information on characters and their everyday lives is called *exposition*. It's needed to make your protagonist more relatable for your audience. Scenes of exposition might explain some of the motivations for the characters in your visual novel, based on their personal history and interests.

Flat/Round Character

A flat character is more or less a background figure. He, she, or it isn't without a purpose, however. They simply aren't given that much time in your saga. Think of a mysterious shopkeeper who sells magic items and vanishes after a transaction.

A round character, on the other hand, is what your heroes and villains are characterized as. They are given the most exposition in your visual novel. They often have rich personalities and complicated motivations for their actions and desires. The word "flat" can also be used again to describe a main character who isn't well-rounded and believable enough to carry the story.

Fourth Wall

A fourth wall refers to agreed-upon invisible wall which divides the events of a dramatic work from its audience. When someone is "breaking the fourth wall," it means a character in a play, movie, visual novel, or other such work acknowledges members of the audience.

Examples of visual novels breaking the fourth wall include *Doki Doki Literature Club!* by Team Salvato (see Chapter 3) and *Snow Sakura* by D.O. to name just two; the genre lends itself well to this practice.

Narration/Narrator

Narration refers to one or more characters addressing the audience/gamers directly, giving information or commenting on the twists in a story. A narrator can be either the protagonist or a separate, often anonymous entity. A narrator usually has more information than the heroes themselves.

Onomatopoeia

This term refers to noises that imitate their own meaning. *Onomatopoeia* is the vocal approximation of the associated sound (see Figure 1-3). Some examples are animal sounds, such as "meow," the feline classic, or "coo" made popular by pigeons. Other examples include "bang" in the context of a gun firing or the clock-inspired "tick tock." You get the idea. Onomatopoeia has been used to great effect in comic books and many visual novels.

Figure 1-3. *Some examples of onomatopoeic visual expression*

Personification

Personification is the approach of giving human attributes to abstract concepts, such as the sun or weather. When applied to non-human beings or objects (e.g., animals), it's known as *anthropomorphism* (see Figure 1-4). This is a very popular approach in art and culture dating back to the earliest days of recorded history. Many successful video game franchises feature personified protagonists and antagonists.

Figure 1-4. *An anthropomorphic egg*

Point of View (POV)

A point of view is simply the angle from which a story is told. This point of view can be divided into three types: objective, omniscient, and limited omniscient. An *objective POV* refers to a character who isn't any more knowledgeable than the audience, whereas a character with an *omniscient POV* knows everything about the proceedings. *A limited omniscient* POV sits between these two.

The typical visual novel protagonist perspective can be therefore described as a *first-person objective POV.* An all-wise oracle character would be described as a *third-person omniscient POV.*

Simile

A simile is simply the comparison of two different things using connecting words such as *like* or *than*.

> For example: *He was cooler than a refrigerated zucchini. She was quiet like a phantom.*

Soliloquy

This term refers to a kind of monologue, which is only aimed at the audience (i.e., the player). During soliloquies other characters present in the scene stay quiet and blissfully ignorant of what was just being said.

Aristotelian Poetics

Greek philosopher **Aristotle** (384–322 BC) perhaps first outlined the still thriving principles of drama in his monumental work, *Poetics*, from 335 BC. Although his concepts may seem outdated to some, they are the core structure behind many popular and long-lived works of literature

and related fields. You may pick and choose the concepts that suit your particular needs as a game designer.

According to Aristotle, all art is a modified imitation of life. Interestingly, he referred to language-based art as "the unnamable art form," dividing it into tragedy, comedy, and the epic poem. Out of these three genres, tragedies and epics carried more value, since they could better convey moral lessons which were paramount back in the day. One may reach the conclusion that morality is often overlooked in current popular culture, especially in video games.

There are six core qualities of Aristotle's tragedies:

1. Morals: An overall noble quality to uphold decent morals.
2. Realism for the audience to relate to.
3. Fitness of character: Appropriate characteristics for the cast (e.g., brave knights, sneaky thieves).
4. Consistency: Characters need to continue living out their established qualities throughout the work.
5. Necessity of action: The law of probability or necessity must govern the work.
6. Idealism: Be truthful, but more beautiful than life.

As for comedy, the genre seemed to present to the world lesser, more frivolous characters and was thus lesser of an art form of the three. The art form of comedy was not entirely without merit in Aristotle's opinion, as it could serve well the purposes of political satire, thus at best reducing the tension between the rulers and the ruled. In modern times some of that logic may be lost. Just think of, say, those numerous comedic films starring **Adam Sandler** which may or may not influence the betterment of society (no offense to Mr. Sandler, of course).

As stated, in addition to tragedy and comedy, Aristotle outlined the genre of epic poetry. These works consisted of four elements: plot, character, thought, and diction. Their subject matter often dealt with ancient gods and those with superhuman abilities. Notable examples of this genre include Homer's *Odyssey* and the aforementioned *Iliad*. The oldest known epic is the Mesopotamian classic *The Epic of Gilgamesh* all the way from 2200 BC no less.

There are nine qualities in Aristotle's epic poems:

1. An epic begins with a declaration of its theme.
2. The story itself often begins in the middle of the action (lat. "in medias res," a common approach in, say, the video game *Prototype* by Radical Entertainment and classic TV episodes of *MacGyver*).
3. In many cases, a muse is invoked (a muse is a goddess who represents a specific type of art or science).
4. The scope of the epic is large, dealing with the entire world or worlds (hence the use of epic as an adjective in popular culture).
5. The cast of characters performs long monologues.
6. Heavy use of repetition.
7. The use of epic similes. They refer to the contrasting of something ordinary to something extraordinary, often spanning several lines (i.e., "The fax machine made noises like a giant wild boar being irate, about to devour the entire office").
8. Emphasis on courage and other heroic ideals.
9. Epic poems embody the relevant society and its values in considerable detail and scope.

The Monomyth: A Hero's Journey

Drama, in all its forms, is an evolving art form. One of the more prominent voices in its study was **Joseph Campbell** (1904–1987), a Professor of Literature at Sarah Lawrence College. He presented the concept of the monomyth to the world with his magnum opus *The Hero with a Thousand Faces* (1949).

Basically, Campbell argued that most sagas in human history are following the same formula. The monomyth can be summoned in a quote from the introduction in the book:

> *A hero ventures forth from the world of common day into a region of supernatural wonder: fabulous forces are there encountered and a decisive victory is won: the hero comes back from this mysterious adventure with the power to bestow boons on his fellow man.*

Not all video games need the monomyth approach, but a text-based game greatly benefits from it. It's a tool that helps you work faster using a tried and tested method. Don't reinvent the wheel when you can simply aim for a rewarding, time-honored approach. You may completely ignore the monomyth in your game making, of course, but it may be somewhat of a risky maneuver. The hero's journey has a tendency to keep the audience on its toes, after all.

The monomyth, that is, the hero's journey, consists of 17 stages, which are often grouped in a number of ways, most often as three separate acts. We'll now take a look at these concepts in the form of a synopsis for a little visual novel, *Taking Back August* by yours truly. We will be creating this game later in the book in three installments using Ren'Py, TyranoBuilder, and Twine.

In the world of visual novels, it's generally a good idea to fully flesh out the story this way before delving into coding. Do yourself a favor: pen a synopsis beforehand – especially if there's more than one person in the team.

Taking Back August – A Synopsis
Act I: Departure

1. The Call to Adventure

The first stage of the hero's journey often presents to the audience the current (and sometimes rather mundane) existence of the protagonist.

Reginald Pennelegion, a government cyber security expert and our protagonist, is browsing nonsense at his desk workstation. He's supposed to be working on a big project, but instead he's drifting into a world of memes, online auctions, and silly video clips. Reginald is still depressed about the passing of his best and only friend at the office, one **Mervyn Popplewell**.

Amidst his continuing browsing, Reginald receives a strange email from his deceased colleague's email address, no less. Startled, he opens the message. It simply states: "Meet me at Hyde Park at seven o'clock tonight. I'll be by the Wellington Arch. Don't tell anyone!"

2. Refusal of the Call

It's not easy to jump head first into adventure. Hesitation is part of both human nature and the hero's journey.

Being very nervous, Reginald darts his eyes across the office premises. Everything seems business as usual. This has to be a sick joke, he mutters to himself. Reginald ponders whether he should report the strange email or just delete it. He decides to keep browsing the Internet and pretending to be working until quitting time.

3. Supernatural Aid

In this stage of the journey, the protagonist seeks out a sage-like figure and possibly gains a special item or skill in the process.

Evening falls. Before clocking off, Reginald decides to investigate the origins of the mysterious email with some outside help. He calls the office tech support person who is an elderly gentleman by the name of **Royston Honeybun.**

Royston tells Reginald there is no technical flaw behind the email – it's genuine. However, if Reginald plans to visit Hyde Park at seven o'clock, Royston says he should pick up a certain item: an old cell phone from one of the office drawers, for secure communication, he's told. Reginald heeds this advice and picks up the phone which was indeed located at a rather obscure location. It's really quite old, looking like it dates back to the 1980s.

4. Crossing the Threshold

There's no going back to the ordinary world now.

It's five past six o'clock. It's still not too late to reach Hyde Park in time. Reginald decides to go for it, come heck or high water. He puts the old phone into his briefcase and leaves. Reginald exits the office feeling rather nervous and unsure of what is waiting for him. But there's no turning back now. He'll take his chances.

5. "Belly of the Whale"

Now, it's time for the first glimpses of real tribulation.

Hyde Park is just a walking distance from Reginald's office. It's getting darker as he makes his way past busy Londoners. The Wellington Arch now

looms in the distance. Eerily, it remains deserted save for our Reginald. No one is there to greet him. Disappointed, he begins his trip home.

Strolling past his job, Reginald is flabbergasted: his office is engulfed in flames! Maybe if he'd done some overtime instead of going to Hyde Park, he could've prevented the fire. The fire brigade is on its way, but the damage is done: months or years of work may have been destroyed for the whole department.

Act II: Initiation

6. The Road of Trials

At this stage of the monomyth, it's time to test our protagonist's resolve to see what he or she is made of. The number of trials you put your hero/heroine through is, of course, up to you.

Panicking, Reginald is alarmed by the phone in his briefcase. The ancient thing is ringing. Barely managing to answer the call, Reginald hears a strange voice simply telling him to "Get the pink DVD under the plant and get it out of there. You have ten minutes before it's devoured by fire." The caller hangs up. What was he referring to?

It dawns to Reginald: it was about August, the prototype for the first fully cyber-attack proof firewall to be implemented in all of Her Majesty's agencies later that year. No parts of it can perish. Reginald navigates through the smoke and siren lights and manages to climb up a fire ladder to his office while no one is watching. Clutching his briefcase to shield from fire, he stumbles around the workplace to fetch the DVD with parts of August on it. Using all of his willpower, Reginald manages to retrieve it and return to ground floor, exhausted and coughing hard.

The phone in the briefcase rings again. The same voice answers. "Well done," it tells a startled Reginald Pennelegion, cyber security expert extraordinaire. The voice continues: "Go home and stay there for further instructions. Protect the disc with your life, if necessary."

7. The Meeting with the Goddess

This stage of the journey may or may not include a literal goddess. Rather, at this point the hero or heroine is receiving aid in some form from a selfless character. It may be in the form of encouragement or advice from a romantic interest. Perhaps this juncture of your story entails a set of special items. Meeting the goddess deals with anything that helps your protagonist in times of stress. Everyone needs a helping hand ever now and then.

The adrenaline begins to slowly wear off as Reginald paces toward his residence. He's about to open the apartment door when the old phone rings again. This time, it's a woman's voice. "Whatever you do, don't go home! Leave London right now. Go as far North as you can. A train is your best bet. I'll call again. Go! And don't lose the disc!"

Reginald ponders for a few seconds. He begins to hear a strange humming noise coming from his flat. Putting his ear against the door, the noise gets louder. He never leaves his appliances running. Something is up. Reginald decides to heed the girl's advice and leave. Running down the street toward the train station, he looks back once more. A human-like figure with unnaturally large eyes stares back. It's dressed in light blue uniform, briefly reminding him of a life-sized action figure of some kind. Now almost tasting blood, Reginald dashes away from the sight as fast as he can.

8. Woman as Temptress

The eighth stage in the hero's journey consists of some kind of distraction that seeks to derail your protagonist. It doesn't have to be necessarily a temptress or any variety of the femme fatale

(i.e., the seductive man-eater). It can be an activity, a proposition of some kind, that offers a way out of the whole saga. It is perhaps the very last chance to return to the former life for your protagonist.

After running what felt like a marathon, Reginald reaches Euston train station, panting heavily. No one seems to have been following him. He remembers the woman's advice and looks for the next northbound train. One leaves to Nottingham in 15 minutes. That's north enough, Reginald says to himself. He buys a ticket and prepares to board the train. "Excuse me!" he suddenly hears. Out of nowhere, a dark-haired woman dashes in front of him, blocking entrance to the train. "Is this the train to Nottingham?" She gives a wide smile.

Reginald notices the woman has a name tag with his work logo on it. But the way she appeared out of nowhere makes her suspect. He confirms this is the correct train and pushes past her. Reginald finds his seat and soon the train starts its trek. The woman sits opposite to him and introduces herself "I'm Claire. We work at the same firm, I think. I'm in the cyber-securities department." Reginald reluctantly introduces himself and gazes out of the window, watching London disappear little by little.

Noticing Reginald's lack of enthusiasm for pleasantries, Claire dons a pair of headphones and closes her eyes. Reginald is pleased there's no more small talk to interrupt his flow of thoughts. He's pondering on his next move. Where is he supposed to go after he arrives in Nottingham? Reginald has no idea, but it was the advice he was given. Pulling out her headphones, Claire suddenly offers a drink from a hip flask. "You know, to pass the time with an esteemed colleague?" Reginald declines. "Suit yourself," Claire says taking a long sip from her flask.

Passing rows of drowsy commuters, a bald man in blue farmer's overalls approaches Reginald and Claire. He seems out of place and somewhat strange in his mannerisms. He triggers something in Reginald, who instinctively moves toward the corridor. Claire glances over and nods at the strange man. Reginald begins pacing down the train corridor to the

opposite direction. The bald man follows. Reginald is being chased. He finds his way into a toilet and locks the door. Loud knocks sound off in his eardrums. He's trapped.

9. Atonement with the Father

During this dramatic stage, the protagonist makes peace with whomever holds most power in his or her journey. He or she reconciles with a mentor. This may or may not be an older male figure.

Reginald had intuitively held on to his briefcase with the phone still in it. He switches it on, still not fully knowing how it works. After a few beeps, it automatically connects to someone: it's the woman who told him to go north. "You're on your way. Good. Are they after you?" she asks. Reginald shares his predicament over the phone. "Just wait. Stay put. They're not authorized to use full force. Just wait. Then I need you to leave the train at the next stop. Do you hear me?" The woman hangs up. Puzzled, Reginald does what he's told. The knocking continues for another 5 minutes or so then abruptly stops.

Reginald opens the toilet door warily; there's no one behind it. Claire is gone as is the bald man. Reginald hears an announcement: next stop Bedford. He was told to leave so he positions himself near the train doors, ready to dash out. As soon as the train stops, Reginald is out on the streets, looking over his shoulder. No one seems to be following him.

Only a mere minute into the crowds, Reginald is grabbed by the arm. "I think we should find a quieter venue to talk," a vaguely familiar voice tells him. It's Royston Honeybun from tech support. "I sent you the email in your friend's name. Sorry about that. I had to get you out of there," he says. The two find a free park bench, and Mr. Honeybun briefs Reginald on the situation at hand. The upcoming government firewall, August, is designed to be perfect. But Reginald made it too perfect. A Faction of the government needs backdoors in it, vulnerabilities which can be utilized at their will.

Now they want Reginald to undo some of his own work. Their people couldn't figure out how to decrypt these key parts of the code. Reginald must give them these backdoors at any cost. These people are very adamant about it. Thing is, this Faction is not on the people's side. Reginald is told to wait for a call. It'll be Raine, he spoke with her on the train. Stay put and god save the Queen, Mr. Honeybun says and disappears into the night. "Don't lose the phone. It's the only one they can't eavesdrop on," Mr. Honeybun informs Reginald. Our befuddled protagonist stays behind on the park bench, digesting everything he was just told.

10. Apotheosis (Becoming Divine)

Not necessarily having anything to do with divinity or magic, apotheosis refers to the stage where the protagonist achieves greater wisdom and/or resources, making the rest of the journey safer.

Only a mere minute or so later, the old mobile phone rings. "Raine?" Reginald utters, answering the call. "You met with Honeybun. Good. Yes, it's me, Raine," a female voice explains. She tells Reginald he must ditch the phone as its being tracked by "them": its signal encryption will be compromised shortly. Raine also tells him if the "overalls man" finds him now, it's not just over for him: the entirety of Britain and later the rest of Europe are in jeopardy.

Reginald is given a new set of coordinates and told he's guaranteed complete safety in this new location. The Faction can't ever find him there. Reginald drops the phone and embarks on the trip right away. A rather complicated 3-day journey on trains, ferries, and fishing boats eventually take him to Bouvet Island, Norway, the most remote island on the planet. A human figure welcomes Reginald as he makes landfall in a blizzard. Taking off his goggles, the host become recognizable: it's Mervyn Popplewell, Reginald's supposedly dead former colleague. He shakes Reginald's gloved hand and says "Welcome to Bouvet Island, or limbo as I call it!"

11. The Ultimate Boon (Reaching the Quest's Goal)

At this stage the protagonist reaches his or her goal, which may be the acquisition of a special item or the completion of a specific task. However, the story doesn't end here: he or she still needs to get back safely to the ordinary world.

After being escorted into a four-room underground bunker structure, Mervyn informs Reginald he had to disappear from the world to be able to complete his task, which he did. True government assigned him with the duty of coming up with the means of fighting the Faction one on one. "See, they're not exactly human," Mervyn says and continues, "They're semi-autonomous beings made from artificial flesh, controlled by other beings – from a different galaxy." Reginald finds it hard to believe, but humors his resurrected former colleague anyway, who goes on to say: "Faction members would pass any medical you and I would. They're indistinguishable from human beings with two exceptions: first, they are completely impervious to heat and fire. Second, they don't need to breathe. They simply don't need oxygen to function."

Reginald is briefed he has a different, equally important task. He must make sure the Faction never gets the backdoors they want in August, the Britain-wide firewall-to-be. If they get them, they can infuse pretty much every electronic device with malicious code that will render the entire country vulnerable for manipulation and attack, shutting down communications and wiping out or modifying crucial databases. This attack is to take place almost immediately after the electronic takeover, within 5–10 minutes to be exact. After that the Faction would move on to other parts of Europe and finally the rest of the world.

As long as Reginald is on Bouvet Island, he's unreachable by any hostile forces. They don't apparently have a plan B, according to British intelligence. "You're here to make August invulnerable. You must make

modifications so after implementing them, not even you can undo them," Mervyn explains and continues, "You do have the pink DVD, don't you?" to which Reginald responds by taking the disc out of his briefcase. It contains instructions how to create said modifications and also perfect plausible deniability, a fail-safe system should August fall in the wrong hands. The disc is classified far beyond "top secret." To think it was kept under an office plant, Reginald wonders. "Alright, let's get to work," Mervyn says, "It shouldn't take more than a couple of weeks. And remember, if you tell anyone, well, make sure you don't. Your country depends on it."

In its current state, August is the biggest liability to world peace there is. After all he's been through, Reginald complies and starts studying the techniques immediately the very same night. Astoundingly, he completes the task by the next morning. August is no longer modifiable by anyone, not even Reginald. All future backdoors have been made impossible to implement and Reginald now knows how to create complete plausible deniability even if captured (and tortured) by enemy agents. He is about to submit the modifications to the firewall to the State Department from Mervyn's beat-up laptop computer with the slowest Internet connection he's ever experienced. It's the northern lights, Mervyn explains. Ionic activity slows down online business over here. Finally, Reginald presses "Send." Well done, Mervyn says. "August is carved in stone now, mate," he says while putting the pink DVD through a top-of-the-range shredding machine, turning it into nothing but a pile of dust.

Act III: Return

12. Refusal of the Return

After all the adventures a protagonist has experienced, getting back to the ordinary world may not be so appealing. The 12th stage deals with this crisis.

After a mere 2 days in the bunker, it begins to feel a second home to Reginald. The outside world is dangerous, unpredictable. Food delivery is provided weekly to the island by the British government, including items like caviar, avocado with shrimp, and Belgian waffles. Reginald has completed his task, going well beyond the call of duty as a mere cyber security expert. A solitary man, he simply has nothing to go back to.

On the third day in the bunker, after filling in the blanks of their personal lives, Mervyn tells he's going back to England. A ferry is to pick him up some hours later. After that he'll work undercover for the government, dealing with the Faction whenever one of their agents may appear. "They're fairly easy to spot, especially during the summer months," Mervyn quips. "You're free to stay behind, but are you sure you wouldn't want to come along?" Mervyn presents one last time. Reginald declines politely. The time comes for the two to depart. The former colleagues and current special agents shake hands in the cold Norwegian winds. Mervyn disappears behind the horizon and Reginald goes back to his new home, the four-room bunker.

The government has promised to install the latest and greatest electronics to their base in Bouvet Island. Reginald feels resigned, but content. He made a difference in the world, after all. Although completely isolated, Reginald doesn't miss anyone or anything. This freezing limbo, as Mervyn called it, is a little arctic paradise. Reginald looks up to the sky. Bright blue and green northern lights brighten up the skies. He'd forgotten such a sight existed anywhere on the planet. Reginald is at peace. He's found home.

13. The Magical Flight

Not usually taken literally, the magical flight refers to the troubles that await your protagonist as he or she flees from the extraordinary world. Typically it's a fight or flight situation, a tough one, where the hero must muster all available strength to survive.

During his third day on the island, Reginald is startled by a noise. At first it seemed to be coming somewhere inside the bunker, but it soon became clear it's originating from the surrounding sea. Reginald can't pinpoint its exact location, but it seems to be getting louder. He hurriedly puts on his winter kit and goes outside to investigate. Reginald pinpoints the source of the noise and associates it with a small orange dot in the horizon. It's obviously a boat of some sorts, slowly making its way toward Bouvet Island, which was supposed to be the safest location on Earth for Reginald and friends. If the craft's crew is hostile, clearly the perimeter has been breached.

Reginald flounders back to the bunker, locking up the doors carefully. There don't seem to be any tools for self-defense in it. The noise outside is getting stronger. Reginald remembers what Raine told him: members of Faction are impervious to heat. Perhaps they're unusually sensitive to cold. Reginald searches the entire bunker for any cutting tools. Apart from a few dull dining knives, he comes up short. Outside, the orange dot has turned into some kind of amphibious craft, gliding over the icy sea with ease.

The craft makes contact with terra firma, then parking itself some hundred yards from the bunker. Reginald can do little else but observe through the fortified bunker windows. After a few minutes of nothing but howling wind, a somewhat petite female form leaves the craft and strolls toward Reginald's residence. She wears thick black rimmed glasses and a dark blue winter jacket. There's a knock on the entrance. "Reginald, it's me, Raine," she informs and continues, "We must leave now."

Reginald hesitantly opens the bunker door and steps outside. Raine offers him a firm handshake and tells him there's no time to explain. "If you choose to stay, you may have a hard time fending them off," she says. Apparently the Faction boys have made landfall, too. Reginald and Raine hurry over to the hovercraft, manned by two other agents of the British government. There's no sight of any antagonists yet. Now aboard the craft and scurrying across the waves, Reginald and Raine notice a second hovercraft emerging from the mist. "It's them," Raine tells Reginald.

The black Faction craft is soon on the starboard side of Raine and Reginald with more than a dozen of their stocky troopers aboard, wearing thick layers of arctic clothing and military boots. Their black hovercraft mirrors the course of that of Raine's and soon begins to dash against it. Several of the agents pounce and hold on to Raine's craft, a few even managing to climb aboard. She yells to Reginald: "Kick them off!" They start stomping onto the antagonist agents slowing them down. However, none of them fall to the icy water, instead making their way on to deck of Raine's hovercraft. She and Reginald back off inside the craft canopy as it gets overrun.

"We're losing her!" the captain of the vessel says as the heavily reinforced cabin door begins to come off its hinges. The antagonists clearly possess extraordinary strength. "Where are your guns?" Reginald yells in desperation. Raine tells they aren't issued any. They wouldn't do any good if they did. "Get knives and stabbing weapons! Tear off their uniforms and expose them to the cold! Open all hatches!" Raine orders the crew. Reginald, along with one of the crew members, scrambles to find any self-defense tools inside the hovercraft storage spaces. At that very moment, the cabin door falls to the floor. At least half a dozen antagonists are about to storm in.

14. Rescue from Without

Often the stresses of a grand adventure take their toll on even the most heroic of protagonists. In the 14th stage, he or she receives assistance from a powerful ally.

At the exact moment the cabin is rushed by Faction forces, a new sharp noise is introduced into the already intense cacophony. A stream of water begins to flood the hovercraft cabin from the skies. It's much more intense than sea spray or rain. Reginald identifies the emerging sound as a helicopter. "It's Roy," Raine yells and continues, "It has to be him!" The antagonists begin to retreat and leap back onto their vessel. One of

them is seen tearing off his winter uniform, making wretched noises while being pulled inside the antagonist craft by the others. A few of the Faction troopers fall into the ocean. Noticing this, Raine says: "Don't worry Reg. They can't swim but they don't need air to breathe. Just a longer walk home for those two!" The hostile craft breaks off its course and heads off somewhere beyond the horizon.

Now free of imminent threats, the helicopter hovers low, and it is indeed Royston Honeybun at the helm. He waves toward a specific direction. The captain of the hovercraft nods, and they both begin advancing toward this destination. "I believe Roy just flushed out all of the dirt," Raine says. Royston's voice starts crackling from the vessel's radio: "Not bad for an old office geek, eh? Follow me." The hovercraft makes landfall somewhere in the coast of Norway. An unremarkable car awaits Reginald, Raine, and Royston. "There's a private jet waiting for us at Oslo Airport. Let's get going," Royston says, opening a passenger door.

After a long drive, the three enter the airport through an unusual route, far from where any typical passengers would be entering the area. A rather run-down jet awaits the group on a runway. Immediately after our protagonists are done settling in their seats, the plane begins its takeoff. "You may have not had the time to read the news," Royston says, offering Reginald a tablet computer. A headline startles him: "Buckingham Palace and Number Ten on lockdown." In an act of desperation and true to their nature, Faction has decided to put Britain in a chokehold by taking over the two main government bodies. "Their demands? The full source code to August. And you with it, Reginald," Royston explains. "They have guaranteed you safety and we believe them. But only to an extent," Royston continues.

The team arrives in London after another long drive, this time from Heathrow. "We have snipers all over the place," Royston says. "Although set back, the Faction isn't powerless yet. And whatever happens, they have their patsies ready for the media to blame it all on." "And Her Majesty?" Reginald asks and is told she and the rest of the Royal Family have been

taken into a safe environment. However, the prime minister is still missing. The public will be kept unaware of this fact for obvious reasons.

Reginald is told he needs to go the meeting area alone and reminded of the numerous SAS snipers in the area. The Faction managed to enter Buckingham Palace which has its surrounding areas sealed off from the public for now. "One more thing," Raine says. "We have numerous reports of masses of varying sizes becoming dislodged in the bottom of Windermere, Llyn Tegid, and Loch Ness. This probably has something to do with the proceedings at hand. I thought you'd like to know, Reginald."

"Your opponents number in the tens of thousands, Reggy boy," Royston says and continues, "But we still have upper hand, believe it or not. We still got you. Good luck!" Reginald begins his stroll toward the main entrance of Buckingham Palace. "Wait!" Raine yells, "I'll join you."

15. The Crossing of the Return Threshold

This stage deals with the challenges related to the integration of new skills and wisdom in the ordinary world. It may or may not include a duel with a powerful opponent with the protagonist using all his or her newly gained powers to their very fullest.

A duo of Faction operatives open the doors to Buckingham Palace. Raine and Reginald are kept a careful eye on as they enter the premises after being searched for weapons of any kind. Inside, an absolute silence makes every footstep sound like a hundred decibels. Our friends are escorted into the Throne Room, where two familiar faces await them: it's Claire from the train and her bodyguard, the overalls man. "Welcome to the palace, friends," Claire says, "Would you like some refreshments?" Reginald declines her offer. "Very well, we're all on a tight schedule I believe," she responds coldly and waves them to take seats opposite to her.

Raine and Reginald take their seats under the stern, cold eyes of the overalls man. Claire informs them the Faction still wants the code for the

backdoor to August. It would take approximately seven decades using current government devices to access that part of the firewall. The Faction could decrypt it with their technology so that after a year or two they would have full access. But time is of the essence for them. "As it is for you as well, my friends," Claire says and continues, "Failure to do so will result in two things: the execution of your prime minister and a massive electromagnetic pulse which will cripple not only your capital city, but the entirety of your country."

The overalls man gives Reginald a tablet computer. "Do the right thing, Reginald darling," Claire says, joining him behind the tablet. Reginald inserts the key codes necessary to access August the firewall. He activates the system with all of the requested backdoors open – or so it seems. "Very good, Mr. Pennelegion," Claire says with a smile, grabbing the tablet from Reginald and handing it over to the overalls man.

The Faction shouldn't notice anything until about 5–10 minutes in. For all intents and purposes, their plan is at work. "You're staying with us until we have confirmation. It shouldn't take more than, say, 5–10 minutes. After that, you'll get the coordinates to your precious prime minister and you're free to leave," Claire informs. The overalls man keeps his eyes on the tablet, paying no mind to any other proceedings at hand.

Time passes slowly with Claire eyeing Reginald and Raine. Eventually, the overalls man nods to Claire who in turn seems to become more at ease. "Excellent. We have a deal. The coordinates are now being transferred into your tablet," she says and continues, "You're free to leave." Reginald leaves the Throne Room with Raine under the watchful eyes of the Faction troopers, now lining up the corridors en masse. Walking slowly toward the front doors, Raine notices something in the corner of her eye: one of the guards is having difficulty maintaining his balance. Soon, a few more seem to lose composure and stagger. The air turns freezing cold. Raine whispers to Reginald: "Do you feel that? That's our cue to run." A few remaining guards attempt to go after our duo, but instead fall flat on the floor. Now outside, shots are fired. It's the government snipers at work. "We fumigated

the palace air conditioning with our special blend: iodine and liquid nitrogen mist. Their Achilles's heel, Reg," Raine says and adds, "An SAS team is on its way to get our prime minister. We expect him back in less than an hour."

16. Master of Two Worlds

At this stage the protagonist becomes comfortable with both the ordinary world and the extraordinary one, being no longer puzzled by the unusual events that just unfolded. A sense of calm confidence awakens in the hero/heroine.

Told to take a few days off, Reginald manages to enter his home without any hassle. Gone are the strange sounds and uninvited guests. He was briefed 90% of at-large Faction troops have been defeated. The remaining 10% is heading back to their abode in the deepest depths of the lakes and oceans. August the firewall is fully functional and running without any backdoors.

Reginald inspects the ancient mobile phone he once used. He feels an odd attachment to it and the mystery it once held. Reginald was also briefed this wasn't the last attempt of invasion by Faction. It wasn't even the first. They surface once every 20 years or so, getting progressively more and more furious in their plans for world domination.

17. Freedom to Live

Basically, at the last stage the protagonist comes to full terms with mortality. He or she isn't troubled by past mistakes or future threats, instead choosing to live in the present moment only. A fearlessness sets in.

Returning to work, Reginald is greeted by renovators working on the fire-damaged office. New computers and desks have already been carried in. As per his usual daily tasks, he supervises the operation of August, and all logs appear to show only everyday Internet activities.

Suddenly Royston shows up. It's his last day at work and then it's off to start living those pensioner's golden years. He asks our protagonist: "Reg, old friend, how would you like to work in tech support?" Being startled by the suggestion of a more menial position, Reginald reads between the lines and agrees to move his post. Before moving on to a more secluded part of the building, he takes one last look at the ancient mobile phone before storing it in a very special filing cabinet, ready for use.

The End

The synopsis for *Taking Back August* is but one example on how to use the monomyth outlined by Joseph Campbell. Again, several works in popular culture, including video games, have incorporated this approach successfully to entice and excite the masses. While not a necessary tool by any means, perhaps the structure of the monomyth triggers something primordial in all of us, like it did for the ancient Greeks and Romans.

The 12 Character Archetypes

The founder of analytical psychology, **Carl Jung** (1875–1961), inspired Joseph Campbell and popularized the notion that there have been basically 12 archetypes of characters present in storytelling ever since the dawn of time. These archetypes have appeared in Aristotle's peers' work, Shakespeare's plays, and they continue to thrive in modern video games. Understanding and consciously using archetypes helps you get a hold on the dramatic arcs in your visual novels. They simply make your story more relatable.

Consistency is important in any work of drama, including interactive fiction. A character who fluctuates irrationally between different

approaches and archetypes is annoying at best. Interesting characters usually have traits from several different archetypes, but a single core function. Although some form of transformation may take place within a character's psyche, especially in the case of the leading hero, the core identity rarely changes.

All archetypes have a positive and a negative variety. There's the hero, a brave individual with sound morals. Then there's the anti-hero, a flawed person who barely manages to complete his or her adventures in a satisfactory manner, possibly wrecking quite a few lives in the process.

1. The Hero

The hero is the main protagonist in any saga. He or she faces often seemingly unsurmountable challenges, embarks on a fantastic journey, experiences loss, and returns to his or her tribe a wiser person.

> Examples: Arthur Dent from *The Hitchhiker's Guide to the Galaxy* by Infocom, Phoenix Wright from *Phoenix Wright: Ace Attorney* by Capcom, Reginald Pennelegion from *Taking Back August* by Robert Ciesla, and Luke Skywalker from *Star Wars*

2. John/Jane Doe

He or she is the average citizen who just wants to belong. Not a risk-taker, he or she plays it safe most of the time. A relatable, but sometimes unremarkable, individual who goes with the flow and may be used to embody apathy and collectivism.

> Examples: The Woodcutter and his wife in *King's Quest: A Quest for the Throne* by Activision and Uncle Owen and Aunt Beru from *Star Wars*

3. The Rebel

Whether cast in an antagonist's or a good guy's role, the rebel makes his own rules. He can be destructive if his demands aren't met. The rebel is prepared to go to any length to attain the goals at hand. He is tempted and often succumbs to the dark side of morality.

> Examples: Miles Edgeworth from *Phoenix Wright: Ace Attorney* by Capcom and Han Solo from *Star Wars*

4. The Joker

The joker is often a somewhat passive character, not contributing that much to the most dramatic parts of the story. His or her mission is rather to provide levity and elevate the mood of both the protagonist and the reader amidst turbulent times.

> Examples: Zaphod Beeblebrox from *The Hitchhiker's Guide to the Galaxy* by Infocom, Kano Kirishima from *Air* by Key, Jack Dalton from *MacGyver*, and Krusty the Clown from *The Simpsons*

5. The Ruler

A ruler can be either benevolent or a tyrant. He or she is usually the main villain or the gray eminence in works of drama, working behind the scenes and manipulating others.

> Examples: The Wizard of Frobozz from *Zork II* by Infocom, Vogon Jeltz from *The Hitchhiker's Guide to the Galaxy* by Infocom, and Dick Jones from *Robocop*

6. The Sage

A sage is the wise old person present in many sagas. He or she has a hunger for the truth and can offer words of wisdom to the protagonist at a time of need. Sages value knowledge over most other things in life, often leading a life of solitude reading or writing books.

> Examples: Ochimusha Master from *_Summer* by Hooksoft, Mishio Amano from *Kanon* by Key, Royston Honeybun from *Taking Back August* by Robert Ciesla, and Lisa Simpson from *The Simpsons*

7. The Magician

An archetype similar to the sage, a magician is different in his or her approach to knowledge. Instead of merely learning theory, the magician is keen to apply it. He or she wants to understand and transform the world. In their negative pole, magicians can be very destructive. A magician's hunger for power can turn out to be his or her downfall.

> Examples: The Dungeon Master from *Zork III* by Infocom, Krill from *Enchanter* by Infocom, and Dr. Emmett "Doc" Brown from *Back to the Future*

8. The Creator

Often an innovative scientist or a prolific artist, a creator has a one-track mind for his or her craft. Creators are committed and often borderline fanatic about their interest, whether it be art or some branch of science.

> Example: Dr. Roach from *Fish!* by Magnetic Scrolls, Dr. Abraham Perelman from *A Mind Forever Voyaging* by Infocom, and Dr. Noonian Soong from *Star Trek: The Next Generation*

9. The Lover

Usually the main love interest of the hero, a lover is there to provide more or less unconditional emotional support. Not limited to a romantic capacity, this archetype is generally interested in maintaining peace and harmony between all, whenever possible.

> Examples: Trillian from *The Hitchhiker's Guide to the Galaxy* by Infocom, Wakana Shimazu from *_Summer* by Hooksoft, Raine from *Taking Back August* by Robert Ciesla, and Juliet from *Romeo and Juliet* by Shakespeare

10. The Innocent One

Providing support and a moral compass, the innocent ones can be gullible, but come with a heart of gold. Probably the most selfless of all archetypes, an innocent one may go so far as to self-sacrifice for a greater cause.

> Examples: Floyd the robot in *Planetfall* by Infocom, Hyun-ae an artificial intelligence from *Analogue: A Hate Story* by Christine Love, and Rebecca "Newt" Jorden from *Aliens*

11. The Explorer

Explorers are on a lifelong quest for independence. They strive to be self-sufficient and adventurous, getting bored easily. Explorers gave us new continents and planets to colonize. Their drive for expansion of our awareness benefits us all. However, they might find themselves, and their companions, in dire situations due to their recklessness.

Examples: Ford Prefect from *The Hitchhiker's Guide to the Galaxy* by Infocom, Mervyn Popplewell from *Taking Back August* by Robert Ciesla, and Indiana Jones from *Indiana Jones*

12. The Healer

Empathetic and altruistic, healers express themselves by helping others. They get pleasure in their ability to mend hearts and fix things. However, healers are known to enable negative behaviors in others as their highest priority is to alleviate suffering. As a result, some healers may become bitter if they find out they have been used one time too many.

Examples: Yumemi Hoshino from *Planetarian: The Reverie of a Little Planet* by Key and Dr. Frasier Crane from *Cheers* and *Frasier*

Ten Visual Novel Good Practices

Although this book offers a comprehensive look at various types of text-based games, the star of the show (and the financially most viable option in 2019 and beyond) is the modern-era visual novel. Writing in this genre benefits from certain practices that have provided useful for presenting visual novels over the decades. We'll now take a look at some of these most crucial writing techniques. Of course, you're free to use these tips only to the extent you desire.

1. Put the Story First

As previously stated in this chapter, a good synopsis is a great idea before embarking on any technical matters when it comes to the visual novel. It's a roadmap that aids you (or your team) in creating a consistent piece

of interactive art. It pays to work your way through tutorials at first, yes, but resist the temptation to jump right in when it comes to your first serious project.

2. Choose the Engine Carefully

The game-making scene in 2019 is vibrant and full of great products, all more or less in direct competition with one another. Naturally, many of them are genre-specific, and as the title of this book so boldly reveals, some are catered for the visual novel enthusiasts. However, not all game engines may be suitable for your skill level, project, or the way you prefer to work. Study these engines before starting work on your visual novel: what does it offer? Is it what your game works best with?

In this era of game-making tools, it's mostly unnecessary to invest time in getting to know the inner workings of a general-purpose programming language, such as C++, if your goal is to produce a visual novel. However, a working knowledge on the basics of programming can't hurt and are actually beneficial regardless of the tools you decide to use.

3. Don't Overlook the Audiovisuals

Character graphics, backgrounds, and music are very important atmosphere builders in visual novels, too. Put focus on them. If you're unsure of your own ability to create commercially viable audiovisual assets, hire and/or befriend someone who isn't. It's better to have no visuals than amateurish or stock library graphics. Musical cues, too, enhance your game and can signal important events to the players.

Be careful with recording your own voice acting. If it's done poorly, it will reflect very badly on the rest of your game, no matter how great it is in other departments. It's best to use professional voice actors or none at all in your visual novels.

And although they may seem superfluous, special effects such as *transitions* can add that extra layer of polish to your products. Don't overdo them, but consider experimenting with every technique your chosen game engine provides to fade-in and fade-out and add glitter to your games.

4. Make Your Characters Grow

Change is generally considered fascinating in any variety of drama. A protagonist or other character who starts off as a, say, timid high school nerd and at the end of the game is still a timid high school nerd may not excite your potential customers much. The most relevant characters in your story should have an arc comprising taking on challenges and gaining wisdom in the process. Give your characters goals, challenges, and rewards.

5. Honor the Sub-genre of Your Visual Novel

Players usually have certain expectations when they're choosing to play a specific visual novel. This can range from expecting erotic content if the title of a game suggests it to maintaining the key elements of a dating sim throughout a game. Sudden genre skipping may frustrate gamers to the point of not wanting to spend time on your products anymore. Decide early on what the genre of your visual novel is, and commit to it. You can experiment with other genres later on in your career, after all.

6. Use Clichés Wisely

Most of the creativity in the game industry is in the visual novel. However, in an era of thousands of visual novels for all major platforms, clichés spread fast and only get you so far. There's very little market for yet another *time loop* (i.e., the movie *Groundhog Day*) or a *sickly girl scenario* – unless you manage to be exceptionally gifted in its making.

Being unique in your premises, characters, and approaches gets you noticed, especially if you're trying to break into the market. Think *Doki Doki Literature Club!* by Team Salvato with its sinister inner workings (completely in contrast with the cute characters) or *Open Sorcery* by Open Sorcery Games which so eloquently conveys the inner world of a firewall program.

Then again, certain types of visual novels thrive on well-worn tropes and clichés. They are to be expected in dating sims, for one; it may be hard to imagine one without *love meters* and/or a limited in-game time frame to work with. These and many other tropes will be looked into in detail in Chapter 3 of this book.

7. Trim Unnecessary Elements

Don't bring in a pizza delivery guy unless he has a more profound meaning than providing your protagonists with low-grade sustenance. Maybe he's an awkward ex of your protagonist? Maybe "he did it"? Who knows, but everything and everybody should have actual meaning within the confines of your game's universe. Don't include superfluous items or settings either. They only confuse and frustrate your audience.

Chekhov's Gun is a classic dramatic principle which states that all elements included in a story must be necessary to it. The principle takes its name from **Anton Chekhov** (1860–1904), a Russian playwright who popularized the concept. First used in traditional stagecraft, it applies perfectly to visual novels as well.

8. Bond with Your Audience

You may or may not choose an exotic locale for your game, such as a space station, an alternate dimension, or a universe where vegan hamburgers eat people. That's all well and good, but no matter how otherworldly your games get, you should strive to focus on a degree of relatability in your characters and their challenges.

Psychedelia is fun, but excessive tripping doesn't usually work in a video game context. Common human goals and motivations include acceptance, vengeance, healing, forgiveness, self-discovery, and sharing. Incorporate some of those in your characters to guarantee at least a degree of bonding with your audience. The goal of "eating a human" while being a vegan hamburger in and of itself may not be enough to achieve rapport.

9. Only Provide the Endings Your Story Needs

Visual novels are known for their multiple endings. And that's all well and good. These do provide longevity and replayability, after all. Of course, you may be interested in creating a game with exactly one ending, that is, *a linear visual novel,* such as most titles in the popular *Ace Attorney* franchise. But in most cases, instead of focusing on the amount of endings, spend your time on their quality. A couple of startling, dramatic endings is better than a dozen strange and out-of-place ones.

10. Indulge in Forced Reading Sparingly

Forced reading refers to unskippable dialogue. It can create suspense and enhance the dramatic proceedings – if done sparingly. It can be a frustrating experience for your customers if done to an unnecessary extent. Most text should be skippable in a visual novel. At the very least, make sure you allow for personalized adjustments on how promptly the text appears onscreen – most tools, such as Ren'Py, have that functionality built in. Forced reading may work best during the final stages of your adventure or during exceptionally dramatic scenes.

Working for the Visual Novel Industry

The writing creates the novel, visual or traditional. But usually there's more to it than that. Whether you're working as a solitary developer or a part of a team, it's important to understand all of the fields involved in the genre of visual novel and how they relate to the role of the writer.

Also, the more skills you acquire as a developer, the more valuable you become to any industry as a whole. Although many visual novels are indeed creations of the one-person "team," there are many opportunities in an industry of great size. You may not have to create a single visual novel from top to bottom to become an asset to this business.

Now we'll take a closer look at some of the specific fields within the visual novel industry and how the art of writing applies to them.

Visuals and Animation

Although visuals don't make the visual novel, they are obviously an important factor in whether a game is a success or not (see Figure 1-5). In this genre, graphical assets can be divided roughly into *backgrounds* and *characters* (also referred to as *character sprites)*. Often the neglected asset, background graphics can enhance a game's atmosphere. They can be either photographic, drawings-based, computer generated, or any combination of these.

Figure 1-5. *SC2VN by Team Eleven features both impressive characters and backgrounds*

Character sprites are often the stars of a visual novel. They need to be expressive enough to convey many degrees of emotion and lure the player into the game's universe. In rare cases, a contrast between chirpy audiovisuals and some dark writing creates a shock effect, as is the case with the 2017 hit game *Doki Doki Literature Club!* (see Chapter 3). Most of the time, however, the style in which the visuals are created should embody the spirit of the writing for maximum emotional impact. If you have outsourced the production of your game's visuals, you should have as many meetings as are needed to hone in on the exact look you feel your game needs to succeed.

Developers, especially at the earlier stages of their careers, are pretty much starved for high-quality character graphics. They can make or break a game, after all, regardless of the writing. Having talent as a visual artist in any medium offers many opportunities to get your foot in the door.

Audio Production and Voice Acting

Ever since CD-based storage became mainstream in the mid-1990s, visual novels have been known to extensively incorporate speech. A writer choosing to use voice acting in his or her games must know exactly all the abilities and limitations the voice acting cast possesses. After the initial meetings, get to know the people behind the voices as well as you can.

While no truly convincing music generator software exists as of 2019, licensing options are plentiful. There's several services offering game soundtracks for free or for a nominal fee. Also, some creators of visual novels have either an in-house composer or are themselves semi-pro musicians. All this means making it solely as a composer in the world of visual novels can be tricky.

Programming

The coding aspect of making a visual novel is often enmeshed with the writing progress. However, when working in a team setting with multiple programmers, it is often a good idea to discuss the matter of proofreading. Some coders are fine with assessing the fluency of your writing while working as a coder. Often the programmers work ahead of schedule (unlike writers, whose level of inspiration can be unpredictable) making them agreeable to this extra task, if only to pass the time.

As mentioned previously in this book, extensive knowledge of traditional, general-purpose programming languages is no longer a prerequisite for creating visual novels. The main programming tool presented in this book, Ren'Py, is a specialized language for the specific purpose of creating games in the genre. Other tools specific for this type of software exist, too, as we'll see later in this book.

Testing

No game can be complete without a proper testing phase. It aims to create an enjoyable, bug-free product, but may have little to offer when it comes to refining the dramatic turns in visual novels – apart from the process of *proofreading*. No matter how intimately a writer/developer knows his or her game, there's unfortunately always room for typos and/or poor grammar.

Even if you can cope with all the other necessary areas of visual novel development, always have someone else proofread the entirety of your manuscript before release. As previously stated, this person may be either a programmer or an individual specializing fully in proofreading.

Localization

Localization is the process of introducing a video game (or other product) for sale in a new region. It includes not only the translation of literary assets but also the implementation of new audio, packaging, manuals, and making sure the product takes potential cultural sensitivities into account. Some regions, such as the German and Chinese markets, are known to be particularly sensitive to specific cultural references.

No longer limited to the Asian markets, visual novels are increasingly released in numerous languages. In fact, localization has been in demand since the early days of text-heavy video games; dozens of titles have been translated from, for example, Japanese to English by fans of these games. In the field of translation work, a university degree isn't necessarily a prerequisite, but a solid command of two or more living (and popular) languages obviously is.

While not perhaps as media sexy as coding or audiovisual work, localization is nonetheless an important emerging field in the business of visual novels. Out of all the fields presented in this section, the person or team responsible for the localization needs to be most intimately aware of

the writing and the original writer's intent. Crucial plot developments can be changed or lost completely in translation. Explain the exact meanings in your dialogue to your localization team as thoroughly as you can. After any stretch of the work is done, consult a native speaker in the localized language to make sure your translated story is as authentic to the original as possible.

Musings on Inspiration

Finding inspiration for your work as a writer is relatively easy: live your life. Life is guaranteed to give you every piece of inspiration you need, whatever your external circumstances may be. The difficulty is often in choosing to share your most intense experiences. It's mostly these moments that give your products substance.

Writing a successful visual novel needs emotional intensity. Don't hesitate to share your troubles and victories. Shape them into a more alluring package, if you will. Change settings to something completely exotic and far removed from your Earthly dwellings. Leave names out or change them, but be honest with your past experiences. Perhaps paradoxically, the more personal you get with your writing, the more relatable and cathartic it is for the public at large. The themes that are recurring and/or important to you are important to others, too. People appreciate those who are forward with sharing genuine emotion, as it is a rarity in modern society where mostly vapid entertainment prevails. Visual novels, on the other hand, are an intimate art form. They thrive from a creative environment where emphasis is on emotion and not some passing fad. Like classical literature, visual novels have a potentially timeless quality about them. The same can only be grudgingly said about most first-person shooter games, which may simply serve to document the violent tendencies our current civilization seems to glorify.

Reading in general is recommended for any writer. Not in the sense of plagiarizing others, but rather to expand one's mental horizons. You can gain new refreshing perspectives from the work of other writers you share values with, and even from those you don't. And while your fellow authors are probably a solitary (or cliquish) bunch, try to network with them.

You may also wish to experiment with more exotic sources for inspiration. Jot down your dreams every morning. Dig up old photographs, either those documenting your life or perhaps those taken at some historical event, available online or from thrift stores. Listen to new genres of music you haven't previously experienced. There's also thousands of free visual novels for you to download and play: give them a shot. Do one or all of these things; you never know what synapses get activated in your brain leading to sudden surges in writing acumen.

Try just observing the world around you. Use all of your senses to register what goes on around you. Even the most mundane events can spark inspiration. Try breaking any routines you've come to expect, even when it comes to the smaller things: ride different public transportation on your way to A to B. Ask yourself questions and let your writing answer them without any self-censorship. Revisit old meaningful locales if you still can.

As mentioned earlier in this book, a strong synopsis is the best way to go for most developers working on visual novels. It is the ground on which you build the rest of the product. However, remind yourself to only work on stories that inspire you. You have no obligation to complete a boring story, unless you're specifically paid for one. If you change your mind halfway into the synopsis, start from scratch with a new theme or setting.

Fighting the Writer's Block

No writer fully expects the dreaded writer's block. Yet somehow it always sneaks into the proceedings, especially with those looming deadlines staring one right in the eye. Writer's block is a serious, but treatable

disease. It's caused by two major pathogens: worry and perfectionism. Luckily, this disease can be treated with some tried and tested home remedies.

You can't force compelling creative writing. When you find inspiration lacking, the first step is to take a controlled break. Flush out the worry from your mind by focusing on something completely different. Taking a nice, long walk outdoors may have you catch a phrase that gives you new ideas to work with. Meditation, in whatever form you're happy with, may open doors to bursts of creativity. Brainstorming online or offline with an interested and/or experienced party is particularly helpful. Try to keep writing and editing as two separate tasks. You don't have to do them simultaneously.

Perfectionism in the field of writing is a dirty word for a reason. Nothing stifles your creativity more than self-censorship. Don't inflict it on yourself. Accept some passages in your writing may turn out to be perfectly mediocre, and that's fine. You can, and should, always refine what you just wrote later. Simple things like proper nutrition and hydration can fuel your creativity. Many writers are lacking in self-care to some degree. Constantly low blood sugar levels rarely help. Your body and brain need the natural kind of energy from fruit and vegetables, especially under stress. It's generally a good idea to avoid quick fixes, like soda and refined sugar in any forms.

Don't underestimate things like chronic stress which can take a major toll on one's health. What tends to ensue is insomnia, brain fog, and cravings for sweets. A lack of stress release may be a factor many writers suffer from, and it can be tricky to diagnose as it includes a variety of ills. This or some other medical condition may be behind your lack of enthusiasm. If you think this is the case, see a doctor. For first aid, consider your current living habits. Do you exercise? Do you eat healthy foods or is it mostly potato chips?

Writing is often a solitary activity. Eventually, cabin fever may set in, along with the previously mentioned nutritious deficiencies and other challenges. Stay sane and happy by making whatever little progress you can muster each day and cherishing it. Addictions can either work for

you or against you, but usually it's the latter. If truly drastic measures are needed, try reducing your use of social media for frivolous purposes or delete (some of) it altogether.

Now, if you're lucky enough to be free of deadlines for the time being and find yourself uninspired to write, it's simply time to experience more of life and refill those reservoirs of inspiration. Believe it or not, but it's an automatic process if you give it space. Experiences and ideas compelling to warrant great visual novels will arise out of everyday interaction. You don't have to visit exotic locales for inspiration, although some writers might benefit from such adventures.

In Closing

After reading this chapter, you should have a solid understanding on how to write drama and which elements contribute to interesting writing. You are aware of the following core concepts and know how to apply them in your visual novel writing:

- Relevant glossary terms
- The basics of Aristotelian poetics
- The monomyth as presented by Joseph Campbell and how to use it
- The 12 character archetypes as popularized by Campbell
- Best practices on how to integrate the aforementioned concepts into your visual novels
- What types of work are available within the industry of visual novel games

In the next chapter, we'll cover the rich history of interactive fiction including some of the most legendary games in the genre throughout the decades.

CHAPTER 2

The (Ancient) Art of Interactive Fiction

The origins of the visual novel can be traced back to the mid-1970s – some say even the 1960s. Now, the term "interactive fiction" is defined as software (i.e., a video game) which has text input as its main interactive component. It's crucial to know that, historically, interactive fiction has greatly influenced the modern visual novel. This newer genre in turn is defined as text-based video games that feature rich audiovisual elements and, in general, rely on a non-typing-based system of user input.

In this chapter we'll look at several historical interactive fiction titles as they are the true roots for the modern visual novel genre. Also, we'll be talking about the software they used to create those titles of ancient times.

The Great Grandfather of the Visual Novel: ELIZA (1966)

It can be argued ELIZA provided the interface basis for all games to come in the genre of interactive fiction. A virtual psychiatrist, the program presented a text-based, interactive artificial intelligence to the user. Created in MIT during 1964 and 1966 by Joseph Weizenbaum, ELIZA provided a primitive but sometimes convincing virtual therapist to vent one's worries to.

R. Ciesla, *Game Development with Ren'Py*, https://doi.org/10.1007/978-1-4842-4920-8_2

First appearing on IBM's massive 7094 computer, ELIZA has been ported to dozens of platforms over the years. Some claims have been made of ELIZA passing the Turing test. This test examines whether an interaction between a computer and its user is indistinguishable from human-to-human interaction or not. The Turing test was created in 1950 by Alan Turing, a gifted scientist and pioneer of computer science.

But ELIZA's legacy is more than her use of real-time text-based interaction. The software introduced a concept (i.e., an interactive artificial intelligence) which is still mostly reserved for graphics-based products in the context of game design. It is to be noted not many text-based games feature a convincing artificial intelligence as one's opponent or companion, even in 2019. Perhaps one of you, dear fellow programmers, should focus on this aspect of game design.

The Grandfather of the Genre: *Colossal Cave Adventure* (1975)

The origins of the visual novel can be traced to an era of bell-bottom jeans, disco, and room-sized mainframe computers. *Colossal Cave Adventure* was the first work of interactive fiction, created by Will Crowther, an MIT alumnus, in 1975. Often referred to as simply *Adventure*, the game ran on a gigantic PDP-10 computer and offered, for the time, a revolutionary interactive experience (see Figure 2-1). The premise was simple: find gold treasures and escape the cave. Offering 78 map locations and absolutely no graphics, *Adventure* pretty much started a video game genre.

```
SOMEWHERE NEARBY IS COLOSSAL CAVE, WHERE OTHERS HAVE FOUND FORTUNES IN TREASURE AND GOLD. THOUGH
IT IS RUMORED THAT SOME WHO ENTER ARE NEVER SEEN AGAIN. MAGIC IS SAID TO WORK IN THE CAVE. I
WILL BE YOUR EYES AND HANDS. DIRECT ME WITH COMMANDS OF 1 OR 2 WORDS.

(ERRORS, SUGGESTIONS, COMPLAINTS TO CROWTHER)

(IF STUCK TYPE HELP FOR SOME HINTS)


YOU ARE STANDING AT THE END OF A ROAD BEFORE A SMALL BRICK BUILDING.

AROUND YOU IS A FOREST. A SMALL STREAM FLOWS OUT OF THE BUILDING AND DOWN A GULLY.
```

Figure 2-1. *The iconic first screen of text from "Adventure"*

In 1976, Princeton graduate Don Woods got in touch with Crowther with some suggestions on how to improve *Adventure*. Crowther found his ideas worthwhile and gave Woods the green light, who then added a plethora of exotic creatures and items to the game. This beefed-up version of *Adventure* set off an avalanche of interactive fiction as it was converted to most available home computer systems in the following decade. It has been featured on numerous magazine listings of "best games of all time."

The Early Trailblazers

Of course, text-based games didn't stop at *Adventure*. Let's now take a look at companies with major historical significance in the development of interactive fiction, such as Infocom, Magnetic Scrolls, and Level 9. These and several other development teams released trail-blazing titles over the decades that influenced the creation of the modern visual novel.

Some of these games can be played online in your favorite browser. Feel free to experiment with these outstanding titles at your leisure.

Infocom

The early days of interactive fiction were pretty much a tug-of-war between two mighty companies: Infocom of the United States and Magnetic Scrolls from the United Kingdom. Infocom was founded in 1979 by Dave Lebling,

Marc Blank, Albert Vezza, and Joel Berez. The company was bought by current-day multi-billion publisher Activision in 1986. Infocom continued to produce outstanding interactive fiction throughout the 1990s, until finally being dropped by its new owner in 2002.

The *Zork* Series (1977–1993)

The genre of interactive fiction didn't reach its apex in *Adventure. Zork I: The Great Underground Empire* was released in the immediate aftermath of *Adventure* in 1977 by newcomers Infocom. It became the bestselling video game of 1982 with a total of 32,000 copies sold for numerous systems that year. By the time 1986 was on the calendars, *Zork I* had garnered over 370,000 sales. Clearly the gaming public loved their text adventures and thirsted for more.

Another multi-platform release, *Zork II: The Wizard of Frobozz,* had sold over 173,000 copies by the end of 1986. The trilogy was wrapped up with *Zork III: The Dungeon Master*, which sold a decent 120,000 copies as well. It was clear from the early days that text adventures had much going for them also from a business standpoint.

Later *Zork* titles put more focus on the visuals rather than the prose, and the developers did receive criticism from both enthusiasts and the gaming press alike. Nonetheless, the *Zork* series were not a fad, lasting well into the late 1990s, gaining both new fans and critical praise along the way.

The *Zork* phenomenon alone solidified Infocom as the most iconic publisher of interactive fiction for nearly three decades, but they do have several other successful titles under their belts.

The *Enchanter* Trilogy: *Enchanter* (1983), *Sorcerer* (1984), *Spellbreaker* (1985)

Having an elaborate spell casting system for the time, *Enchanter* was an ambitious game even by Infocom's high standards. Selling around 75,000 copies during its shelf life, the game featured a novice magician as its sole

underdog protagonist. You were facing Krill, a powerful warlock, with nothing but some elementary spells to aid you.

Enchanter takes place in the same world as the *Zork* series, but it has a more serious quality to it. The spell casting system adds a new dimension to the somewhat contrived genre of fantasy interactive fiction. Although not monumental in the writing department, *Enchanter* was a well-received adventure and another successful title from Infocom.

Sorcerer picked up where *Enchanter* left, putting the player in the victorious position of having defeated Krill the evil warlock. Still based around a fun spell casting system, the game has you going after Belboz the necromancer, who may have fallen to the dark side. You now have more power as a wizard; however, the puzzles are trickier.

Rounding off the trilogy is *Spellbreaker*, the hardest of the three. The Circle of Enchanters are panicking: magic is now beginning to fail all over the land of Zork. After a rather surprising council meeting, the player is thrust with the mission to find out why this is happening.

Mostly criticized for its harsh difficulty level, *Spellbreaker* had an atmosphere of urgency and despair. For one, although there are powerful new spells, spell casting is not guaranteed to work. The game is also much larger in scope than any of the previous Infocom titles. Most players will not complete the game without a guidebook. One for the hardcore gamer crowd, *Spellbreaker* nonetheless provided a brilliant conclusion to the *Enchanter* trilogy.

Planetfall (1983) and *Stationfall* (1987)

As the janitor on the starship S.P.S. Feinstein, your job is mostly to mop its floors. For better or worse, the plot thickens as explosions rock the ship, forcing you into an escape pod and on to a strange planet. Not the first visitor to the planet Resida, you must discover the fate of those who came before you.

Planetfall turned out to be another big hit for Infocom, receiving praise for its writing and the inclusion of a purposeful sidekick in the form of Floyd the loveable robot. He is still considered one of the most cherished characters in interactive fiction.

In *Stationfall*, the sequel to the game, our janitor protagonist has been promoted to Stellar Patrol duty. This may sound more interesting than janitorial duties; however, our hero spends his time mostly filling forms. Teaming up with Floyd the robot for the second time, our duo is in fact sent on a mission to grab some more forms at a space station. With the station mostly deserted, an enjoyable sci-fi mystery begins to unfold featuring an alien skeleton and an ostrich, no less.

Stationfall was praised for the tight writing and for bringing back Floyd the robot, a true fan favorite. Not a game for beginners, it's an enjoyable adventure for the more experienced gamers.

The Hitchhiker's Guide to the Galaxy (1984)

Douglas Adams' comedic hit series *The Hitchhiker's Guide to the Galaxy* was picked up by Infocom in 1984. Consisting of a TV series, radio plays, and novels, the work suited the genre of interactive fiction extremely well. The game was developed under the close supervision with the author of the original work, Douglas Adams.

The absurdist sci-fi adventure was a massive hit, ending up selling over 400,000 copies during its (ever-continuing) lifespan. This game has been converted to at least 17 different computer architectures, ranging from the Apple II to current-day browsers.

The British Broadcasting Corporation released a 20th anniversary version of the game in 2004 on their web site. As of 2019, a 30th anniversary version of *The Hitchhiker's Guide to the Galaxy* is still playable on the BBC web site (`www.bbc.co.uk/h2g2game`).

Wishbringer (1985)

One for the novice gamers, *Wishbringer* was a well-written, critically acclaimed adventure. Ending up as Infocom's fifth bestselling game of all time at 150,000 copies sold, it tells the story of a perfectly average postal worker who stumbles upon a rather special envelope. After delivering said envelope to the owner of "Ye Olde Magick Shoppe," the protagonist promises to retrieve her black cat who's gone missing. Then finding himself in a somewhat apocalyptic village called Witchville, he's told he only has a few hours to defeat a sorceress called The Evil One.

Described by some as simplistic, the game was not the most taxing of Infocom's adventures. Nonetheless, *Wishbringer* delivered a solid interactive fiction experience for "everyone from ages 9 up," as the packaging stated. Clearly Infocom was experimenting with targeting different gamer demographics, and when judged by *Wishbringer*'s sales, they scored big time. The lesson here is this: from time to time, it does a business a world of good to introduce new types of products to fresh audiences.

Leather Goddesses of Phobos (1986) and *Leather Goddesses of Phobos 2* (1992)

Classic fantasy aside, Infocom could also do salacious sci-fi like no other developers. As the title suggests, *Leather Goddesses of Phobos* features some rather leery antagonists – who are naturally up to no good. You must stop them from taking over the planet in this tongue in cheek title, released for most popular computer platforms of 1986. *Leather Goddesses* is a campy, mildly erotic romp with the option to choose the level of smut you're comfortable with. It's presented in a classic, minimalistic text-only format as per usual for Infocom – and it still didn't take anything from the atmosphere and fun.

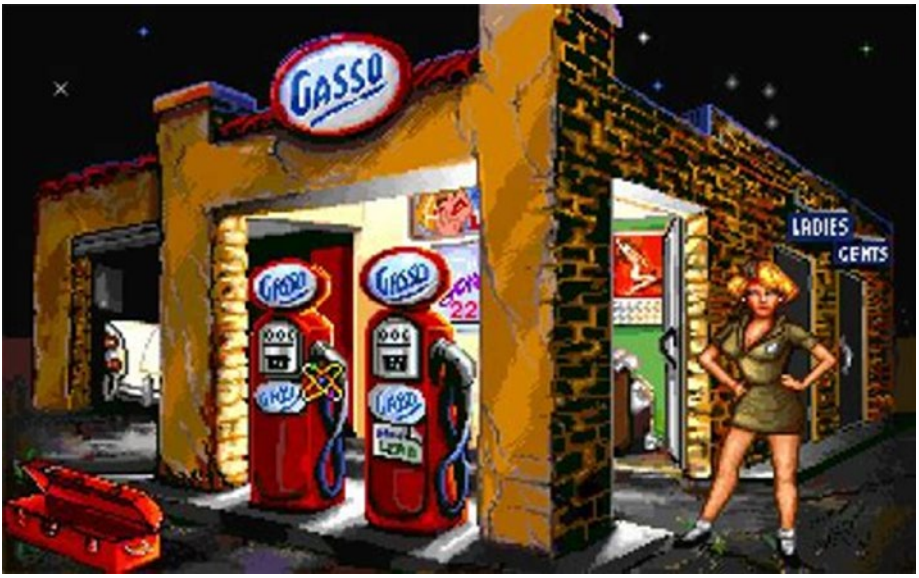

Figure 2-2. *The graphics in Leather Goddesses of Phobos 2 were impressive—the writing not so much*

The first *Leather Goddesses* ended up selling a whopping 130,000 copies. A sequel was therefore warranted. In the time of ever-increasing technical capabilities of early 1990s computers, Infocom, too, decided to take the plunge and focus on colorful graphics, digitized speech, and a snappy icon-driven user interface. Unfortunately, *Leather Goddesses 2* turned out to be somewhat of a dud. Many have argued it's easily Infocom's worst ever product.

Moving away from the genre of classic Infocom interactive fiction, *Leather Goddesses 2* was a mouse-controlled, visually gorgeous (see Figure 2-2), critical disappointment of a game. A case of style taking over substance, it failed to meet its expectations and was criticized for its simplistic puzzles and poor writing. Surprisingly, *Leather Goddesses 2* was penned by one of Infocom's brightest writers, Steve Meretzky.

Magnetic Scrolls

We'll now take a look at the other big player in the business of text-based games, Magnetic Scrolls, through revisiting some of their most impressive offerings. The company was founded by Anita Sinclair, Ken Gordon, and Hugh Steers in London in 1984. It released several high-quality games mostly during the 1980s.

Magnetic Scrolls fizzled out from the games market during the early 1990s, but as of 2017 they have resurfaced as Strand Games (`www.strandgames.com`). Having found the once lost source code for some of their old text adventures, the Magnetic Scrolls team decided to recover it and present it to the current generation of gamers. The project has so far released two of their early games for modern platforms. New titles from Strand Games may apparently appear in the future.

The Guild of Thieves (1987)

Known for their visual prowess, Magnetic Scrolls' *The Guild of Thieves* was a monumental multi-platform release. Centering on suspicious and more or less criminal activities, the game is an atmospheric and challenging experience set in the fantasy land of Kerovnia.

Divided roughly into four areas, the game world in *The Guild of Thieves* is vast. Over a hundred locations total are divided between countryside, a castle, a labyrinth, and a temple. The game features a plethora of collectable items and fixed utilities depicting a living fantasy world well. They include a fully functioning water closet (complete with toilet paper) and a somewhat taxing container system: there's plenty of items within items in the game.

The Guild of Thieves was released for at least 11 platforms. The graphical screens are impressive pretty much on all of them. It was a hit among critics and enthusiasts alike, justifying a new release in December of 2017 for modern platforms, 30 years after the original.

The Guild of Thieves re-release by Strand Games (https://strandgames.com/games/theguild)

Corruption (1988)

A brilliant example of using then-current themes in a video game context, *Corruption* dealt with 1980s politics in a realistic manner. This pleased both critics and gamers at the time. In the game an average stockbroker found himself in a world of trouble. *Corruption*, at its heart, was a detective story. The tone of the game was steeped in cold war politics, enhanced by realistic static graphics full of film noir aesthetics (see Figure 2-3).

Corruption featured one of the most intense atmospheres of any work of interactive fiction. In some parts of the game, you could only enter one command – and it had to be the right one, or else it was an instant game over for you.

Figure 2-3. *Corruption featured lifelike graphical screens*

No doubt a lesson can be learned from this one: when properly executed, current events always make for compelling interactive fiction. After playing *Corruption*, offices suddenly become quite ominous. For best results, enjoy the game with some late 1980s popular music.

Fish! (1988)

Magnetic Scrolls could deliver in a vast variety of themes. In a complete departure from their previous release, *Fish!* was a surreal romp with an aquatic protagonist (see Figure 2-4). You got to play as an actual goldfish, doing your best to defend your planet Aquaria from a posse of antagonists known as The Seven Deadly Fins.

Figure 2-4. *A "plush lounge" in Fish!*

Perhaps the developers felt they needed a break after the rather serious nature of *Corruption*, so they came up with this whacky gem. Bizarre, frivolous, and especially enjoyable for newcomers, *Fish!* was a risky move. Despite the constant barrage of fish-related puns, the game was a hit. Sometimes, taking a gamble with the concept pays off.

Wonderland (1990)

Kicking off the 1990s in style, Magnetic Scrolls released an innovative and critically acclaimed adventure based on the Lewis Carroll classic *Alice in Wonderland*. The game featured beautifully drawn, and often animated, visuals. The user interface is now fully mouse-controlled, but not in a gratuitous way. Resizable windows, a dynamic mapping system, and intuitive menus only work to enhance the whole experience (see Figure 2-5). For the time this was all quite revolutionary. The developers definitely took design cues from the leading operating systems, Windows and macOS, and translated them into an immersive game world.

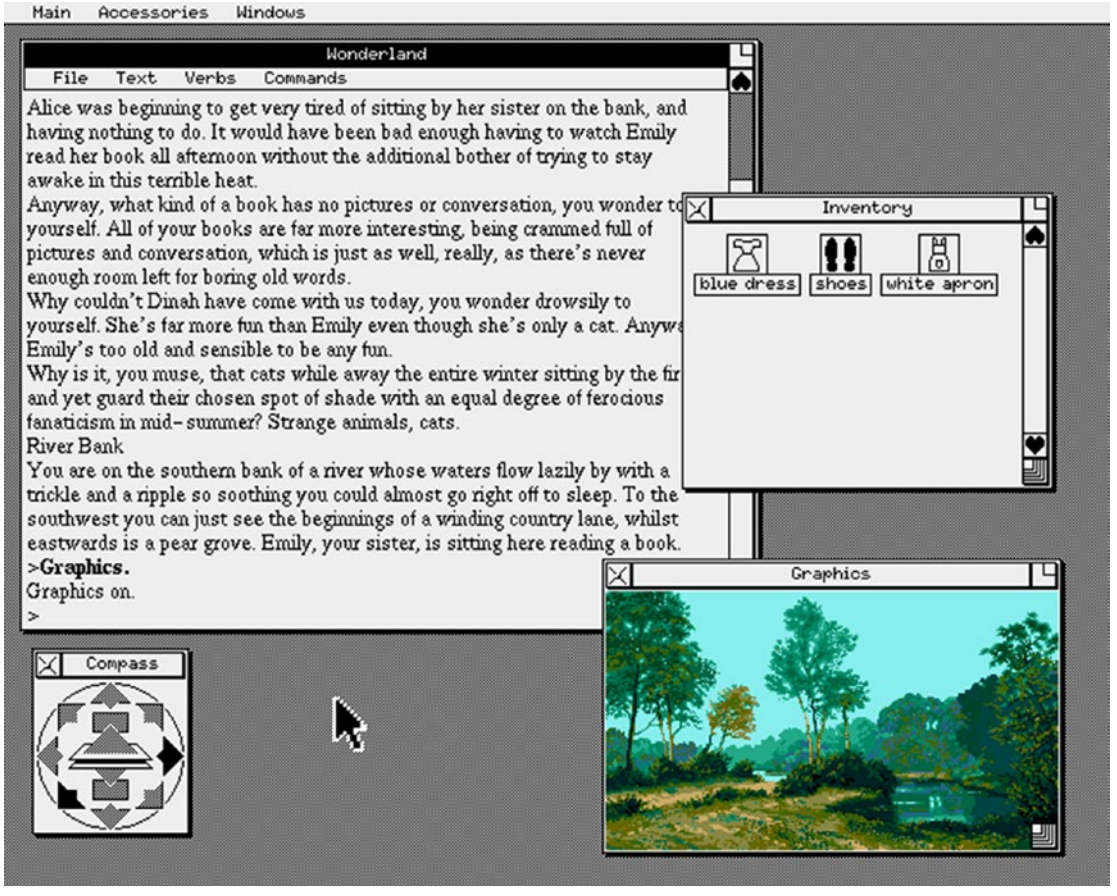

Figure 2-5. *Wonderland had an impressive dynamic interface with resizable windows*

In addition to the fun and fluid user engagement, *Wonderland* was loyal to its source material. The game is a fine lesson in how to approach a much loved classic and translate it into the digital domain. *Wonderland* is one of the finest works of interactive fiction ever made.

Level 9 Computing

Level 9 was a British developer of interactive fiction founded by the brothers Mike, Nicholas, and Pete Austin. They operated between 1981 and 1991, delivering highly polished products of interactive fiction, specializing in a trilogy approach.

Colossal Adventure (1983)

Capitalizing on the success of Will Crowther's 1977 hit *Adventure*, Level 9 provided their audience with a beefed-up take on the original. The game included 70 new locations in addition to *Adventure*'s 80 or so. A multi-platform release, *Colossal Adventure* was criticized for its crude graphics, but most critics agreed overall it was an improvement on the original. Level 9 took a bit of a risk by infusing Tolkien lore into the game, which the Tolkien Estate surprisingly didn't object to – or know about.

The *Silicon Dreams* Trilogy (1986)

Firmly set in the sci-fi realm, this trilogy featured a coherent story arc across all three games. Starring the stalwart Kim Kimberly, a citizen of the future, the trilogy deals with the concept of mankind colonizing other planets – and the associated issues which tend to follow.

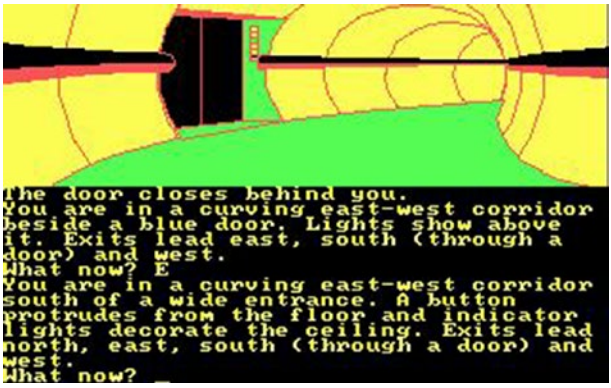

Figure 2-6. *A view from Snowball. Level 9 was not famous for amazing visuals; however, the writing was usually quite impressive.*

Snowball, first released in 1983, told the story of a doomed spaceship on its way to the sun. An insane passenger sabotaged Kimberly's ride to Eden, a planet ready for colonization. With around two million lives at stake, *Snowball* provided an intense sci-fi experience and was well-received by critics and gamers alike.

Released the following year, *Return to Eden* is a survival story featuring a ruthless jungle and a plethora of robotic fiends. The visual elements introduced in the game were panned as being simplistic and crude. However, the game itself was solid in writing and pace. Like its predecessor, *Return to Eden* was critically acclaimed.

Concluding their sci-fi trilogy, Level 9 released *The Worm in Paradise* in 1985. Although this title, too, featured crummy graphics (see Figure 2-6), it was praised for its compelling story. Taking place a hundred years after *Return to Eden*, the game is set in the domed city of Enoch. Robot labor, profiteering, and cynical capitalism give *Return to Eden* a timeless flavor.

The *Time and Magik* Trilogy (1988)

The games in this trilogy were initially released separately between 1983 and 1986 for 8-bit home computers. In 1988 the three games were polished

and re-released as a compilation for a newer generation of platforms by Mandarin Software. This time, Level 9 upped the ante on their visuals, too (see Figure 2-7). However, only two games in this compilation, *Red Moon* and *The Price of Magik*, formed a story arc.

Lords of Magic from 1983 featured a rather clever time-traveling plot. The protagonist, a computer programmer, is contacted by one Father Time in order to rescue treasures from nine different eras. These included the time of the Roman Empire, the Age of Dinosaurs, and Ice Age. Well-written by one Sue Gazzard, the game was loved by both the press and gamers.

Red Moon (originally released in 1985) and its sequel *The Price of Magik* (from 1986) both won awards and featured a fair amount of role-playing game elements. The latter incorporated a rather extensive spell casting system for its time.

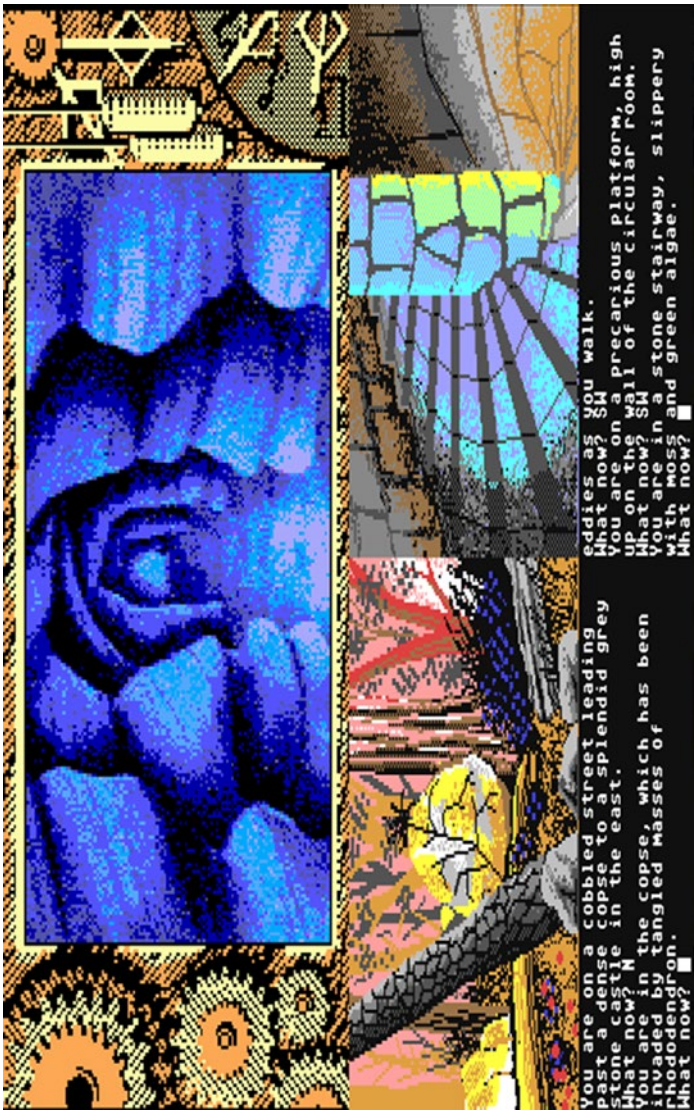

Figure 2-7. *A collage of Lords of Magic visuals: PC version (top) and the Commodore 64 version (bottom)*

Other Notable Games in the Genre

"The Big Two" (i.e., Infocom and Magnetic Scrolls) and Level 9 weren't the only influential makers of quality interactive fiction by any means. Several other development teams have since released impressive products. We'll now take a look at some of these fine text-based adventures.

King's Quest: Quest for the Crown by Sierra On-Line (1984)

Sierra On-Line, started in 1979 by Ken and Roberta Williams, became an iconic publisher in the adventure game genre. Some very successful franchises based on this game concept include the *Space Quest*, *Police Quest*, and, indeed, the ongoing *King's Quest* series. Only folding until 2004, Sierra On-Line had a long-lived and lucrative reign as makers of quality adventure games.

In the first game in the series, one brave young knight, Sir Graham, has aspirations of becoming the ruler in the Kingdom of Daventry. He must recover specific magical items and solve numerous folklore-based puzzles to impress King Edward, who himself plans to retire if all goes well. While the graphics are naturally crude by current standards, the storytelling is still quite enchanting.

Figure 2-8. *A scene from the visually improved version of King's Quest I from 1990*

Although providing arcade game–like character control and a relatively detailed visual world (see Figure 2-8), *King's Quest* is at its heart a game of interactive fiction. Like all early Sierra releases, *King's Quest* lacks an icon-driven user interface. There's a lot of good writing to read – and a lot more to type.

The *Spellcasting* Trilogy by Legend Entertainment (1990–1992)

Legend Entertainment was founded in 1990 by Steve Meretzky. He is best known for writing *Leather Goddesses of Phobos* and *The Hitchhiker's Guide to the Galaxy* for Infocom. Exclusively released for the PC platform, the *Spellcasting* series combined humor with fantasy-based tropes.

Meretzky's new venture had considerable success right off the bat with its debut product, *Spellcasting 101*. Ernie Eaglebeak is a nerdy novice

wizard who just wants to get the affections of one Lola Tigerbelly. Enrolling in Sorcerer University, Ernie plans to gain the status and skills needed to impress his crush. The trilogy deals with his escapades with the focus being on student life difficulties, as the relatable protagonist fumbles around. Apparently it's not easy being a nerd in college, even when possessing some magical abilities.

Figure 2-9. *Spellcasting 301, like the other two titles in the trilogy, had crisp graphical screens*

Spellcasting 101 kicked off a successful trilogy of games, being followed by *Spellcasting 201: The Sorcerer's Appliance* and *Spellcasting 301: Spring Break*. The last game in the trilogy featured, for the time, impressive 256-color graphics (see Figure 2-9) in addition to solid sound card support, adding to the game's engaging audiovisual experience.

The mixture of the adult themes of *Leather Goddesses* and sparse but high-resolution graphics proved to be a hit. The intuitive mouse-assisted control method didn't hurt either. Of course, you could also wear your fingertips out if you preferred that.

Timequest by Legend Entertainment (1991)

Not sticking solely to bespectacled wizards with juvenile interests, Legend went on to add sci-fi titles to their catalogue. *Timequest*, like the name perhaps suggests, deals with the time-traveling business and the dangerous ramifications it may or may not entail. It was created by one Bob Bates who, like Steve Meretzky, had worked previously at Infocom.

In *Timequest* Zeke S. Vettenmyer, a Lieutenant in the Temporal Corps, has stolen a time machine (referred to as an interkron in the game's universe). By meddling with history, Vettenmyer is causing a ripple effect in the timestream which will result in catastrophic events for the human race. You, as a lowly private in the Temporal Corps, must trace the Lieutenant in question and correct the wrongs he's committing.

Figure 2-10. *You meet quite a few historical figures in Timequest. Here's a former British prime minister.*

Using the same engine as the *Spellcasting* franchise, *Timequest* provides crisp, high-resolution graphics and a gratifying mouse-assisted interface. The odd melody plays at a few locations adding to the atmosphere. The game was well-received, winning several video game awards in the early 1990s. You don't often get to meet such historical figures as William Shakespeare, Winston Churchill (see Figure 2-10), and baby Moses – especially during the course of a single day.

Demoniak by Palace Software (1991)

Featuring a rather standard futuristic doomsday scenario for a plot, *Demoniak* nonetheless broke new ground at the time of its release. Penned by none other than Alan Grant, the writer behind Judge Dredd and Batman comics, the game offers a well-written and somewhat anarchistic experience as the namesake inter-dimensional demon and his four bickering opponents clash. Whatever graphics are there all provide a touch of atmosphere, being immensely well drawn in a cartoony fashion (see Figure 2-11).

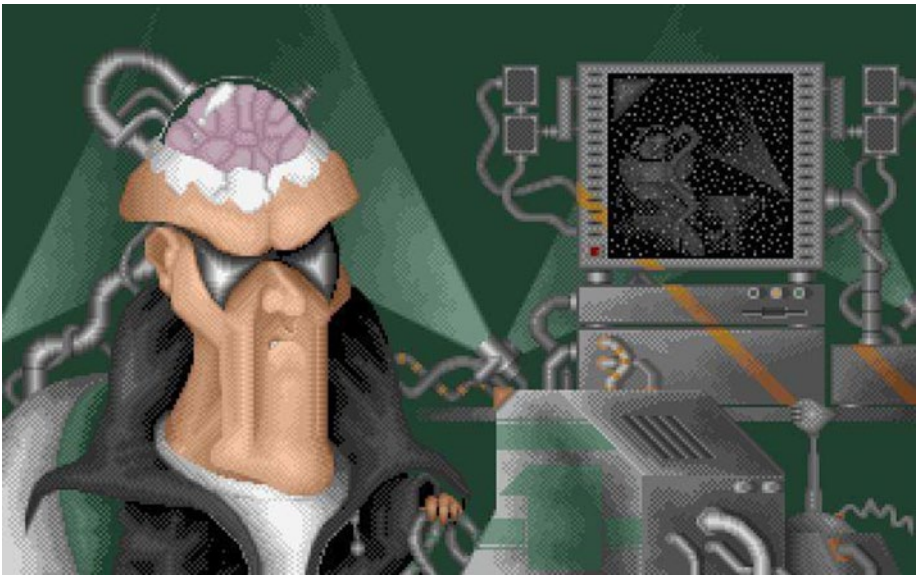

Figure 2-11. *Although not plentiful, the graphical screens in Demoniak were impressive. Here's Doc Cortex.*

At first *Demoniak* seems like your typical text adventure. However, you weren't limited to playing as the main four protagonists. The game impressed with a highly innovative feature: it allowed you to become most of the 50 characters in the game. Should a character die, one could keep playing with some other inhabitant of the game universe, all with their own quirks and personalities. In addition, the WAIT command allows you to simply watch the characters do their thing. *Demoniak* is an underrated gem.

How They Did It – Early Tools for Interactive Fiction

Like any type of software, text-based games can be created with a general-purpose programming language of one's choosing (e.g., C, C++, BASIC, Java). However, even in the early days numerous dedicated creation tools

for the genre were available. Let's now take a glance at some of these text-adventure frameworks.

Not only were these software packages milestones in programming, but their influence in video gaming is still felt today. Also, as is the case with Graham Nelson's Inform development system, some of these historical products are still viable tools for making new games today.

A Few Words on Parsers

A *parser* is a piece of software which interprets user's input into logical data structures. In the context of interactive fiction, parsers work between the gamer and the game world, translating text input into actions that correspond with the game's logic and parameters set by the programmer.

The quality of parsers varies greatly between games of interactive fiction. A poor parser doesn't understand perfectly sensical language, only accepting clumsy and/or wordy sentences. A good parser can accept a multitude of verbs and nouns and even gather relevant words from broken sentences. One of the reasons for Infocom's massive success was indeed in their impressive parser, which would work well with complex sentences. *Adventure* by Will Crowther, although a legendary game, mostly operated on a rather simple "verb and noun" system (e.g., only accepting commands like GET DAGGER). In the decades to come, this was largely considered a rather frustrating type of approach.

In the current era of visual novel development, typing is not a common input method, so the said parsers are of little importance. Of course, there remains a rather fervent fan base of old-school interactive fiction. Literally thousands of noncommercial, home-brewed text adventures have been created ever since the 1980s for various platforms. Not every enthusiast made the switch to mouse-assisted input.

Zork Interactive Language (ZIL) and the Z-machine

During Infocom's heyday from the late 1970s to the late 1980s, their developers utilized an in-house virtual machine called the *Z-machine*. The way they distributed their software consisted roughly of two phases. First, a Z-machine for a specific platform was developed (e.g., PC, C64, Amstrad). Then, a system-independent adventure file (or Z-file) was created in Infocom's own programming language called *Zork Interactive Language (ZIL)*. Each of these files contained the game itself. ZIL itself is based on the MIT Design Language (MDL) from 1971.

The Z-machine was available pretty much on all computer platforms at the time. The same Z-files would run on any system with its specific Z-machine, eliminating the need to develop games natively for each system. This allowed for a simultaneous release for all dozen or so popular computers of the time and helped propel Infocom to the top of the text-adventure hill.

Starting its life way back in 1979, the mighty Z-machine isn't dead yet; modern interpretations of the system are available for current-day versions of Windows, Linux, macOS, and iOS, among others. A rather prosperous hobbyist scene has indeed formed around this beloved piece of software.

Although offering a rather succinct approach to programming interactive fiction, ZIL is not for absolute beginners and takes a while to get used to with its numerous commands. Listing 2-1 shows a sample room definition using ZIL.

Listing 2-1. A sample room definition in Zork Interactive Language (ZIL)

```
<ROOM APRESS-LOUNGE
      (LOC OFFICE)
      (DESC "The Apress Lounge")
```

```
(SOUTH TO MEETINGROOM)
(EAST TO KITCHEN)
(NORTH TO TOILET IF DOOR-UNLOCKED ELSE "The water closet
door won't budge.")
(ACTION APRESS LOUNGE-F)
(FLAGS RLANDBIT ONBIT)
(GLOBAL STAIRS)
(THINGS (SLIPPERY WET) (DOORKNOB HANDLE) SLIPPERY-HANDLE-F)
```

The RLANDBIT flag in ZIL denotes a room is land-based, instead of being immersed in some kind of liquid. The ONBIT flag indicates the room is illuminated by default. A keyword called THINGS is used to create pseudo-objects which can't be moved, but which take less memory than actual ZIL objects; saving RAM and cutting on a game's loading time were a big deal back in the day.

Listing 2-2 shows a sample object definition in ZIL.

Listing 2-2. A sample object definition in ZIL for an expensive pen

```
<OBJECT PEN(LOC APRESS-LOUNGE)
      (SYNONYM PEN MARKER)
      (ADJECTIVE EXPENSIVE)
      (DESC "expensive pen")
      (FLAGS TAKEBIT)
      (ACTION PEN-F)
      (FDESC "An expensive ink-powered writing tool is on a table.")
      (LDESC "There is a writing tool (ink-powered) here.")
      (SIZE 2)>
```

The TAKEBIT flag indicates an object can be picked up by the player. Other object flags in the ZIL language include WEARBIT, READBIT, and CONTBIT for wearables, readables, and containers, respectively. The size attribute denotes an item's weight in the Z-machine universe. For example, a boulder should have a size value much larger than our expensive pen.

The FDESC property describes an object prior to the first time the player moves it, while the LDESC property provides the description of an object after it has been moved around. To learn more about the fascinating world of Zork Interactive Language, see the official guide from 1989 here: http://xlisp.org/zil.pdf

The Quill by Gilsoft (1983)

Originally released for the ancient ZX Spectrum computer, Graeme Yeandle's The Quill was later ported to numerous popular 8-bit computers of the 1980s. Some 450 Spectrum titles, a few of which sold very well, were created with the software. The Quill supported roughly 200 locations and a fully customizable command set. Graphics weren't supported out of the box, but in 1984 Gilsoft released The Illustrator, an add-on that allowed for this.

Using a database-based approach, The Quill had an easy-to-use interface (see Figure 2-12) and helped introduce a generation of hobbyists to the world of interactive fiction.

Figure 2-12. *The rather simple main menu of The Quill is but the top layer of a powerful piece of software*

Professional Adventure Writer by Gilsoft (1986)

Yeandle's sequel to The Quill, Professional Adventure Writer (PAW), featured a similar intuitive user interface with the addition of a much more advanced parser and other major enhancements. For one, visuals were now more easily implementable in one's adventures.

Around 400 adventures were created with PAW. Sadly, the software was only ever released for the ZX Spectrum, and the (even then) practically fossilized CP/M class of operating systems.

Adventure Game Toolkit by David Malmberg (1987)

Featuring two methods of development to choose from, that is, the *standard* and the *professional*, Adventure Game Toolkit (AGT) provided a set of tools for both beginners and more advanced programmers alike.

AGT is based on Mark Welch's Generic Adventure Game System (GAGS) for the PC from 1985. Malmberg's product featured a much improved parser and greater scope. It was converted for numerous platforms since its inception; the total number of games made with GAGS and AGT hovers around a hundred or so. Although a tad clumsy to use by today's standards, AGT was (and is) capable of producing adventures on par with Infocom's classics.

Inform by Graham Nelson (1993–)

Not exactly a beginner's tool, Inform in its later versions became in fact its very own programming language. This naturally allows for complete control of one's interactive fiction games or other related projects. Also, all game files made with this software were 100% compatible with Infocom's famous Z-machine.

Inform was up to version 6 a somewhat traditional programming language (see Listing 2-3). Version 7, however, is considered quite revolutionary; this iteration of the software accepts full sentences. In essence, creating a game with Inform 7 is almost like playing one (see Listing 2-4).

Listing 2-3. A partial Inform version 6 listing

```
Constant Story "Example Quest";
Constant Headline "This is an example of Inform 6";

Include "Parser";
Include "VerbLib";

[ Initialise;
    location = Storage_Room;
    "Welcome to the storage room!";
];

Object Garage "Garage";
Object Front_Door "Front Door";

Object Storage_Room "Storage Room"
    with
        description "A spacious and cold room.",
        e_to Garage,
        n_to Front_Door,
    has light;
```

Listing 2-4. A partial Inform version 7 listing

```
"Example Quest" by "Mr Programmer"

The story headline is "This is an example of Inform 7".

The Storage Room is a room. "A spacious and cold room."
```

```
The Garage is east of the Storage Room.
The Front Door is north of the Storage Room.
The Front Door is a door. The Front Door is closed and locked.
```

Inform is still a popular choice among developers of interactive fiction. For one, it's evident based on the tens of thousands of views on the topic on sites like The Interactive Fiction Community Forum. Inform was even used for the 1997 release *Zork: The Undiscovered Underground,* published by software giants Activision. Other notable games using the various versions of Inform include *Galatea (2000)* and *Floatpoint (2006),* both created by Emily Short.

In Closing

After reading this chapter, you should have a solid understanding of the history of interactive fiction. You are familiar with the following concepts and know how they relate to your visual novel writing:

- What some of the biggest selling text-based games were and what made them successful
- What parsers are and how interactive fiction was made back in the day

The next chapter consists of a thorough look at more recent text-based games, that is, visual novels; we'll start our review at games released at the turn of the millennium.

CHAPTER 3

The Modern Visual Novel

As demonstrated in the previous chapter, the road to the modern visual novel has been a relatively long one. As of 2019, massive numbers of rooms and items aren't big deals. Gone are the technical limitations that once dictated what was possible in video games. But before we review some of the most impressive modern visual novels, we should get acquainted with the related terminology. Many of these tropes have their origins in Japanese culture as the established visual novel format originates from the land of the rising sun.

The Visual Novel: Definitely Big in Japan

Although audiovisual elements were found in the earlier text adventures, by the turn of the millennium, technology had advanced quite a bit. Computers no longer struggled with data crunching as they once did, enabling game makers to indulge in a number of then-new techniques. These included high-resolution graphics, CD-quality digital audio, and Full HD video playback.

As mentioned, the visual novel is originally a Japanese phenomenon, kicking off commercially in the late 1980s. According to Anime Advanced and Advanced Media Network in 2006, almost 70% of PC games released

R. Ciesla, *Game Development with Ren'Py*, https://doi.org/10.1007/978-1-4842-4920-8_3

in Japan were visual novels.[1] It has since become a popular genre of video games worldwide.

Tropes

In the popular vernacular, a trope is a frequently recurring thematic device. Some tropes are to be avoided (those tend to be also called clichés), while some are helpful in world building and user engagement. We've simply learned to expect certain things from our entertainment over the millennia. Quite a few of these tropes relate to the principles laid out by Aristotle as discussed in Chapter 1, in fact.

The Faceless Protagonist

An increasingly popular trope, this evokes a sense of mystery as well as catering for each player individually. It's easier to identify with a character who isn't specifically made to look like something you do not resemble in real life. Examples include Gordon Freeman from the *Half-Life* franchise and most protagonists in visual novels.

Dialogue Tree

Virtually found in every visual novel out there, dialogue trees refer to the points of choice in the flow of a storyline. In a good game of interactive fiction, dialogue tree choices are logical and interesting and have an actual effect in the proceedings of the game's universe. These choices often include whether to ask some virtual person on a date or not.

[1] www.animenewsnetwork.com/press-release/2006-02-08/amn-and-anime-advanced-announce-anime-game-demo-downloads

The Endings Tree

Most visual novels feature various end states for the storyline. These are the good ending (sometimes referred to as The Golden Ending), the bad ending, and the standard ending. The first two are more or less self-explanatory, referring either to typical tragedy or victory. The standard ending, however, refers to the finale resulting usually from indifference from the player's behalf. It is the result of mostly passive clicking on choices and usually provides only the least impressive of endings: most visual novels expect a degree of focus and intent from the players.

Some visual novels, such as *Tsukihime* (2001) by Type-Moon, feature a number of endings in each category for a total of nine. The more endings you implement, the more longevity your game obviously has. However, you should only provide the endings your story needs.

Into the Middle of Things/In Medias Res

It's often better to start a game in an interesting or unusual setting instead of character X simply waking up in his bed. This is to grab the player's attention and not bore them with every banal passage leading into the action. As introduced by Aristotle discussed in Chapter 1, this is a very common trope in the visual novel genre and for a reason. Backtracking can be done later as needed. Visual novels using this trope include *Saya no Uta* by Nitroplus and *Ef: A Fairy Tale of the Two* by Minori.

High School Geek

Perhaps the most popular character identity for current-day visual novel protagonists, the high school geek is relatable for many as plenty of us have been one at some point in time. Many fans of the game genre are indeed currently teenagers, so from a demographic standpoint this also makes

sense. However, there's no need to force high school geeks into your games unless the story demands it.

Variations of this trope naturally exist all over in popular culture, such as the regular Joe/Jane who gets a call to action, reaching new heights in personal development after completing a challenge or several. Basically most visual novels benefit from having at least one relatable character, preferably as a protagonist.

Visual novels with this trope include *Katawa Shoujo* by Four Leaf Studios and *Doki Doki Literature Club!* by Team Salvato – and a massive swathe of other titles.

Branch Cutting

When it comes to sequels in visual novels, most build on the premise that the saga had one true ending (i.e., The Golden Ending). It might be best if the other endings are ignored altogether in the follow-up product. This is something developers need to keep in mind. Sticking to a single canon is good for the franchise. Branching out too much might result in a developer's hard work getting confused with fan fiction when it comes to sequels. Sticking to unified canon keeps the franchise strong. Leave the more bifurcated storytelling to the fans of your product.

Sword and Sorcery

Emerging from common folklore and solidified by the works of J.R.R. Tolkien, fantasy is a genre that has been pretty much troped to death. For better or worse, most people have heard of long swords, elves, magic spells, and dragons – even those "not in the know" of fantasy-based video games and other varieties of popular culture. There may be thus some fantasy fatigue among the general population, even among enthusiasts. However, by spicing up the sorcery with elements of, say, sci-fi, new developments have emerged from this age-old trope.

In the first era of interactive fiction, pure sword and sorcery was still exciting. First-generation gamers hunched over Infocom's *Zork* were entering a fascinating new world. But what was once novel in the late 1970s no longer is. Palace Software's *Demoniak* from 1991 combined fantasy elements with androids and interplanetary travel resulting in a wonderful experience. When it comes to elves, magic spells, and the like, make sure to add other elements in your product – or hear the dreaded word of "clichéd."

Core Concepts of Japanese-Influenced Visual Novels

Due to the Japanese origins of the modern-day visual novel, you may not be familiar with some of the concepts of the genre and its offshoots. As a developer it's highly useful to understand these terms. Therefore, before reviewing some important titles, let's take a look at some of the core concepts of the visual novel.

Figure 3-1. *The anime aesthetic has gained ground in popular culture since the 1980s*

Anime

Now pretty much a visual novel staple, anime refers to a specific type of visual style and animation originating in Japan. This can be either hand-drawn or computer generated. Anime characters present us with a wide variety of body proportions and facial features. The latter include unusually large eyes and an agreed-upon set of default expressions for most common emotions (see Figure 3-1). Also, hair in anime characters tends to be more on the colorful and exotic side of things.

Music used in anime-based products, including visual novels, are mostly upbeat pop songs. This genre is referred to as J-pop, short for Japanese pop. J-pop in general became popular in its originating country in the 1990s. It has since attracted fans all over the world.

The earliest Japanese animation, *Namakura Gatana,* was introduced in Japanese cinemas in 1917. This 4-minute film told the story of a stingy samurai with a taste for cheap swords. It was drawn by one Jun'ichi Kōuchi.

Bishoujo (also Galge) Games

The word *bishoujo* is Japanese for beautiful girl. It's also a sub-genre of the visual novel that features, not surprisingly, a lot of attractive female characters. Galge is sometimes used as a synonym for this type of game; this is short for "gal game."

Bishoujo games aren't necessarily adult-oriented as many of them don't contain any age-restricted material. Think of bishoujo as the more romantic cousin of eroge, which definitely is not for the whole family (see Eroge in the following).

Dating Sim

Short for dating simulator, the concept of dating sims is quite self-explanatory. The genre focuses on the player trying to impress his or her

love interest enough to score a relationship or marriage. Dating sims are therefore usually somewhat more limited in subject matter than other types of visual novels. Most dating sims are created with men in mind, but those for females also exist. Also, same-sex dating sims have been released.

Quite a few dating sims feature similar themes: a high school setting, a selection of characters to get infatuated by, and a complex set of internal variables which determine whether you're romantically successful or not.

Most dating sims can be classified as either bishoujo for male audiences or otome for female gamers. However, not all bishoujo or otome games are dating sims.

Doujinshi Games

Because the visual novel is such a popular genre in Japan (and indeed, increasingly so in the rest of the world), hobbyists have taken to it with great enthusiasm ever since the 1990s. A doujinshi game refers to a home-made visual novel, that is, one not published by any established company. These types of games can be both fully original creations and fan fiction based on commercial franchises.

Many doujinshi projects are derivatives of commercial anime franchises. This can be seen as either a good or a bad thing, depending on one's taste. One must always tread carefully in the land of copyrights.

There are literally thousands of doujinshi games available, often as free downloads, in every genre. However, many home-based creators put a price on their work with great success. According to Media Create, a Japanese sales tracking company, in 2007 almost half of the $1.65 billion anime-based industry in Japan consisted of doujinshi games and other hobbyist products.[2] Some notable artists working in the genre include Yoshitoshi Abe and Nanae Chrono.

[2] www.m-create.com/

To avoid legal problems, a doujin mark was created in 2013 (see Figure 3-2). This is a logo for a license format inspired by the creative commons public copyright licenses.

Figure 3-2. *The doujin mark*

Eroge

A portmanteau of erotic and game, eroge is a genre of pornographic visual novels. A blanket term, these types of games are usually classified by their sub-genres, such as otome (see Otome in the following). Most major publishers of video games, such as Sony, do not allow eroge games of the more graphic variety officially published on their systems (in Sony's case, the PlayStation consoles).

Hentai

This term refers to any type of adult-themed entertainment produced in Japan or heavily influenced by the anime aesthetic. There are plenty of hentai visual novels, comics, and cartoons made all over the world. Although hurt by piracy, hentai is a multi-billion industry in 2019.

Isekai

Isekai refers to a genre of anime and visual novels where the protagonist visits (or is trapped in) some other world. This can be a parallel universe of either benign or malicious nature. Many visual novels, such as *Air* by Key, can be labeled as isekai.

Kamige/Kusoge

Kamige literally means god game. It refers to visual novels that a gamer considers some of the best ever made. Kusoge, on the other hand, refers to human refuse. In the context of visual novels, it's naturally only used if a particular game isn't very enjoyable. Both concepts are subjective, but the latter seems to enjoy somewhat of an objective status.

Kawaii

Basically, kawaii refers to the culture of cuteness in Japan. It covers people, animals, and basically all things which are found appealing in a superficial sense. Many visual novels are presented in the kawaii-aware context with the characters therein being shy but outwardly attractive. Anything cute and adorable is kawaii.

Kinetic Novel

This term refers to a linear type of visual novel where the player cannot make any choices regarding the flow of the story. Basically the only form of control a player has in a kinetic novel is with the reading speed and/or the language selection of the story. Examples of this genre include *The Spell* by Hangover Cat Purrroduction and *Highway Blossoms: Remastered* by Studio Élan.

Otaku

Used as a somewhat of a pejorative in Japan, otaku simply refers to any enthusiast or fanatic. In the west it usually refers to someone who's a fan of Japanese popular culture, including anime and visual novels.

Otome

This is a type of visual novel targeted at female audiences. Otome games feature a female protagonist who seeks the affections of various attractive male characters. Interestingly, many titles in this genre feature fully voice acted dialogue instead of simply presenting it on the screen the traditional way. Otome games may or may not include erotic visuals.

Magical Girlfriend

Not to be confused with The Magical Girl (see the following), a magical girlfriend is an attractive girl the (usually) male protagonist falls in love with – and this time, the love is requited. The often down-on-his-luck guy gets lucky for once, but it's really not that simple.

Magical girlfriends, although loyal and wonderful in every way, tend to sometimes inadvertently cause mishaps due to owning said magical powers. Also, these women may always be human with a touch of magic; some of them can be aliens, witches, angels, or even demons. This further adds to the dramatic possibilities of a common Joe discovering an extraordinary woman.

Mahou Shoujo (The Magical Girl)

This is a popular trope in many franchises. Mahou Shoujo simply refers to the adventures of attractive, young women with actual magical or otherwise superhuman abilities. Sometimes the term majokko is also used.

The origin for this trope comes from, perhaps surprisingly, *Bewitched*, an American sitcom that ran from 1964 to 1972. Two famous Japanese animators (i.e., Mitsuteru Yokoyama and Fujio Akatsuka) have said the TV show inspired them to introduce the trope into the world of otaku. The Magical Girl has since been a staple in it for decades.

Manga

This oft-heard term refers to comic book art produced in Japan using specific techniques. This style of drawing was created in the nineteenth century, and it remains a popular art form for all ages in Japan and the rest of the world.

A lot of manga is drawn in black and white, although colorful manga is also being produced. The first known manga magazine, *Eshinbun Nipponchi*, was released in 1874. Created by Kawanabe Kyōsai (1831–1889) and Nozaki Bunzō (1829–1894), the magazine folded after three issues. However, it set in motion a phenomenon which shows no signs of slowing down well over a century later.

Figure 3-3. *An example of a mecha battle robot*

Mecha

In Japan the word *mecha* refers to any type of machinery. In a manga or anime-related context, it often translates to "giant robots piloted by humans" (see Figure 3-3), a rather common premise in general popular culture, too. The sub-genre of *combining mecha* is also fairly popular; in it individual robots can be seen combining to form one larger, more powerful robot.

Moe(ge)

An exceptionally light-hearted visual novel can be classified as moe(ge). The characters in this genre tend to be even more cheerful and colorful than in your run-of-the-mill anime. Some examples of moe(ge) include *Moe! Ninja Girls* by NTT Solmare and *LoveKami -Divinity Stage-* by MoeNovel.

Nakige/Utsuge

Some sub-genres in visual novels are truly unique. Nakige refers to a crying game, which aims to cause a powerful emotional reaction in the player. This may be triggered by either great feelings of loss or joy.

Utsuge, on the other hand, stands for pretty much the opposite of nakige, aiming to be as depressing an experience as possible. To each gamer their own.

Tsundere

Tsundere refers to the process of a previously hostile character becoming more warm and open to other characters. This concept is crucial for many games in the bishoujo and dating sim genres.

Modern-Era Kamige, or the New Classics

Now it's time to take a look at some of the most prominent visual novels from the modern era. Play them, appreciate them, and learn from them. Millions of visual novel aficionados consider the following titles kamige, that is, games that are godly or among the best, after all.

Kanon by Key (1999)

First released as an adult-themed game in 1999, *Kanon* kickstarted Key's foray into a visual novel powerhouse. As is the case with many debut products, it was somewhat of a flawed masterpiece. Taking on the popular trope of a high school geek as its protagonist, *Kanon* tells the story of Yuichi Aizawa, an amnesiac who returns to his hometown after 7 years of absence. The game ended up selling over 300,000 copies across numerous platforms and spawning a whole host of spinoffs, including an animated series which ran in 2002.

Figure 3-4. *Kanon introduced the unique facial features familiar to most of Key's games*

Kanon features five female characters, some of whom are also suffering from amnesia. The tone of the game is somber, dealing with themes like

past grudges and teenage cynicism. It's not all dark, however, as *Kanon* includes its fair share of uplifting miracles and great food. The game was most heavily criticized for its predictable and unsatisfying ending. Also, *Kanon* introduced to the world a drawing style which is somewhat divisive: not all gamers are happy with those gigantic wide-set eyes Key likes to adorn their characters with (see Figure 3-4).

Air by Key (2000)

Just like *Kanon*, *Air* was first released as an adult-oriented game (i.e., eroge) for Windows and later ported as a non-erotic game for the PlayStation 2 and Dreamcast consoles. A sequel to the much less impressive *Kanon*, the game tells the story of Yukito, a traveling showman and puppet master looking for a "flying girl." Set in Kami, a quiet seaside town in Japan, *Air* is a harrowing tale of longing with a distinctively surreal slant. It featured the same distinctive graphical style as its predecessor.

Air is split into three distinct chapters, namely, Dream, Summer, and Air, each featuring a different female love interest. The story is focused on the theme of loss and told with the help of reincarnation, a religious sect, and a thousand-year familial saga involving the aforementioned flying girl. Yukito and his three love interests aside, *Air* features a couple of surprisingly well-written and humorous side characters as well.

An emotional roller coaster, *Air* was criticized for lack of dramatic buildup and the rather abrupt and shocking ending. Being Key's second ever offering, the game was rough around the edges here and there in terms of presentation or lack thereof. However, *Air* remains a highly replayable visual novel and a bona fide genre classic thanks to its rich atmosphere and powerful drama. There's never a tedious moment in Kami, it seems.

Phoenix Wright: Ace Attorney by Capcom (2001)

Originally released in Japanese for the Nintendo Game Boy Advance, *Phoenix Wright* is an absolute classic in the visual novel genre. The game tells the story of a novice defense attorney who's striving to clear his client's reputation. Split roughly into two sections, investigations and courtroom trials, *Phoenix Wright* features great writing, vibrant visuals, and an innovative setting. Courtroom drama was no longer limited to bland late night TV (*LA Law* being of course excluded from the definition of bland).

Poor character development can decimate a visual novel, no matter how interesting the premise may be. Luckily, Ace Attorney introduced some of the most memorable and complex characters in the genre. Phoenix Wright is an idealistic and inexperienced defense attorney with much to lose (see Figure 3-5). To the laymen he is therefore a highly relatable protagonist. Mia Faye, Wright's boss, and prosecutor Miles Edgeworth are in turn fascinating and tragic characters.

Figure 3-5. *Mr. Wright in his trademark pose*

Phoenix Wright found his way onto several platforms after the initial 2001 release, including Windows, Nintendo Wii, and iOS. All conversions

were universally praised, save for the Wii version due to it sticking to the low-resolution graphics of the original.

This game set in motion a phenomenon of courtroom visual novels with numerous sequels and related products. The latter include an anime series and a feature length movie, which some critics consider the best video game movie so far. *Phoenix Wright* is a great example of introducing new settings into a somewhat stale genre and creating a major franchise in the process.

Digital: A Love Story by Christine Love (2010)

Played in an interesting setting of 1980s operating system, *Digital* is basically a tale of romance. The player gets to communicate with ∗Emilia, a love interest via an old-school, pre-Internet network. Set in 1988, the two team up to study and resolve the sudden disappearance of a number of artificial intelligences. Rinsed in retro aesthetics (see Figure 3-6) and early era Internet lore, *Digital* offers an engaging and poetic experience of high-tech drama.

Figure 3-6. *The art direction in Digital: A Love Story was a nod to old-school operating systems.*

Digital was not surprisingly well-received. Its Spartan visuals and to-the-point writing recreated an era wonderfully. The silent protagonist gave the game an extra layer of mystery.

Released for free in early 2010, *Digital: A Love Story* went on to entertain tens of thousands of gamers. Its developer, Christine Love, went on to produce a number of successful titles. Sometimes a first-class free product is what you need to penetrate a market. This seems to be the case with quite a few developers of visual novels, in fact.

Katawa Shoujo by Four Leaf Studios (2012)

Even though *Katawa Shoujo* features the most clichéd of visual novel champions, a high schooler, the game presents a twist: most of the characters have disabilities. The aforementioned protagonist, Hisao Nakai, is transferred to a special high school after a heart attack caused by his cardiac arrhythmia. What ensues is a fine dating simulator featuring five potential romantic prospects, namely, Lilly, Emi, Hanako, Rin, and Shizune. All of them have disabilities, ranging from blindness to burn scars.

Katawa Shoujo, Japanese for "Disability Girls," was well-received and garnered praise for featuring, but not fetishizing, people with disabilities. Its visuals, the characters in particular, are rather impressive, too. Although the game features some adult content, it can be skipped without hindering the flow of the story too much.

A community-based game, *Katawa Shoujo*'s origins can be traced to the 4chan image board, where the creators first came together. A team of several dozens of visual artists, writers, and programmers then managed to create something both original and compelling. In development since 2007, the game was finally released in early 2012 as a free download for most major platforms.

Clannad by Key (2004, 2015)

Originally released in 2004 as a Japanese-only game, *Clannad* was brought to English audiences in late 2015. Typical of many visual novels, the game features a troubled high schooler as its protagonist (see Figure 3-7). Not only a commercial success on its own, the game went on to branch into a whole line of products. These include books, an animated series, and an animated film. *Clannad* is a sequel to *Air*.

Figure 3-7. *Expressive characters help make Clannad's setting less mundane*

The plot in *Clannad* centers on your protagonist's relationships with five other students at a fictional private high school. These are girls with their strengths and challenges. You act as a kind of mentor, being a senior after all, doing your part to help them with their school life. But *Clannad* is far from mundane in its subject matter. In addition to the school and its related locations, you also get to experience an Illusionary World and its invisible denizen. This haunting setting takes place during the second part of the game, 7 years after high school.

It takes between 50 and a hundred hours, depending on one's skill and reading speed, to experience *Clannad* and its various endings in full. Although not without its flaws (such as errant letters and typos), the game is outstanding. Dealing with themes such as family life and loss, *Clannad* was a highly successful multi-platform release, appearing also on consoles such as PlayStation 3 and Xbox 360, among others.

Her Story by Sam Barlow (2015)

Games using the approach called *full motion video (FMV)* have a bad reputation for a reason. Most of them are lurid 1990s titles with little or no substance and few gripping dramatic elements. However, *Her Story* is an exception. The game is centered around a collection of videos from a bygone interrogation concerning a man gone missing. A user interface reminiscent of 1990s desktop operating systems lures you in as you try to piece the story together (see Figure 3-8).

A winner of numerous accolades, *Her Story* is a unique combination of minimalism, intense acting by the leading star Viva Seifert, and a heavy atmosphere. While the game consists mostly of typing in keywords and notes, it never fails to entertain. *Her Story* is a surprisingly long game, easily taking several hours to complete. Little touches like reflections of fluorescent lights on your virtual computer screen keep you going until you reach the end of the story.

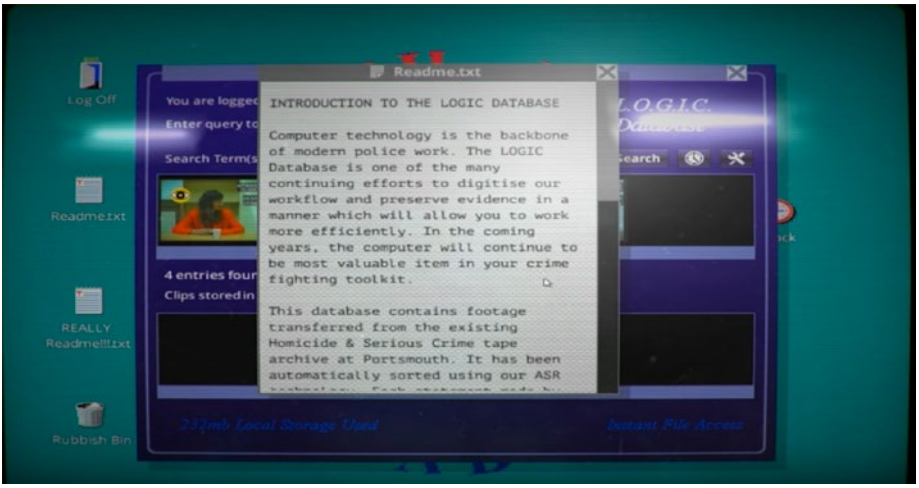

Figure 3-8. *Her Story features some fine retro aesthetics*

A demanding nonlinear experience, *Her Story* is a great example of a developer not underestimating the player. If you take on the challenge, the game will reward you with a great story featuring twists and turns you'd never have expected.

Doki Doki Literature Club! by Team Salvato (2017)

Beneath the bright colors and cheerful music is a game of suspense and horror. Instead of front-loading the shock effects, the game reels you in slowly, slapping you in the face relatively late into the game. Rather than vampires and other boogiemen, *Doki Doki* features pure psychological torment as its main antagonist.

In this game you, as a nerd in high school, enroll in the titular club. What ensues is a tragedy that brilliantly mixes in elements of breaking the fourth wall, in this case addressing you, the player, as an actual player of a video game.

Doki Doki makes you feel you're playing just another visual novel, making you attached to the characters and their issues. Its atmosphere

is light at first, only to break your heart in less than an hour or so into the proceedings. Lead programmer Dan Salvato has stated he has a love-hate relationship with anime. He apparently wanted to create a game that appeals to both anime enthusiasts and non-enthusiasts. One reason behind the game is indeed criticism for the over-used light and cheerful aesthetic found in many games in the genre.

A free game, *Doki Doki* has been downloaded in the tens of millions. It also gathered a huge cult following in just a few months after its release. Obviously, since the main product is provided for free, the developer makes money off of it mostly via selling downloadable content (DLC), such as soundtracks and other types of media.

Doki Doki Literature Club! is quite an experience with brilliant visuals (see Figure 3-9), especially when it comes to the characters, drawn by someone who calls themselves Satchel. The game demonstrates all the power a good, well-written visual novel holds in the current year. The visual novel, as a genre, is not only alive; it's gaining new ground.

Figure 3-9. *The visuals in Doki Doki Literature Club! are impressive and deceptively charming*

Open Sorcery by Abigail Corfman (2017)

With a unique protagonist and atmosphere, *Open Sorcery* is a tech noir text adventure about an otherworldly firewall. BEL/S is a fire elemental bound to some C++ code. The heroine can either use her powers to protect or to destroy. Various threats need to be first scanned and then dealt with. These include a variety of malicious spirits, doing their best to ruin someone's day with their respective powers. You can either attempt to fight them or to learn from them through thorough investigation. Human beings can be consulted, too, for their take on the proceedings.

Presented as a text-only game without other audiovisual elements simply adds to the tech-heavy and intense cyberpunk atmosphere. BEL/S is on a quest for awareness and the displayed inner dialogue reflects that well. Elements of the surreal intermingle with technology effortlessly in *Open Sorcery*, providing an entertaining adventure in cyberspace complete with numerous different endings.

Simulacra by Kaigan Games (2017)

Found footage is a popular trope in films in which a substantial part of the story is presented as if it were discovered on video recordings. The events onscreen are usually seen through the camera or the characters involved in the proceedings. Based on this, *Simulacra* tells the story of Anna, who's gone missing. It's your job to find out what happened to her using the videos and other data stored on her cell phone. *Simulacra* shows not all quality visual novels need to adhere to the anime aesthetic (see Figure 3-10).

The somewhat sinister premise in *Simulacra* is beautifully executed using nods to modern social media and excellent writing. Sifting through Anna's emails and other media, while voyeuristic, is thrilling. Although the voice acting is weak in some places, the atmosphere in the game is top-notch, only seriously dampened by overtly grating audio cues. The game

interface is polished and a pleasure to use, conveying the aesthetics of current-day smart phones to a tee.

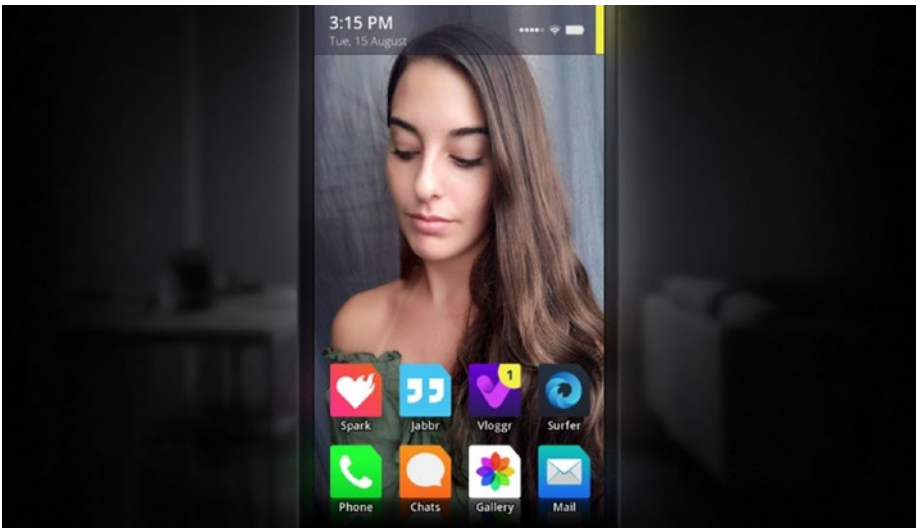

Figure 3-10. *Simulacra reels you in with its realism*

The game features a few sub-games, such as picture decryption segments. Luckily, these are few and far between and don't ruin the atmosphere. The puzzles in *Simulacra* tend to be on the easy side. Comparisons can be made with the mighty *Doki Doki Literature Club!*, but *Simulacra* is even more engaging due to its realism and everyday relatability. Like all good visual novels, the game also has plenty of replayability value thanks to several different endings. You'll never look at social media the same way again after playing some *Simulacra*.

Simulacra: Pipe Dreams (2018)

Fueled by the success of the first *Simulacra*, Kaigan Games released a free-to-play sequel, *Pipe Dreams*, a year later. Although not as lengthy as the first *Simulacra*, this game, too, provides a couple of hours of nonstop thrills with no major flaws.

Once again you're at a cell phone, going through its contents. This time you're communicating with your friend Teddy, who's fallen on some hard times. As is often the case these days, you communicate with other characters via text messages. The odd video recording from one of them breaks up the potential monotony well. *Pipe Dreams* is riddled with amusing fake ads to demonstrate the phenomenon of ever-increasing commercialization of our time.

Simulacra: Pipe Dreams works on many levels. For one, it's a critique of the modern video game industry; a quaint minigame is used to demonstrate the flawed, overblown nature of the business. The other major theme is addiction in general, which is naturally intertwined with the aforementioned industry. Although said minigame becomes quite repetitive (i.e., *FlapeeBird*, a tribute to *Flappy Bird* by Dong Nguyen), it never turns into a chore. *Simulacra: Pipe Dreams* is a fine sequel to a great visual novel.

How We Do It – Modern Tools for Visual Novels

Although some of the old-school tools from the earlier decades can still be used to create perfectly compelling text adventures, the majority of modern games are naturally created with a new generation of software. The main software focus of this book is on Ren'Py, Twine, and TyranoBuilder, but it's useful for any developer to know what other tools are on offer for making these types of video games. Let's take a look at these modern tools and what they bring to the table.

Ren'Py

Out of all the software presented in this chapter, Ren'Py (`www.renpy.org/`) is the closest to a traditional programming language. It may very well be the most complicated piece of software out of the five featured here, but

what Ren'Py offers is generous amounts of flexibility with very few limitations. It's simply in a league of its own, having the most features while being relatively easy to master.

Ren'Py started its run way back in 2004 and it's still going strong. Many popular visual novels have been developed with it, including the wildly successful *Doki Doki Literature Club!* and *Digital: A Love Story,* to name just two. The system deploys for numerous platforms, that is, Windows, Mac, Linux, iOS, and Android. Best of all, it's a free download with no hidden fees at any stage of the development. Games made with Ren'Py are also quite easily localized to any language you can think of.

There's very few limitations to the kind of audiovisual finesse you can implement with Ren'Py, from impressive scene transitions to playback of most audio and video formats to add atmosphere to your games. We'll be looking in depth at Ren'Py later in the book, but at this stage you should just know it's the reigning champion of visual novel engines, going from strength to strength with each update it receives.

Twine

Twine (twinery.org) is a hypertext-based game engine. Like Ren'Py, it's open source and completely free to use. Deploying for online, Windows, Mac, and Linux, the software lends itself well to more minimalist games. It's great for beginners, as it doesn't require any programming experience. However, more advanced game makers can extend the capabilities of Twine via its JavaScript and Cascading Style Sheet (CSS) support. While many games made with Twine are of the text-only variety, you can inject some amount of audiovisuals into your projects, too. It does pale in comparison with the support for multimedia in Ren'Py and some other systems featured in the segment. Keep that in mind if video files and/or exotic audio formats are your thing.

Now, there are basically three choices for the overall approach to your Twine projects, called Harlowe, Snowman, and SugarCube. For one, they define the presentational style of your adventure. Harlowe provides the classic Twine look. Snowman represents the most minimalistic approach for more advanced creators, while SugarCube is the most modern style set with support for saving games out of the box.

Twine comes in two flavors, Twine 1 and Twine 2. Although the latter is more recent and thus advanced, some developers prefer the first version so it's still available for download. The user interface in Twine is graphical and thus user-friendly. Not only is the development system available for your desktops, you can also try making games online at the official site using Twine 2: `http://twinery.org/2/#!/welcome`

A good example of a well-made Twine adventure is *Open Sorcery* by Abigail Corfman. There's something quite charming about the whole Twine aesthetic.

Adrift

Sometimes called the easiest-to-use tool for creating text adventures, Adrift is free to download. The mouse-driven developer interface is certainly comfortable to use (see Figure 3-11). While being Windows-only software, the system deploys for other platforms, that is, macOS, Linux, and online.

Game data is organized well in the Adrift editor, consisting of separate categories for locations, items, characters, and so on. Although the system is designed for old-school adventures (i.e., text-only interactive fiction) instead of visual novels, some support for static images and audio files is included. Some more advanced features, like array data structures and dynamic variables, can also be easily implemented in Adrift without any issues. However, should a debutante developer get intimidated by these more advanced features, they can all be made to disappear by switching on a "Simple Mode."

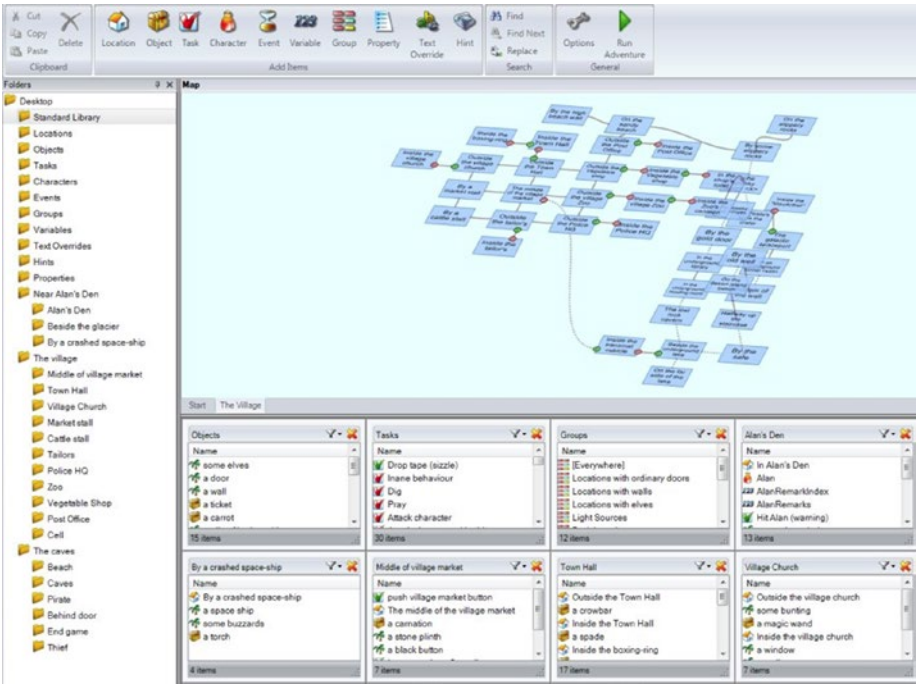

Figure 3-11. *Adrift has a logical and well-organized user interface*

Being completely mouse-driven and not requiring any coding, Adrift is one for the beginners. A cozy piece of software, it is intuitive and fun to use. From a consumer's point of view, Adrift also has an impressive auto-mapping feature in its output, making the gamer, too, feel more comfortable playing these games. Adrift is well worth the small donation the developer is asking for.

You can get Adrift here: `www.adrift.co`

TyranoBuilder by STRIKEWORKS (2015)

For a measly $15 or so, you get a beginner-friendly, intuitive, and powerful tool for making current-generation visual novels. That tool is TyranoBuilder, and although it doesn't let you go "under the hood" like

some other software, its output is fully commercially viable. Visually, it's on par with Ren'Py, with extensive support for video and image file formats. In fact, TyranoBuilder one ups Ren'Py in the visual category, since it includes an impressive character animation system called Live2D. Said system may be implementable in Ren'Py, but probably not as easily.

TyranoBuilder is a very friendly piece of software. Even prior to getting down and developing with it, all important game settings are presented in an understandable manner. The interface itself subscribes to a so-called "drag and drop" approach, where various actions (e.g., display text, change scene) are moved onto each scene to eventually make a game. Positioning characters in these scenes is fun and instinctual, as it should be, and an included asset library of visuals will get you started just fine. A preview window (see Figure 3-12) is summoned atop your project file for easy testing.

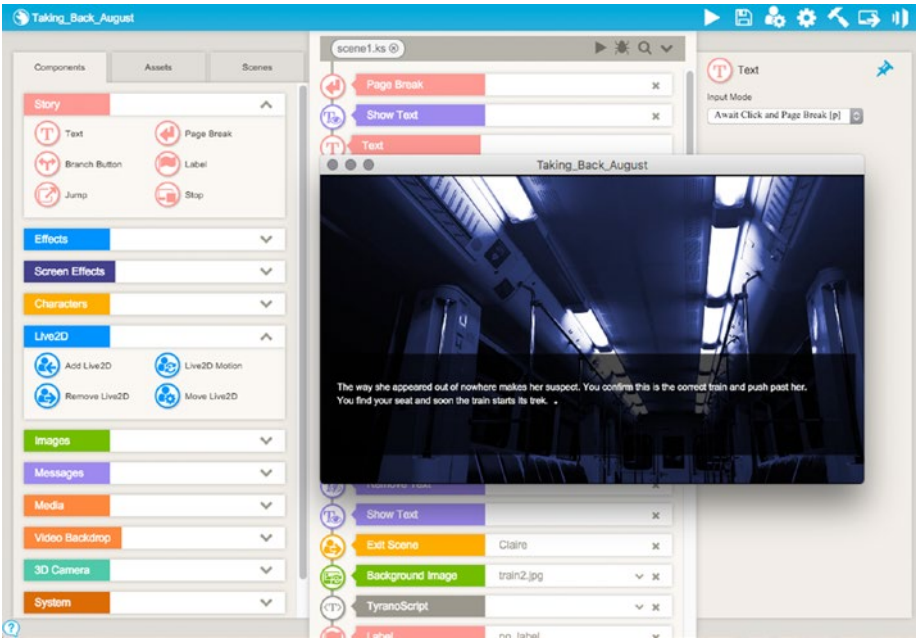

Figure 3-12. *TyranoBuilder offers a clean, intuitive interface and a handy, floating preview window*

The TyranoBuilder main application is available for both Windows and macOS. The software deploys for Windows, macOS, and online. Additional platforms (i.e., iOS and Android) are supported via third-party software.

You can get TyranoBuilder here: http://tyranobuilder.com/buy

VN Maker

Degica is behind the very successful RPG Maker line of software. In 2017 they released the VN Maker (Visual Novel Maker) tool dedicated to the development of visual novels. Geared toward beginners, it's easy enough to use, but is let down by unpredictable behavior and bugs. Also, at around $55, it's somewhat expensive especially when considering its competition of completely free tools.

Like TyranoBuilder, VN Maker includes the very impressive Live2D character animation technology. However, this time it's only available as a $20 DLC (i.e., downloadable content). The user interface, while not terrible, isn't as intuitive as its competitors' efforts. The learning curve is steeper. Thankfully, some good tutorials and other resources have become available since the product's initial release. For advanced developers, the software offers additional possibilities in the form of JavaScript support. Also, localization in VN Maker into any language is well executed.

One of the reasons we won't be delving in depth into VN Maker in this book is in its issues. Contrast the slowdowns and bugs with the price and it's apparent VN Maker isn't the best choice for development. The potential, however, is there. Who's to say what kind of visual novel powerhouse this software may transform into after a few updates?

You can get VN Maker here: http://visualnovelmaker.com

In Closing

After reading this chapter, you'll have learned about the following topics:

- The most common tropes related to visual novels
- The most noteworthy modern visual novels and what factors contributed to their success
- Which tools are prominently in use for visual novel creation today

In the next chapter, we'll get our feet wet with visual novel development by actually working in Ren'Py, TyranoBuilder, and Twine.

CHAPTER 4

Working in Ren'Py, Twine, and TyranoBuilder

In this chapter we'll be taking a hands-on approach with the three featured tools for visual novel creation: Ren'Py, Twine, and TyranoBuilder. We'll go through the main elements to the user interfaces for each system and explore the main features found in said tools. Although the main focus of this book is on Ren'Py due to its most robust feature set and customization, the other two tools both offer compelling approaches which may be more suitable for some developers.

The tutorials in this chapter will be kept concise and simple. More advanced techniques for the aforementioned three tools will be explored later in this book in the form of three mini adventures. But for now, let's simply recap the main features of the three, shall we (see Table 4-1)?

R. Ciesla, *Game Development with Ren'Py*, https://doi.org/10.1007/978-1-4842-4920-8_4

Table 4-1. *The main features of Ren'Py, Twine, and TyranoBuilder*

Tool	License	Deploys for	Available for	Best Suited for
Ren'Py	Free	Windows, macOS, Linux, iOS, Android	Windows, macOS, Linux	Multimedia-rich visual novels
Twine	Free	Windows, macOS, iOS, Android, Linux, online (HTML5)	Windows, macOS, Linux, online	Minimalistic interactive fiction with some support for visual elements via Cascading Style Sheets (CSS) and JavaScript
TyranoBuilder	$15 (Q1 2019)	Windows, macOS, iOS, Android	Windows, macOS	Multimedia-rich visual novels with extensive use of character animation using Live2D technology

Ren'Py in Detail

Ren'Py is a powerful tool devised exclusively for writing visual novels, based on the Python programming language. The software is freely downloadable with no restrictions for use. It allows for the creation of fully commercially viable titles for multiple systems and has a great track record in the industry. Successful visual novels created with Ren'Py include *Doki Doki Literature Club!* and *Digital: A Love Story* (see Chapter 3). There's also a huge community of developers around the product with active forums.

Download Ren'Py from the official web site: `www.renpy.org`

Ren'Py supports most common image and audio formats. Some issues with specific types of video files have been reported and do persist: your mileage may be of the fluctuating kind. However, audiovisual formats in

general are well supported in Ren'Py, and there shouldn't be many issues concerning them.

Debuting in 2004, Ren'Py is still a frequently updated and very popular tool for visual novel development, showing no signs of stagnating anytime soon. Now, let's get started with this fine piece of software.

How Ren'Py Works

Ren'Py is basically split into three components: the launcher program (see Figure 4-1), the script files, and the audiovisual elements (i.e., images and audio files). The launcher is basically a project manager which allows you to create and access the various game projects you may be working on in a streamlined fashion.

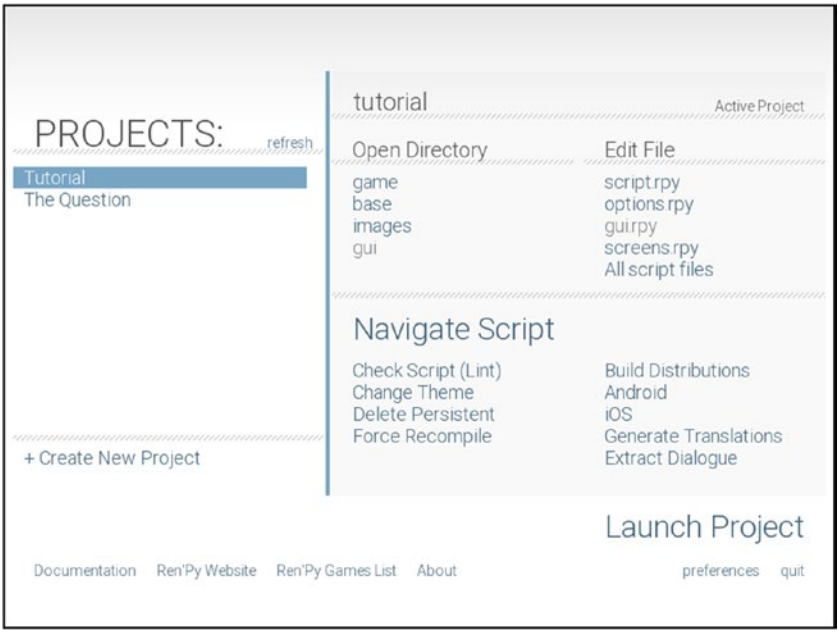

Figure 4-1. *The Ren'Py launcher screen*

Now, all script files in Ren'Py have the same file extension of *.rpy* (e.g., *script.rpy*). These are of the common text-file variety and can be thus edited with practically any text editor. Ren'Py doesn't have a built-in editor for its script files per se. However, a selection of free text editors is available for download on both the Ren'Py web site and from inside the Ren'Py launcher (i.e., if one is not installed, the program will provide you with a selection of editors).

Starting a New Project

Projects are easily created by simply clicking "Create New Project" in the launcher. This new project will be added to the list displayed on the launcher window. After clicking said link, you'll be asked to select a file directory and enter a name for your game. All of your project files will be residing inside the chosen directory.

Next, you'll get to choose a screen resolution for this project. On offer are 1066 x 600, 1280 x 720 (HD), and 1920 x 1080 (Full HD). This choice should usually depend on the size of the project artwork. Naturally, it's easier to scale down artwork rather than to scale up and still keep it presentable (i.e., artwork in 1920 x 1080 looks fine scaled down to 1280 x 720, but not necessarily vice versa). Even older computers are perfectly capable of running Ren'Py visual novels in Full HD resolution as the projects aren't power-hungry unlike, say, games of the 3D variety. Again, the decision for the resolution should rest on the (projected) specifications of your art files.

Finally, you'll be asked to select a color theme for your game. Pick one that suits your sensibilities best; this color theme can be changed later if you so choose. After this step, a skeleton project template will be created. Support for setting reading speed, loading, and saving will be automatically generated for each new game in Ren'Py. Clicking "launch project" in the launcher will let you try out this template right away.

The Ren'Py Workflow

So the launcher serves as the central hub for your Ren'Py projects. You could access the various files manually from the project directory, but it's often easier to do so via the launcher. In addition, you can perform several handy special actions with the program (see Table 4-2).

Table 4-2. *The Ren'Py launcher actions*

Action	Description	Useful when
Navigate Script	Allows you to quickly find files, labels, and other items in your project	Pinning down specific parts of your project
Check Script (Lint)	Runs the Lint script to make sure your game scripts are error-free	Encountering unusual behavior from your visual novel project, checking for errors prior to release, just in case
Change/ Update GUI	Allows you to change the color scheme, user interface buttons, and other aspects of the in-game graphical user interface (GUI)	The need for a new look for your visual novel emerges
Delete Persistent	Deletes saved games and other persistent data from your project	Testing your game from scratch, ironing out any strange behavior
Force Recompile	Recompiles all script files in your project	Ironing out any strange behavior, importing an older project into a newer version of Ren'Py
Build Distributions	Creates the executable files of your game in the requested format (e.g., PC, macOS, Linux)	You're ready to distribute your game to your requested platforms

(*continued*)

Table 4-2. (*continued*)

Action	Description	Useful when
Android	Starts the export process for Android by installing the free *Ren'Py Android Packaging Tool (RAPT)*	You're releasing your visual novel for the Android platform
iOS	Starts the export process for iOS by installing the free *Renios* tool	You're releasing your visual novel for the iOS platform (iPad, iPhone)
Generate Translations	Translate all in-game writing to other languages using language templates	The need or opportunity to release your games for additional markets arises
Extract Dialogue	Exports in-game dialogue (or other text) to an external file in regular text and/or spreadsheet format	Proofreaders or other team members need to read the material without playing the game

As you can see, Ren'Py is quite packed with features. They may seem daunting for the beginning visual novelist, but the core principles of the software aren't all that complicated. It's just that the team behind Ren'Py perhaps opted for more traditional methods of implementing a workflow. In time and with enough motivation, you'll be generating translations and deploying for Android like it's your second nature.

The Basics of Ren'Py Scripting

Ren'Py is a very flexible yet simple scripting language. We'll now take a look at the fundamentals of what it all looks like and how it works. The following is a rather rudimentary Ren'Py game script which nonetheless demonstrates how to develop visual novels using Ren'Py.

Note Character image files should share the names of the shorthand descriptions in the script; for example, in our little listing the default portrait for Markus should be named mar.png, in accordance with the shorthand name defined in the script (shown in bold). These files should also be placed in the images directory of your project.

```
init:
    $ mar = Character('Markus')

    image home = Image("home_of_markus.jpg")
    image markus happy = Image("markus_happy.png")
    image markus sad = Image("markus_sad.png")

label start:

    scene home
    show markus happy

    mar "Here I am, at home and happy!"

    hide markus happy
    show markus sad

    mar "But the milk seems to have run out."

    "Markus is visibly saddened by the lack of dairy products."

    hide markus happy
    show mar
    mar "Is it too late to go to the grocery store?"
```

Scripts in Ren'Py start with the initialization statement (i.e., *init:*) under which we define the backdrop and character graphics and other audiovisual assets in a visual novel. These can be then later referenced in the game in an elegant fashion. In our example, the image file *home_of_markus.jpg* is associated with the variable *home*. Whenever our protagonist is at home and the image file needs to be summoned, it can be done by simply invoking the variable name (i.e., *home*) instead of the full file name (i.e., *home_of_markus.jpg*).

Similarly, whenever we need to present a specific character graphic, such as a sad or a happy Markus, we assign these sad and happy character image files with variables and invoke those instead of the file names. In our example, only the command of "show markus happy" is needed to display a happy protagonist. No need to use potentially complicated file names to stain our source code. In the preceding text, we have only two states for the protagonist (i.e., *happy* and *sad*), but Ren'Py naturally allows for as many states as you need to convey different emotions.

Now, the game proper begins with a *label statement* (i.e., *label start:*). It's after this point that things begin appearing on your screen. Labels are "jump cuts" in a Ren'Py game, which are usually triggered by user choices. Labels can be thought of as scenes and moving between them as scene changes. In our more basic example, there's only one label and user interaction has no bearing on the proceedings: the player is simply clicking to see the next piece of dialogue with no choices available. You may name these label elements any way you wish (e.g., *label work:* or *label holiday:*).

Right after our label, there's a *character definition statement*. We simply associate the arbitrarily chosen variable *m* with the character name *Markus*. After this point the letter "m" is used to display dialogue spoken by said character. The words "Here I am, at home and happy!" will be then displayed onscreen in a typewriter-like fashion, as is often the case with visual novels. It's all quite simple and effective. Let's next take a look at some of the core elements in Ren'Py (see Table 4-3).

Table 4-3. *Ren'Py language key elements*

Element/ Statement	Description	Example(s) of Use
`init:`	Initialization label. Used to declare file name aliases and other persistent data. Is typically followed by image definitions	`init:` `  image garage = Image ("garage.jpg")`
`image`	Used to define aliases to image files	`image billy happy = Image("billy.jpg")` `image billy angry = Image("billy2.jpg")`
`label`	Labels assign aliases to specific access points in the program listing	`label garage:` `  "We're in the garage!"`
Character macro	Gives a shorthand alias to a game character	`$ b = Character('Billy')` `$ c = Character('Christopher')`
`scene`	Deletes all visuals onscreen before summoning a new background graphic	`  scene garage`
`show`	Shows a character portrait on top of the background. You may give additional descriptive terms to your images, such as "James happy" or "James angry"	`  show billy happy`

(*continued*)

Table 4-3. (*continued*)

Element/ Statement	Description	Example(s) of Use
`hide`	Hides a character portrait	`hide billy happy`

Say statement	Outputs text onscreen, either for narrative purposes or assigned to a character using the character macro	`"The air is pregnant with silence."`
		`b "Christopher! Are you here?"`
		`c "Yes, Billy. I'm here."`

Transitions	Fade images smoothly using a variety of effects (e.g., fade, dissolve). Summoned by the command *with*	`show billy angry with fade` `hide billy angry with dissolve`
`play sound`	Plays an audio file in one of the numerous formats supported by Ren'Py	`play sound "soundfx1.ogg"`
`pause`	Pauses the game. If a value in seconds is omitted, the game will remain paused until the player presses a mouse button	`pause 2.0`

Creating User Interaction: Menus

Although a genre of fully linear visual novels exists (called the *kinetic novel*), it's generally a good idea to give the player room to maneuver in your adventures. For this, we introduce the *menu element.* These are used in combination with labels and our new friend, the *jump command*. See the following listing for an example of said element.

Notice how we're using Ren'Py character aliases for easy formatting, referring to both Christopher and Billy simply as *c* and *b,* respectively, as defined in Table 4-3.

```
b "Hey, Christopher, wanna get out of here?"
pause 2.0

menu:
    "Yes. Let's go.":
        jump outsideworld

    "No. Let's stay put.":
        jump stayput

label outsideworld:
    c "Ah. Fresh air at last!"
    jump endstory

label stayput:
     c "Well, the garage *is* a pleasant space."
     jump endstory

label endstory:
     "And so ends our monumental tale."
     play sound "fanfare.ogg"
```

Indentation and Text Blocks

One of the most common causes for errors in Ren'Py is the incorrect use of indentation. The language is very sensitive to whitespaces and even slightly off text placement. An incorrectly formatted script simply won't run in Ren'Py. The language interprets your script in blocks of text, which need to adhere to a specific logic. In general, it's a good idea to use four spaces for making new text blocks, as is the case with the following example.

```
"This here sentence is a part of block one."

if True:

    "This sentence is part of a second block."

    "Yes, this sentence is also part of a second block."

    "Would you have guessed it? This belongs in said block, too."

"And here we go back to block one."
```

You must keep the amount of whitespaces (i.e., empty characters) exactly the same in each block or Ren'Py gets very confused. In our example, block one statements feature zero whitespaces before them. In the second text block, however, each of the statements has four whitespaces before it. Should any one of the statements in the second block feature a different number of spaces before it, the program wouldn't run.

Conditional Statements: if, elif, else

In the previous listing, a new element peeked out at as the mighty *if*, that is, *the conditional statement.* These are used to examine the state of variables. Now, variables are arbitrarily named temporary storage elements for recording and manipulating in-game information, such as a character's energy level or other attributes. Let's see the conditional statement in more detail in the next listing, shall we?

```
# Create a variable called "energy" and assign to it a random
value between 40 and 100
# We could've just used something like "$ energy = 100", but we
are a curious bunch
$ energy = renpy.random.randint(40, 100)
if energy >= 100:

   b "Your energy level is optimal!"
```

```
elif energy >= 50:

   b "Your energy level is acceptable."

else:

   b "Darn it. You're almost out of energy."
   play sound "klaxon.ogg"
   pause 4.0
```

In the preceding example, we are examining the contents of the variable called *energy*. We do this using the conditional statement *if*. If said energy variable is set to 100 or greater, we display an enthusiastic message of encouragement. Next, we introduce the elif statement. This is short for *else if*. This branch of the program is executed should energy be greater or equal to 50, but less than 100. Finally, we have the *else statement*. This branch is triggered should energy fall below 50.

Any set of commands can be issued after these conditional statements; you're not limited to displaying text after them. As you may have gathered, we did play a klaxon sound effect and paused the proceedings for 4 seconds in the last branch of our example.

More on Control Statements

Using labels and jump commands is not the only way for fluent Ren'Py script control. Another useful structure consists of *label, call,* and *return commands*. The combination of these statements is demonstrated next.

```
c "Let's drink some healthy soda."

call drink_soda

c "Now we're done drinking soda."

return
```

```
label drink_soda:
    c "Mm. Delicious, isn't it?"
    return
```

The preceding example will output the following: "Let's drink some healthy soda. Mm. Delicious, isn't it? Now we're done drinking soda." Using the call command, we jump to the label of drink_soda from which we come back to the main listing using the return command. For one, this technique allows you to reuse parts of your code (i.e., the labels with return statements) at specific intervals in your game. Again, you're not limited to merely displaying dialogue with said technique. It should also be noted that the return statement prior to the label *drink_soda* makes sure we jump back into the very beginning of the listing; this is a good way to end a Ren'Py script.

Twine in Detail

Note Twine is currently in its second major incarnation. This book deals exclusively with Twine 2.

Twine is a fine, intuitive choice for those who appreciate a more low-key approach to game-making. Out of the box, the output is often rather minimalistic in audiovisual terms and that can be a good thing. Also, at the price of $0, you could do much worse. Twine's user interface is designed with said minimalism in mind with excellent results. Let's take a look at its main components, shall we?

Download Twine from the official web site: `www.twinery.org`

As you can see, the Twine launcher (see Figure 4-2) is quite a bit less complicated than the one in Ren'Py. The main items of interest on it are simply the green button, which creates a new story template, and the previously stored adventures on the left.

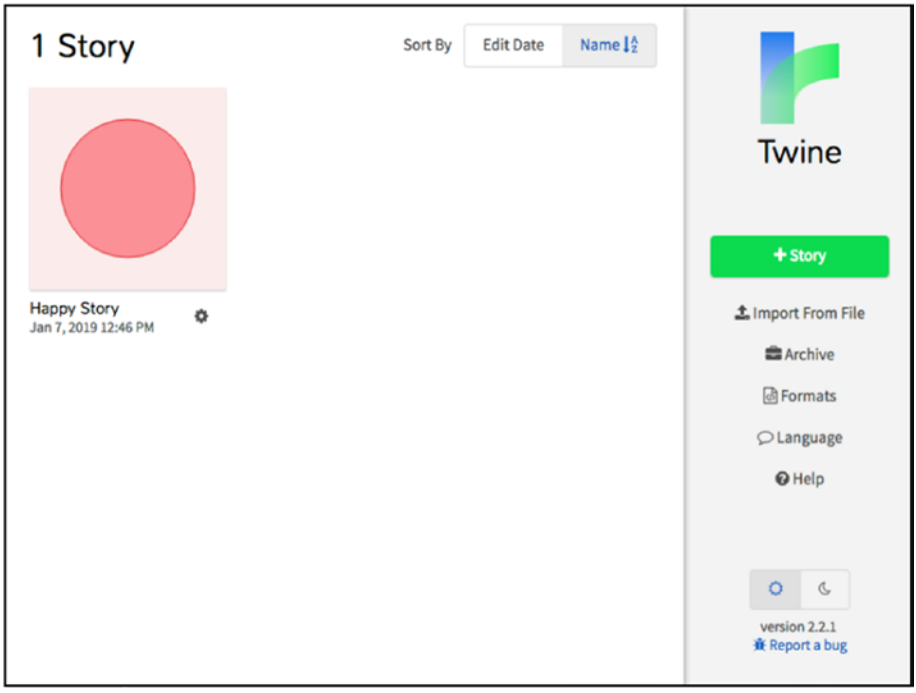

Figure 4-2. *The Twine launcher screen*

Now, creating a new project is achieved by, as you guessed, clicking the aforementioned green button entitled "+Story." This will result in Twine asking for a game title, which can be changed later if the need arises. After this you're taken to the main editor screen.

Game locations in Twine are called *passages.* At the start of a new project, you'll see a single passage which is represented by a square item. The contents of this passage can be edited by clicking the pencil icon on the item. This will take you to the room-editing screen, where you get to describe the location/room the player starts his or her journey. Let's type something silly in there, like "Billy sure would enjoy a hot air balloon right about now!"

Linking Passages Together

After experimenting with Twine and creating a couple of different passages (i.e., locations), you may wish to link these together to create interaction and some semblance of gameplay. The following is the description for the passage we just typed. Let's add a link to another location to it:

```
Billy sure would enjoy a [[hot air balloon]] right about now!
```

By adding dual square brackets around a trigger word or expression, we let Twine know this is a point of interaction in the game. Usually, this leads to the player traveling to a new location.

But wait, shouldn't we have created some sort of hot air balloon room/passage for Billy before linking to it? The answer is no. Twine is clever enough to automatically create new passages when the developer merely references them in an existing location. Try it out.

Now we have two passages: the default room created by Twine and one called "hot air balloon." Let's say we next want to create a third passage which deals with Billy crashing into a mountain. Let's edit the passage called "hot air room" to look something like this:

```
Oh no! Billy is out of [[luck!|mountain]]
```

What happens now is Twine creates a new passage called "mountain." Although the trigger word is "luck!" in the passage, we are using a special pipe character (i.e., |) to designate an alternate name for the new passage-to-be. Passages in Twine don't thus always need to be identical with their links. This is very handy from the developer's point of view, especially with larger projects.

Twine and Audiovisuals

Basically, Twine works on top of the good old *HTML framework*, by now unfamiliar to none, from a consumer's perspective at least: by now most

people have surfed the Web. Adding images and audio to your Twine games works the same way as it does on any web site. Specific HTML tags are issued for the desired effects. Twine also supports *Cascading Style Sheets (CSS)*, making sweeping changes to color themes and fonts a breeze, even on the fly. We'll take a closer look at CSS later in this chapter. For now, see the table of the most useful HTML tags in the context of using them in Twine (see Table 4-4).

Table 4-4. *Useful HTML tags in Twine*

Html Tag	Function	Example
<img>	Displays image files in almost all common formats	
<a href>	Accesses a site on the Internet	 Robert's Site
<audio>	Plays digital audio files in mp3, Ogg, and wav formats	<audio autoplay> <source src="audio/wind.ogg" type="audio/ogg"> </audio>
<video>	Plays (local) video files in mp4, Ogg, or WebM formats. *Width* and *height* attributes are useful and self-explanatory. The *autoplay* keyword plays back the file without user input	<video width="400" height="240" autoplay> <source src="movie.mp4" type="video/mp4"> <source src="movie.ogg" type="video/ogg"> </video>
<iframe>	Used for embedding YouTube videos into your projects	<iframe width="420" height="345" src="https://www.youtube.com/embed/ tgbNymZ7vqY?autoplay=1"> </iframe>

The preceding tags and more are simply embedded within each passage in Twine, intermingled with the script at your leisure.

The Three Varieties of Twine

Twine actually contains three slightly different approaches to game design. These are referred to as *story formats*. Each of them provides a different set of macros (i.e., built-in commands) and JavaScript functionality. In this chapter we'll focus on the *SugarCube* story format. The other two are called *Harlowe* and *Snowman,* and they will be examined in detail later in this book. All of them cater to different needs of developers at various stages of experience.

Twine's Many Macros

In addition to HTML support, Twine also includes some rather handy macros that facilitate many features such as audio playback and variable manipulation (see Table 4-5). Macros are utilized simply by typing them into each passage alongside the dialogue.

You can use either local (i.e., stored on your computer) or online audiovisual files in Twine. However, it's generally recommended to stick to local files as online resources can be taken down on a whim by the site owner(s).

Table 4-5. *Some useful macros for SugarCube built into Twine*

Macro	Function	Example(s)
<<cacheaudio>>	Prepares an audio file for playback, assigning it with a handle	<<cacheaudio "forest" "forest.mp3">> <<cacheaudio "wow" "http://www.soundbank.com/wow.mp3">>
<<audio>>	Plays an audio file Plays an audio file in a loop Stops the playback of an audio file Seeks to specific time in a sound (in seconds) Sets the volume of a sound using the range of 0 to 1 and plays it	<<audio "forest" play>> <<audio "wow" play loop>> <<audio "forest" stop>> <<audio "music1" time 30>> <<audio "music1" volume 0.2 play>>
<<setplaylist>>	Collects a number of audio files into a single continuous playlist. Works in conjunction with <<cacheaudio>>	<<cacheaudio "song1" "song1.mp3">> <<cacheaudio "song2" "song2.mp3">> <<setplaylist "song1" "song2">>
<<playlist>>	Plays back the playlist set up with <<setplaylist>> Halts the playback of the playlist	<<playlist play>> <<playlist stop>>
<<stopallaudio>	Stops the playback of all audio files	<<stopallaudio>
<<goto>>	Jumps immediately into a new passage	<<goto "Pyramids">>

(*continued*)

Table 4-5. (*continued*)

Macro	Function	Example(s)
<<back>>	Goes back a number of passages Goes back one passage with the link text "Restaurant"	<<back go 5>> <<back "Restaurant">>
<<display>>	Displays a second passage within the current passage	<<display "Pyramids">>
<<script>>	Executes JavaScript	<<script>> alert('Hello there!'); <</script>>
<<set>>	Manipulates a variable	<<set $money to 0>>

As you can see, Twine features quite a bit of built-in commands to help you make the best adventures out there. We have only scratched the surface in this chapter. In addition, the JavaScript functionality of Twine, although tricky for novices, opens up a world of possibilities for more advanced features. With enough persistence, most things are possible with Twine.

Twine's User Interface Functions

The interface and workflow in Twine are indeed refreshingly simple compared to, say, the ones in Ren'Py (as powerful as that software is). Let's take a look the few options we haven't tackled yet.

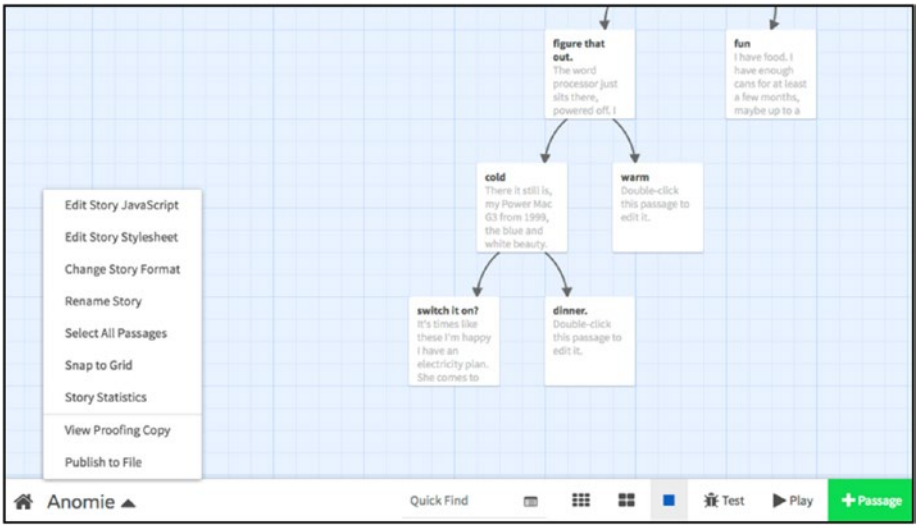

Figure 4-3. *The Twine editor screen*

Twine's editor screen has a nice, blueprint-like look, just waiting to impress the engineers among us (see Figure 4-3). The network of passages is represented by boxes and arrows on several levels of magnification, if necessary. This gives you a very clear picture of the proceedings.

Now, by clicking your game title, a menu of options appears (see Table 4-6). Let's take a look at what it has to offer.

Table 4-6. *The Twine game menu options*

Option	Description	Useful for
Edit Story JavaScript	Allows the input of custom JavaScript, to be executed at the beginning of your game	More advanced users who are augmenting Twine with new functionality using pure JavaScript
Edit Story Stylesheet	Allows the editing of Cascading Style Sheets (CSS) associated with the project	Improving and experimenting with any aspect of the visuals in your games

(*continued*)

Table 4-6. (*continued*)

Option	Description	Useful for
Change Story Format	Changes your project's development approach	Experimenting with the three available story formats (Harlowe, Snowman, and SugarCube)
Rename Story	Allows you to change your game name	Experimenting with game titles. Can be done at any stage of the project without issues
Select All Passages	Selects all passage boxes in the editor view	Rearranging your story elements as it grows in size
Snap to Grid	Makes all passage boxes align with the editor grid	Organizing your passages; it's a matter of taste
Story Statistics	Displays pertinent information about your game, such as the number of passages, words, and (text) characters	Keeping score on the size of the project, double-checking on the IFID (see "A Few Words on the IFID" later)
View Proofing Copy	Displays the story in a single text file	Providing your story for proofreading, checking for consistency
Publish to File	Creates an HTML file of your story	Delivering your project to the desired platforms (Windows, Mac, iOS, online, etc.)

In addition to the aforementioned functions, Twine also allows you to conduct searches using the "Quick Find" toolbar in the editor. This function highlights all of the passages that contain the typed strings in real time, no less.

A Few Words on the IFID

As you might've noticed, *Story Statistics* in Twine reveal a long string of characters referred to as an IFID. Since 2006, most games in the genre of interactive fiction have been issued with a 32-digit *Interactive Fiction IDentifier (IFID).* This unique, universal identifier is meant to be permanent. Twine does its best to assign each of your projects one that isn't in conflict with any other existing titles.

Read more on the IFID on its official web site: **https://ifdb.tads.org**

Some Useful CSS Selectors

The visual layouts in Twine games are primarily created using *Cascading Style Sheets (CSS).* This is a mature online standard pretty much behind every web site's look and it works great with Twine. CSS is inserted using the *Edit Story Stylesheet* button in the editor view. For those unfamiliar with CSS, we'll now review some key elements, called *selectors,* providing examples of each (see Table 4-7).

Table 4-7. *Useful selectors (i.e., CSS tags) to be used in Twine*

Selector	Description	Example

body	Controls the whole background's attributes, e.g., lets you adjust the background color, font color, style, and size	body {
		background-color: white;
		}
		Sets the game background color white

a	Controls the links in a document	a { color: red; } Sets all links to bright red
a:hover	Controls the way links look when the mouse pointer hovers over them	a:hover{ color: yellow; } Sets all links to yellow when hovered over

(*continued*)

Table 4-7. (*continued*)

Selector	Description	Example
#ui-bar	Sets the left side user interface bar in Twine's SugarCube story format	#ui-bar { display: none; } Hides the user interface bar
#story	Sets the right side (i.e., the story display) in SugarCube	#story { margin-left: 2.5em; } Sets the left margin of the story area
.passage	Targets the story area background	.passage { color: blue; }

The preceding examples are the tip of the iceberg of what you can achieve with CSS. Although Twine games are primarily about the story, the odd visual treat here and there can boost a game's atmosphere considerably.

TyranoBuilder in Detail

TyranoBuilder offers a user-friendly, mostly mouse-driven game-making experience for both beginners and more advanced developers alike. Components are dragged onto each scene for tasks vital to any type of visual novel (see Figure 4-4). This way you get to focus on writing with the trade-off being customization and file format support; TyranoBuilder isn't exactly Ren'Py in that regard.

Download TyranoBuilder from the official web site:
www.tyranobuilder.com

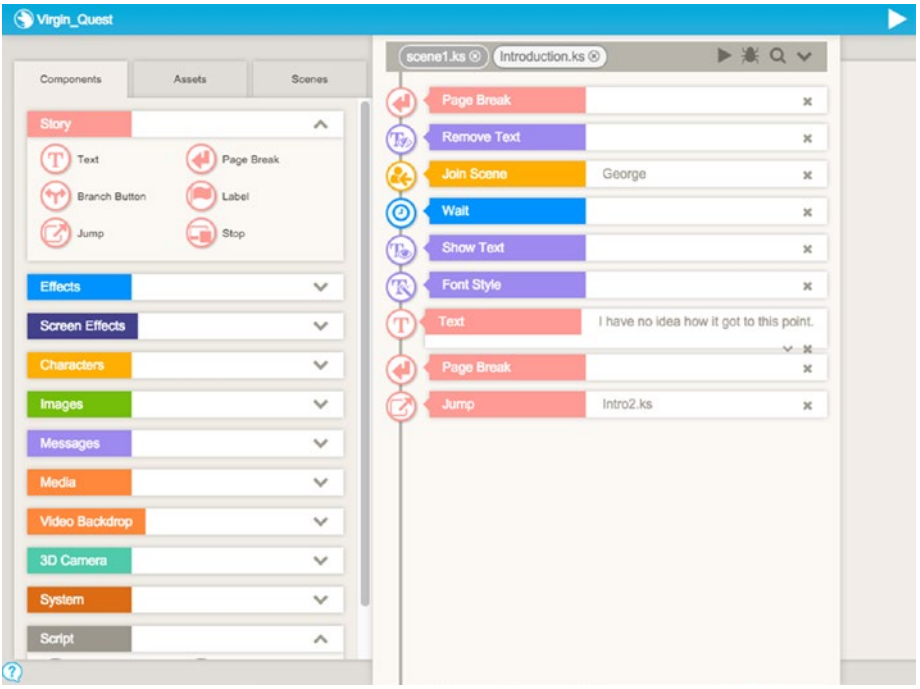

Figure 4-4. *The TyranoBuilder user interface*

TyranoBuilder shines in ease of use. It won't take long for a complete novice to churn out some type of visual novel or other. Although the software provides a great deal of extendibility via its built-in TyranoScript support, none of that is needed to create commercially viable products. TyranoBuilder exports to most major platforms (i.e., Windows, Mac, iOS, Android, online) and is truly a drag-and-drop piece of software.

The TyranoBuilder Workflow

The launcher program in TyranoBuilder needs no explanation. You're simply presented with a list of previously created titles or the option to start a new one. After choosing a project, the main view will pop up. It's from here that you add scenes, type in your masterpiece of a visual novel script,

and insert components to create your game. It won't take long to master and is, in general, a pleasure to use. In each scene, the aforementioned components are simply executed from top to bottom.

The components in TyranoBuilder can roughly be divided into three categories: story flow, audiovisual asset control, and scripting. A large swathe of these components are dedicated to visual effects; however, there's no real need for a massive amount of story-related elements. TyranoBuilder has everything you need for compelling stories to be told. Let's now take a look at some of the core components of this software (see Table 4-8).

Table 4-8. *The main TyranoBuilder components*

Component	Description	Component Group
Text	Displays dialogue	Story
Label	Assigns a label for skipping to when necessary	Story
Jump	Jumps to a label in any scene	Story
Page Break	Clears onscreen dialogue, moves the text placement to the top of the display	Story
Stop	Stops the story from advancing until user action	Story
Branch Button	Creates a button for user interaction	Story
Wait	Pauses the story for a defined duration (set in milliseconds)	Effects
Join Scene	Adds a user-defined character (created via the Characters option in the top Project menu) into a scene	Characters
Exit Scene	Removes a character from a scene	Characters
Change Background	Changes the background with an optional transition effect, available in 16 varieties	Images

(*continued*)

Table 4-8. (*continued*)

Component	Description	Component Group
Play Sound Effect	Plays an audio file with an optional fade-in transition, may be looped if needed. Volume can be set between 0% and 100%	Media
Stop Sound Effect	Stops a sound effect with an option fade-out transition	Media

A Two-Scene Adventure

To get an idea of how TyranoBuilder works, just create a new project from the launcher. You'll be asked for a number of things such as the type of game, display size. Choose any configuration you're comfortable with: no specific settings are needed at this point.

When starting a new project with TyranoBuilder, you'll be asked whether you want to start work on a new *visual novel* or a *sound novel.* By now you must be familiar with the genre of visual novel. A sound novel is a lesser known category of game. The difference between the two is in the presentation. Like their name states, visual novels contain a plethora of visuals. A sound novel, on the other hand, is a more minimalistic game with the writing often occupying the entire screen. Unlike one might think, sound novels rarely contain voice acting. However, games in this genre often feature ample use of music and sound effects. The term sound novel was solidified by console developer *Chunsoft,* who launched their business in the mid-1980s.

Now, we'll take the default new TyranoBuilder project and add some functionality to it. Try running the freshly created project to get a feel of what the typical output of the software looks like (see Figure 4-5).

Figure 4-5. *The TyranoBuilder default project. Always with the classrooms.*

Next, exit the project and focus your attention on the left side of the TyranoBuilder interface (see Figure 4-6). There's three segments to this part of the interface: *components, assets,* and *scenes.* First, click the scenes tab and *New Scene.* Name the scene however you wish and click *create.* Now we're going to experiment with displaying dialogue and switching to a new scene.

TyranoBuilder will have changed views to this new scene. Click *scene1* on the gray bar on the right to go back to the original scene. Then select the component submenu from the left. Drag the component called *Branch Button* onto the bottom part of the component view on the right. A new panel will appear on the far right side of the interface. This is where you enter any pertinent data for most of the components. Now, the crucial attributes for the branch button element are *Target,* which sets the label to jump to; *Text,* which names the button; and *Positioning Tool* which allows you to set the position of the button using a graphical interface.

Note The stop component should be on the bottom in each scene. It is quite a show-stopper of a component. If you put it above the branch button component, for one, the button will never appear.

For now, we won't put anything in the Target element. However, we will enter a name for the button using the text element and position the button using the positioning tool. Name and position the button as you will. Click *accept* after both operations to finalize your choices. Save the scene.

Figure 4-6. *The TyranoBuilder user interface in the default project*

Now, click the other scene on the gray bar. There's nothing but a single text element by default. Double-click it and edit the contents of the dialogue to your liking. Next, drag a label component onto the top of the component list, before the text component. Click this new component and enter a name for the label. Let's assume you typed "label1" for the sake of convenience. Save the scene and go back to *scene1*.

It's time to revisit the previously introduced branch button. Click it and select *Location.* This is the box we use to select which scene we will be hopping to. Next, click *Target.* Here we define the exact label the player will be visiting via the button. Select *label1* (or however you marked the label in the second scene). Save the scene and run the game. The project should

now display some dialogue, after which a button should appear, which will take you to the second scene and display its dialogue. This is how we create and navigate scenes in TyranoBuilder.

Characters in TyranoBuilder

An important aspect to any visual novel, TyranoBuilder offers a simple way for managing your characters. To add characters, you simply click the cogwheel icon with the portrait on it. Enter a name for your protagonist. You now have a new character to use in your game. You'll be able to assign visuals to him/her and utilize the character components of TyranoBuilder.

Introduce a character in a scene with the *join scene* component. By selecting this component and using the browse button, you can attach an image file for this character. As with most visual elements in TyranoBuilder, you can fade in your characters in style and position them with the handy positioning tool. You can naturally have more than one character onscreen at once. To make them all go away at the same time, use the *exit all* component.

Adding Multimedia

As seen in Table 4-8, TyranoBuilder comes with several components for adding most types of multimedia into your games. The process is simple: drag the functionality you need (i.e., for audio, background image, or video) onto the component view. Click *Browse* and point to the location of the file on your hard drive. Most multimedia components have a fade-in feature, which accepts milliseconds. One second equals a thousand milliseconds, so for a 2-second fade-in, you'd enter the value of 2000 into the box.

We'll go in depth into the audiovisual possibilities offered by TyranoBuilder later in this book. For now, you should start experimenting with components like *Background Image, Play Music,* and others found in the TyranoBuilder component library.

TyranoBuilder and Media Files

The sometimes problematic video file support of Ren'Py isn't an issue in TyranoBuilder. Although supporting only two video formats (i.e., *WebM* and the somewhat exotic *Ogg Video*), these files play beautifully and can add a touch of class to any project.

For static images TyranoBuilder supports the standard *.png, .jpg, and .gif* formats. Although the software doesn't play a huge amount of audio file formats for its music and sound effects (i.e., just *Ogg*), there aren't any issues with playback.

A Few Words on Game Settings

TyranoBuilder's options are hidden behind a cogwheel icon. The most important options include the ability to change a game's name on the go (under the *General* tab) and to reconfigure controller device mappings. You'll find this functionality under *Keyboard & Mouse.* There you can assign various in-game functions, such as *Quick Load/Save* and *Skip Dialogue,* to the keys of your choice. In addition, you can change how your game deals with mouse buttons and tablet gestures. And should you at some stage want to change the garish default save/load game visuals and/or the title screen look, the cogwheel is again your friend.

You can also visit the game settings panel if you choose to change your game's screen size, the in-game mouse cursor, and the base font type and size. Should the TyranoBuilder user interface itself cause you to squint, you can visit the namesake settings page and configure a larger font for your dialogue input (this is highly recommended).

Scripting in TyranoBuilder

In addition to the drag-and-drop approach, TyranoBuilder offers a robust scripting feature set. On offer are two languages: *iScript* and *TyranoScript.*

We'll now explore some of possibilities these scripting languages offer, without going into too much detail: that is reserved for later chapters in this book.

TyranoScript is basically a text-based version of the TyranoBuilder interface; instead of the drag-and-drop method, you get to type in the commands. *iScript,* on the other hand, is an offshoot of JavaScript, the much loved Internet staple. Basically, anyone familiar with JavaScript will be right at home with iScript. There are a few differences, however. For one, variables are treated differently.

To start using scripting in TyranoBuilder, you first drag either the iScript or TyranoScript components onto the project scene. The following is a simple passage in TyranoScript.

```
This line will be displayed as dialogue.
This line, too, but it will wait for a mouse click to continue. [l]
This here line will delete the previous lines. [p]
See? [p][r]
And this line will be presented underneath the previous one.
```

The preceding listing demonstrated TyranoScript's tag functionality. These tags, inserted in square commas after a line of text, control how the dialogue is presented. The main tags for displaying dialogue are *[l], [p],* and *[r],* as seen in the example. Let's now take a slightly closer look at iScript, shall we?

```
// This is a comment line for some JavaScript
var message = "Hello!"
window.alert(message);
```

```
// This is a comment line for an iScript-example
f.message = "Hello!"
window.alert(f.message);
```

The preceding simple examples demonstrate how TyranoBuilder handles variables in iScript; in-game variables are declared using the suffix of *f.* instead of the keyword *var,* as is the case in JavaScript. Apart from this, the two scripting languages are quite similar in most ways. As you can expect, one can considerably extend the functionality of TyranoBuilder with iScript. However, this is not absolutely necessary and beginners shouldn't thus feel daunted by this prospect.

Live2D

Background images and video playback aside, TyranoBuilder offers some impressive character visuals in the form of Live2D technology. Developed by Tetsuya Nakajo, Live2D allows for the creation of animated 2D characters without frame-by-frame animation or 3D models. Developers input a set of 2D graphics into the Live2D framework, consisting of eyes, arms, and other parts of a character. A skeletal structure is then defined for the character, which can now be animated using a library of pre-determined expressions and movements.

Although TyranoBuilder doesn't offer a character creation kit for Live2D per se, it still supports the technology; external software must be used to create new Live2D characters. This will be looked into in detail later in this book.

For now, get to know some Live2D by experimenting with the default character models shipping with TyranoBuilder. To enable Live2D, click *Project* in the top bar, and select *Add-In Components.* Now, click *Live2D Components* and select *Ok.* Your project now has Live2D components available. However, we still need to import a Live2D character.

Select *Asset Library* from the top menu. Select *Live2D* from the submenu. Double-click either one of the two available Live2D characters to import it into the project (see Figure 4-7). Drag the *Add Live2D* component onto the project timeline. Depending on your earlier choices, select either *Nasuka* or *dinogirl* from the far-right component panel. Use the *Positioning Tool* to set the position of your Live2D character.

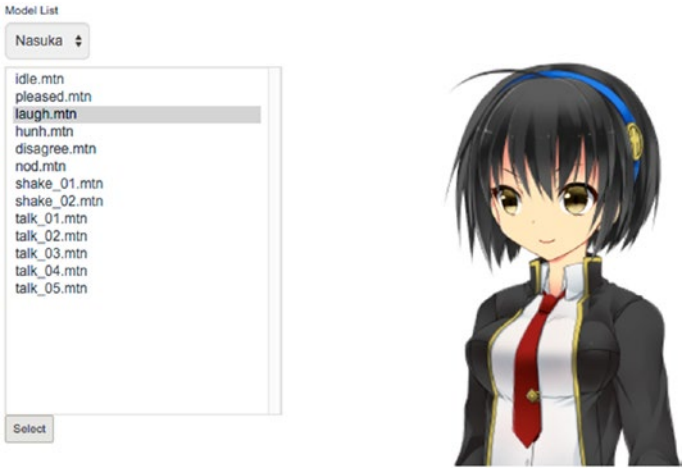

Figure 4-7. *The amazing Nasuka is one of two default Live2D characters shipped with TyranoBuilder*

You may already be impressed with the rather lifelike idle animation of Live2D. But it gets even more impressive. Next, drag a *Live2D Motion* component below the *Add Live2D* component you just added. Again, choose the character you previously imported from the far-right component panel. Use the *Motion Selection Tool* to preview all of the available Live2D expressions. Preview the current scene to see Live2D in action.

In Closing

After studying this part of the book, you should have the knowledge of the following on Ren'Py:

- How to start new Ren'Py projects and how to use the launcher program
- The basic elements of Ren'Py scripting (i.e., basic commands, menus, and conditional statements)

- How Ren'Py handles indentation and text blocks

As for TyranoBuilder, you should be confident with the following:

- How to start new projects in TyranoBuilder
- How to create and navigate scenes
- The basics of the TyranoBuilder components and user interface
- How to import Live2D characters and other assets into a project

Finally, you should have these skills for Twine:

- How Twine organizes its rooms/locations as passages and how to implement user interaction
- How to use multimedia in Twine projects via HTML or built-in macros
- The basics of Cascading Style Sheets (CSS) in the context of Twine development

In the next chapter, we'll take a much closer look at the various techniques for development with the software presented, including how to include more complex multimedia elements in Ren'Py and how to script in TyranoBuilder.

CHAPTER 5

Deeper Down the Dungeon

By this stage, you'll have some basic working knowledge on the workflow of the three tools covered by this book: *Ren'Py, Twine,* and *TyranoBuilder.* Now it's time to dwell deeper into the more advanced techniques and possibilities provided by these amazing pieces of software. Among many other things, we'll be looking at how to integrate video files into Ren'Py code, how to enhance Twine games with Cascading Style Sheets (CSS), and how to create randomized dialogue in TyranoBuilder.

Ren'Py, Containers, and Codecs

The information concerning video file formats isn't exclusive for Ren'Py, but is worth addressing as it affects basically any work in the field of digital audiovisuals, including both TyranoBuilder and Twine development.

Video (and audio) files in general consist of two components: containers and codecs. A video container is the full file, which includes the video, audio, and in some cases the subtitles. A codec, on the other hand, is the means of both compressing and decompressing (i.e., playing back) the video file inside a container. There are numerous codecs available, and they vary in their quality and compression ratio. Some of the most

R. Ciesla, *Game Development with Ren'Py*, https://doi.org/10.1007/978-1-4842-4920-8_5

popular container formats include *.ogg, .webm,* and *.avi*. These are almost universally supported by most platforms, whether desktop or mobile.

As for codecs, good choices include *H.264* (also known as *MPEG-4*), *MPEG-2,* and *MPEG-1*. And just so you know, *MPEG* is an acronym for *Moving Picture Experts Group,* established in 1988 by *Hiroshi Yasuda* and *Leonardo Chiariglione*.

There are literally dozens of codecs available, but its best to stick to these well-established formats for maximum compatibility. See Table 5-1 for a comparison of various codecs.

Table 5-1. *Some of the most common video codecs*

Codec	License	First Release	Features
VP9	Free	2012	Powerful high-resolution support (i.e., 4K/8K UHD), lossless compression option
VP8	Free	2008	Robust multiprocessor support. Provides good random access for video editing. Best used for lower resolution video
Theora	Free	2004	Potent Internet live streaming capabilities, presentable even in low-quality bitrates due to built-in de-blocking filter
H.264 (MPEG-4)	Free for Internet use	2003	Effective at live Internet streaming, supports resolutions up to 8192 × 4320 (including 8K UHD)
Xvid, a free implementation of MPEG-4 part 2	Free (GNU General Public License)	2001	Highly optimized due to active development, almost universally supported

(*continued*)

Table 5-1. (*continued*)

Codec	License	First Release	Features
MPEG-2	Some patents about to expire as of 2019	1996	The DVD gold standard format, can incorporate 5.1 surround sound in its audio streams
MPEG-1	Free (patents expired)	1989	Works well with low-bitrate video (e.g., for smaller displays), considering both its output quality and small file size

Now, we'll take a detailed look into some of the container formats you can house your codecs in (see Table 5-2).

Table 5-2. *Some of the most common video container formats*

Container Format	License	First Release	Supported Codecs
WebM	Free	2010	VP8 and VP9 video, Ogg Vorbis and Opus audio
Matroska	Free	2002	Any
Ogg	Free	1993	Theora and Dirac for video. Opus, Vorbis, and Speex for audio
MPEG container (Note: not to be confused with MPEG-codecs)	Patent encumbered	1993	MPEG-1 and MPEG-2 video. MPEG-1 Layers 1, 2, and 3 (i.e., mp3) audio
AVI	Presumed free	1992	Most, including uncompressed (Full Frame), Intel Real Time (Indeo), and Cinepak

Using Video in Ren'Py

Setting video playback in Ren'Py is a relatively smooth process. The software supports several popular video formats; therefore, the potentially tedious process of converting between formats is kept to a minimum. The following single line of code inserted into a Ren'Py script plays back a fullscreen video file:

```
$ renpy.movie_cutscene("introvideo.webm")
```

The preceding line plays a video until it reaches its end or the player clicks on the mouse. That's all there is to it! Now, we have many other options to display video in Ren'Py; it's not just fullscreen cutscenes at our disposal. It's time to define some more terms.

A displayable is Ren'Py speak for any visual asset, such as a background. *A movie displayable* refers to an animated background video playing, say, behind dialogue screens or in menus. In addition to video backdrops, you can also use video files as character visuals in Ren'Py. These are referred to as *movie sprites.* Let's now define a character video graphic, shall we?

```
image markus movie = Movie(play="markus_movie.webm",
mask="markus_mask.webm")
show markus movie
"Isn't this a lot of fun?"
hide markus movie
```

The preceding code defines a movie sprite called "markus," directing the character to display as the video file *markus_movie.webm.* Our old friend the show command then starts playback of the aforementioned file. A bit of narration is added for full effect. The video is then hidden with the, you guessed it, hide command.

The mask parameter in the Movie command defines *an alpha mask* for the video file. It should be of the same pixel dimensions and duration

of the video file it's associated with. The purpose of the alpha mask is to denote the areas which are visible in the video file, that is, to hide the unwanted edges and/or background in the video. Without it you'd have a square or rectangular movie sprite; that wouldn't be a good look.

When it comes to Ren'Py and alpha masks, the color white represents full opacity in an image, while black denotes the fully transparent parts.

Advanced Audio Functionality in Ren'Py

Playing and stopping sound effects is fine, but sometimes you need a more thorough approach to audio in Ren'Py. By default, Ren'Py takes the approach of assigning one audio channel for music, one for sound effects, and one for voice for a total of three channels. Each of these channels plays back one audio file at a time. This is for convenience's sake. If you insist, you may define additional audio channels for more advanced purposes. These are addressed later in this book.

The following three lines of code utilize the three default audio channels. A song, a sound effect, and a piece of voice acting are played here all at the same time, while some text is displayed onscreen.

```
play music "song1.ogg"
play sound "boom.mp3"
voice "dialogue1.ogg"
"Hello! How are you doing?"
```

Now, Ren'Py supports the *.wav, .ogg, .mp3,* and *Opus* audio file formats. Out of these, the .wav format is perhaps the most cumbersome, as it takes the most space and thus slows down your game's delivery (i.e., download). Although the highest quality format, it's better to use one of the other ones instead of .wav (which is the uncompressed CD standard audio format) when deploying the game for sale and/or download. When your audio is still at the editing stage, however, only use .wav. The other formats, being compressed, decay in quality after each edit-and-save

cycle. Wav does not. Think of any compressed file format as a photocopy of the original file; a copy of a copy of a copy isn't anywhere as readable, or audible, as the original.

Audio Queues

For one, there's nothing more atmospheric than a long and varied playlist of music instead of a short repeating tune. We can achieve this quite easily in Ren'Py with the *queue command*. In the following example, we define a queue of three songs (in the .ogg format) for the default music channel of Ren'Py and play it back.

```
queue music [ "song1.ogg", "song2.ogg", "happysong.ogg" ]
play music
```

Advanced Play and Stop Statements

The venerable play statement in Ren'Py can do a lot more than play back a sound: you better believe it. You can even integrate the aforementioned queue command with a play statement, in addition with some other parameters. This example queues two songs in the mp3 format, fading them both in and out for the duration of 2 seconds.

```
play music [ "song1.mp3", "song2.mp3" ] fadeout 2.0 fadein 2.0
```

Should you want to suddenly stop a song playing on the music channel, fading it out in style during a 10-second period, you would approach the situation in the following way:

```
stop music fadeout 10.0
```

If you ever need to insert some silence before your audio, use the silence tag which, again, takes its variables in seconds. This is great for those dramatic pauses.

```
play audio [ "<silence 2.5>", "song1.mp3" ]
```

Audio File Random Access

Ren'Py allows you to skip parts in an audio file on the fly. Using the from command inside a play statement, you can specify the exact part you want to skip, in seconds. The following example skips to the 2.5-second marker in the audio file *song1.mp3,* playing until the 10.5-second marker.

```
play music "<from 2.5 to 10.5>song1.mp3"
```

Advanced Image Properties

Naturally, you're not limited to showing and hiding images in Ren'Py; there's a whole host of additional functions and properties at your disposal. Let's now take at some of the more useful ones, shall we?

Character Dialogue Color

In the previous chapter, we took a glance at how characters are defined in Ren'Py script. To refresh your memory, it went a little something like this:

```
$ m = Character('Markus', color="#EE1100")
```

But wait, a new property has been sneakily introduced. The color property uses hexadecimal values to define a color for a character's dialogue. It does this by mixing red, green, and blue (i.e., RGB) values for a brand new color. The first two digits after the hashtag (#) set the red value, the third and the fourth set the green value, and the remaining digits set the blue value. The hexadecimal system (i.e., base 16) goes from numbers 0–9 to letters A–F. The letters represent the values between 10 (i.e., A) and 16 (i.e., F).

This technique is universally used in HTML and CSS (i.e., *Web Colors*) and all of the visual novel software featured in this book. In our example the character of Markus is given a rather bright red dialogue color, reined in slightly by adding a tiny amount of green. Let's take a look at some of the most common RGB-based colors in Table 5-3.

Table 5-3. *Some popular colors using the RGB hexadecimal method*

Color	Hexadecimal Value	Color	Hexadecimal Value
Black	#000000	*Yellow*	#FFFF00
White	#FFFFFF	*Red*	#FF0000
Grey	#808080	*Purple*	#800080
Green	#008000	*Orange*	#FFA500
Blue	#0000FF	*Burlywood*	#DEB887

Quick Image Alignment

Ren'Py image elements come with a handy duo of properties, *xalign* and *yalign,* which allow for quick adjustment of an image's placement onscreen. The xalign property sets the horizontal position, with the value of 0.0 being left, 0.5 being center, and 1.0 being right. Respectively, an image's vertical placement can be controlled by the yalign property, with the value of 0.0 being top, 0.5 being center, and 1.0 being the bottom of the screen.

The following line of code prepares an image file, *man.png,* to be displayed on the bottom right part of the display.

```
image man right = Image("man.png", xalign=1.0, yalign=1.0)
```

Advanced Transitions

Ren'Py offers some stylish transitions between scenes and for the various visual elements within a game. They can be used in script by summoning the *with* command or by editing the *gui.rpy* and/or *options.rpy* files for more global use. Transitions in Ren'Py are very simple to utilize, and they offer a lot in the way of production values.

```
show bg garage
with dissolve
"Well gosh darn it! We are in the garage, Ernie!"
```

This piece of script summons a background image presumably of a garage using the classic *dissolve* transition to do so. But dissolving isn't the only one available in Ren'Py. Now, let's examine those tasty transitions in detail, shall we (see Table 5-4)?

Table 5-4. *The major visual transitions in Ren'Py*

Transition	Description	Transition	Description
dissolve	Fades between images	*slideleft, slideright, slideup, slidedown*	Slides in the element using the specified directional command
fade	Fades to black and then onto a new image	*Vpunch*	Shakes the screen vertically for 1 second
pixellate	Pixellates the old screen, de-pixellating a new image	*Hpunch*	Shakes the screen horizontally for 1 second
blinds	Transitions the screen using vertical blinds	easeinleft, easeinright, easeintop, easeinbottom	Similar to move, except executed using a more gradual movement
zoomin	Zooms in a new image	irisin, irisout	Brings in a new image or hides the current one using a rectangular pattern

(*continued*)

Table 5-4. (*continued*)

Transition	Description	Transition	Description
zoomout	Zooms out the current image	*Squares*	Transitions the image in squares
zoominout	Zooms in a new image while zooming out the current one	*wipeleft, wiperight, wipeup, wipedown*	Wipes the image in the specified direction
move	Moves in a new image	*moveoutright, moveoutleft, moveouttop, moveoutbottom*	Moves out the current screen toward the specified direction
slideawayleft, slideawayright, slideawayup, slideawaydown	Slides a new image in the specified direction	*moveinright, moveinleft, moveintop, moveinbottom*	Moves in a new screen using the specified direction

The best way to get acquainted with the many transitions Ren'Py offers is naturally to experiment with them. You never know how much atmosphere a strange new transition might add to your scenes.

Customizing the Ren'Py GUI

All of the graphical user interface (GUI) components of Ren'Py can be customized by editing the file *gui.rpy,* which can be accessed from the Ren'Py launcher under the *Edit File* section, to be exact. This is a plain text file with dozens of settings for the appearance of your Ren'Py project. You may or may not be interested in customizing all of these settings, but a few key options should be addressed (see Table 5-5).

Table 5-5. *Some useful options found in* ***gui.rpy***

Option/Line	Description	Option/Line	Description
define gui.text_size	Sets the GUI text size. Default value: 22	*define gui.main_menu_background*	Defines the game main menu background image and location. Default: "gui/main_menu.png"
define gui.text_color	Sets the dialogue color. Default: white (#ffffff)	*define gui.game_menu_background*	Defines the in-game menu background image and location. Default: "gui/game_menu.png"
define gui.textbox_height	Sets the dialogue box height in pixels. Default: 185 pixels	*define gui.title_text_size*	Sets the game title text size. Default: 50
define gui.name_text_size	Sets the character name size. Default: 30	*define gui.interface_text_size*	Sets the size of the game interface text. Default: 22
define gui.text_font	Defines the font used by your game. The font file should be kept in the game directory. Default: DejaVuSans.ttf	*define gui.label_text_size*	Sets the size of the game GUI label text. Default: 24

Now, the aforementioned gui.rpy isn't the only file of interest when it comes to customizing Ren'Py. Another one is called *options.rpy,* and it's also accessible from the launcher program, again, under *Edit File*. We'll take a closer look at some of its contents and what they entail to your visual novels (see Table 5-6).

Table 5-6. *Some useful options found in* ***options.rpy***

Option/Line	Description	Option/Line	Description
define gui. show_name	Chooses whether to show the game title or not in the title screen. Default: True	*default preferences. afm_time*	Sets the text auto-forward delay. Default: 15. Valid values are between 0 and 30
define config. has_sound	Shows or hides the in-game sound mixer. Default: True	*define config. window_icon*	Sets the game dock icon and location. Default: "gui/window_icon.png"
define config. has_music	Shows or hides the music mixer. Default: True	*define config. intra_transition*	Controls the type of visual transition between screens of the game menu. Default: dissolve
define config. has_voice	Shows or hides the voice mixer. Default: True	*define config. enter_ transition* *define config. exit_transition*	Controls the type of visual transition for entering and exiting the game menu. Default: dissolve
default preferences. text_cps	Controls the text speed. Default: 0. Values higher than zero denote characters per second	*define config. after_load_ transition*	Sets the transition after a game has been loaded. Default: None

Advanced TyranoBuilder Techniques

Although TyranoBuilder appears to be the simplest development tool of the three presented in this book, there's actually a lot of power under the hood. We'll now take a look at some of the powerful techniques TyranoBuilder provides even for the beginner.

Plugins

As of January 2019, TyranoBuilder received a major update to version 182. Not only is the software now fully 64-bit, but it also has more expandability in the form of *plugins*. These are basically extra components available for download for free. There's about a dozen plugins (in English) to integrate into your projects at the time of this update.

Visit the TyranoBuilder plugins page here: **https://plugin.tyrano.jp/en**

Download the plugins of your choice from the preceding link. These are then added to the main software by clicking the TyranoBuilder top menu and selecting *Project* ➤ *Plugins*. Click *Add New* and select the file you just downloaded with the *.tbp* file extension.

Now, revisit the top menu and select *Customize Tool Area*. Scroll all the way down on the dialogue window that just opened and select both the *Components checkbox* and any checkboxes next to components you'd like to activate in TyranoBuilder. You'll now have a new section in the main components dialogue, titled Plugins.

Although there's surely many more on their way, let's review the initial selection of TyranoBuilder version 182 plugins next, shall we (see Table 5-7)?

Table 5-7. *Some of the new TyranoBuilder plugins and their uses*

Plugin	Description	URL
Background Mask Transitions	Enables special transitions using mask images. Includes dozens of masks for more exotic transitions	https://plugin.tyrano.jp/en/item/20007
Mask Transitions	Introduces special mask transitions for character images. Includes 200 masks	https://plugin.tyrano.jp/en/item/20014

(*continued*)

Table 5-7. (*continued*)

Plugin	Description	URL
Sleep and Awake	Allows the player to save the game and embark on a different quest altogether, then return to the original adventure at will	https://plugin.tyrano.jp/en/item/20001
Custom Save Game Thumbnail	Sets a custom thumbnail image for saved games, instead of the TyranoBuilder defaults	https://plugin.tyrano.jp/en/item/20002
Auto Save and Load	Introduces automatic loading and saving components (i.e., reduces some of the player saved game management)	https://plugin.tyrano.jp/en/item/20003
Show Dialogue	Displays a confirmation dialogue on top of all other elements in a game	https://plugin.tyrano.jp/en/item/20009
Change Title	Allows for the renaming of a game in progress. May be used to denote different chapters in a game, for one	https://plugin.tyrano.jp/en/item/20010
Screen Filters	Adds five new visual filters into your arsenal, such as grayscale, sepia, and blur, for special effects	https://plugin.tyrano.jp/en/item/20005

(*continued*)

Table 5-7. (*continued*)

Plugin	Description	URL
Open Website	Opens a URL in the player's default browser from within a game	https://plugin.tyrano.jp/en/item/20008
Sprite Sheets	Provides support for sprite sheets, i.e., images which contain smaller images for the purposes of animation (see Figure 5-1). Contains parameters for playback speed, looping, and sprite size, to name just three	https://plugin.tyrano.jp/en/item/20012

Figure 5-1. *An example sprite sheet of a bird flying*

Of Variables and System Variables

Variables are an important part of most visual novels. Using variables we get to store the amount of gold a player might have or to calculate the odds of him or her impressing a love interest. Variable data is stored in saved games. TyranoBuilder has a *Variables Manager,* accessible from the top Project menu (see Figure 5-2). It's there we input variables and define their initial values.

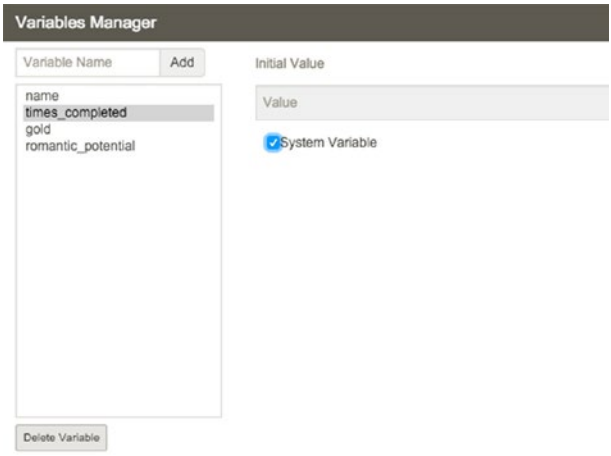

Figure 5-2. *The Variables Manager in TyranoBuilder*

TyranoBuilder also supports permanent variables, referred to as *system variables.* This information is stored on a system without depending on any save game functionality. One common use for a system variable is the number of times the player has completed the game; the game designer might implement alternate endings dependent on the number of times the quest is completed.

Variables are used via the *System* class of components in the TyranoBuilder component library.

The System class consists of three components: *process variable, input box,* and *commit input.* Of these the process variable (see Figure 5-3) is the

most important for manipulating variable data. It is using this component you can use arithmetic operations on your variables or assign random values to them.

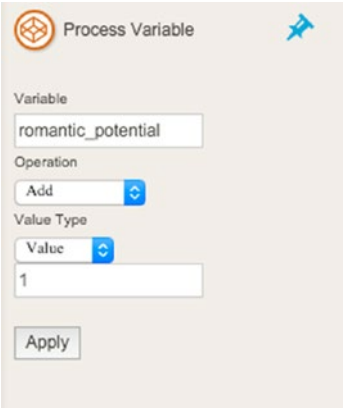

Figure 5-3. *The Process Variable component window in TyranoBuilder*

Now, to have variables have an impact on the story in your games, you use them in combination with the *Jump* component, found under the *Story* segment of the TyranoBuilder user interface.

Using variables to control the direction of your story is enabled by clicking the *conditional jump* checkbox. This is demonstrated in Figure 5-4. In this jump component, we are going to transport to *scene2* and its *Happy_room* label, but only if a condition is met. That condition deals with a previously defined variable called *gold;* this variable must be over ten in value for the condition to be true. Ten or nine won't cut it.

Figure 5-4. *The Jump component window in TyranoBuilder in conditional mode*

To create text prompts (e.g., for entering a player's name), you use the combination of the *Input Box* and *Commit Input* components. Drag an input box onto the TyranoBuilder scene of your choosing. Type in the desired variable name into the Assign Variable box on the aforementioned input box. Use the positioning tool to set the prompt's onscreen location. Follow this step with the commit input component, and the prompt will be associated with a variable for later use in your game.

Randomized Dialogue

A surprisingly underused approach in the genre of the visual novel is the usage of randomization. This refers to picking suitable, but random, lines or single words from a pool of dialogue stored within a game.

For this, we'll be using both of TyranoBuilder's scripting languages, *iScript* and *TyranoScript*. You should now reopen the default TyranoBuilder project we created in the last chapter – or create one.

First, drag an iScript component on top of the *Text component*. Leave it blank for now. Then add a TyranoScript component between the two aforementioned components. Copy the following listing into the iScript component.

```
itemArray = [
  "apple",
  "keys",
  "cucumber",
  "fedora",
  "headphones",
  "potato"
];

randomItem = itemArray[Math.floor(Math.random()*itemArray.
length)];
```

In this listing we defined an array, which is a variable that can contain several values. These values can be either numbers, single alphabetical characters, or strings of text. We put some everyday items into our array, the one we chose to call *itemArray*. We could've named it anyway we wished, but that is one of the most logical choices for it.

Next, we defined a new variable called *randomItem.* In it we inserted a value taken at random from the array we just defined. Don't be startled by the business inside the square brackets: it consists of a couple of simple math functions that pick a random variable based on the number of items inside said array (i.e., itemArray). In our case, because the array has six elements (starting with *apple,* ending with *potato*), the line of code returns a value between zero and five. Not one and six because arrays start at zero. *Math.floor* is a function that rounds numbers, so you end up with "4" instead of something like "4.34234." The latter number wouldn't work well for us in the type of scenario we're currently immersed in.

Now, insert the following line into the TyranoScript component.

```
[eval exp="randomitem_text=randomItem"]
```

The preceding line creates a new variable, called *randomitem_text,* and copies the contents of the randomItem variable as a string of text. We need to do this, because we're about to output the variable onscreen and only strings can be used to do that; the *randomItem variable* wouldn't be of the correct type. Think of the command *eval exp* as *evaluate expression.*

Lastly, we'll insert the variable *randomitem_text* into a text component and actually display it. Insert this line into the text component:

```
Hello!
Oh no! I've lost my [emb exp="randomitem_text"]!
```

Run the project and you'll see something to the effect of "Hello! Oh No! I've lost my cucumber!" As you can see, the emb method, used within text components, embeds *expressions* into the dialogue.

iScript vs. JavaScript

In general-purpose JavaScript, variables are declared using the *var keyword.* Unlike in most programming languages, variable types themselves need not be specified in JavaScript. It'll accept strings and alphanumerical characters just fine using a single keyword of var.

```
var myName = "Tim";
var myAge =54;
```

In TyranoBuilder's iScript, the variables for JavaScript are defined using a slightly different syntax. This is the main difference between the two implementations of the language. This is how you do it in iScript:

```
f.myName = "Tim";
f.myAge = 54;
```

Remember, iScript is basically JavaScript. TyranoScript, on the other hand, offers a typed-in experience of the TyranoBuilder experience for those who prefer one.

Clickable Image Areas

In TyranoBuilder, you can designate certain areas of your background graphics as *clickable areas*. For example, you might have an image with a door in it. By clicking that door, the player is moved into a different scene. Clickable areas work in conjunction with the *background image* component.

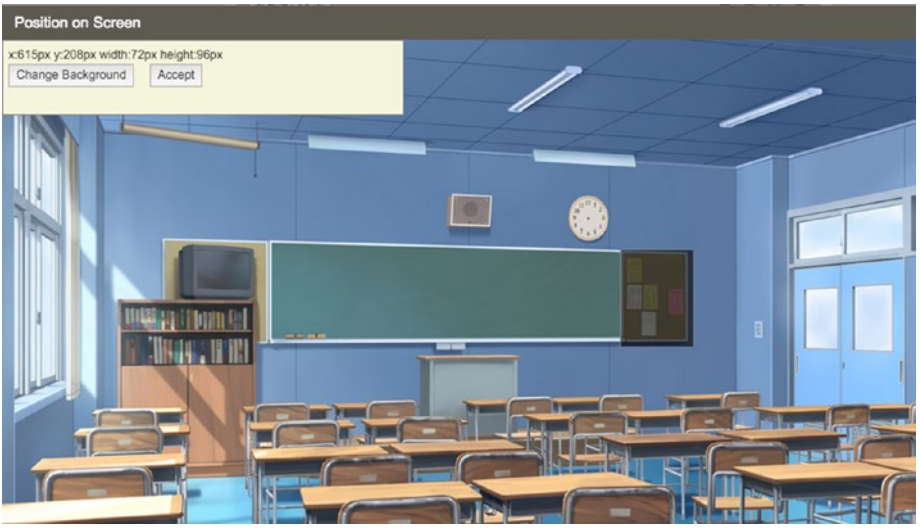

Figure 5-5. *The positioning tool for clickable areas. Here, a bulletin board has been defined as a clickable area.*

Simply drag the component called *Clickable Area* underneath a *Background Image* component. Use the positioning tool (see Figure 5-5) to set the size and location of this "hot spot." The darkened mask graphic can be resized by dragging on its edges; you'll see the mouse cursor change when these actions become possible.

Now, on the clickable area component panel, you'll see two drop-down menus: *Location* and *Target.* These point to the scene and its label the player is transported to by clicking the aforementioned area.

Custom Fonts in TyranoBuilder

TyranoBuilder offers you four choices for typefaces by default. Thankfully, you're not limited to using one of these. A custom font can be either set project wide from the TyranoBuilder settings or utilized on a dialogue-to-dialogue basis.

TyranoBuilder only has full support for the *TrueType Font (.ttf)* format. Luckily, as a popular format, there's literally thousands of free and classy fonts out there. Some notable foundries for typefaces include `www.dafont.com` and `www.1001freefonts.com`.

To install a custom font in TyranoBuilder into your project, select *Projects* ➤ *Custom Fonts* from the top menu. Click *Add Font* and direct the program into your .ttf file. Now, to immediately change all of your in-game dialogue to this new custom font, click the cogwheel icon, taking you to *Game Settings.* Select *Font Style* from the menu on the right. This will get you to the screen where you'll be able to set a plethora of font-related settings for your project, including those dealing with custom typefaces.

For assigning custom fonts for specific parts of your game, you'll need to use the *Change Font Style* component found under the *Messages category* on the main project view. Simply insert this component before a *Show Text* component and work with the panel opening on your right to use any custom fonts of your choice.

Twine Magic

Although seeming deceptively minimalistic at first, Twine contains the support for almost everything you need to add audiovisual flair to its projects. As mentioned in the previous chapter, this is done via extensive support for both *JavaScript* and *Cascading Style Sheets (CSS),* two staples of the Internet. All examples in this part of the book assume we have selected the SugarCube story format in Twine.

Although there are three story formats in Twine, you will see many similarities between them. In fact, you'll see plenty of similarities with most Twine projects and general HTML or web development. This is because Twine shares a lot of its functionality with HTML and its related tags and techniques. Therefore, we'll now rehash some of those good old HTML elements which we are witness to daily by checking email or shopping online (see Table 5-8).

Table 5-8. *Some basic HTML elements which also work in Twine*

HTML Element	Description	Example
* *	Paragraph	* This is a paragraph *
* *	Line break	*This is a line. This is another line.*
<button>	Create a button element	*<button>Click on this</button>*
* *	Sets up a list of bulletpoints using for each point	* - Point - Another point *

(*continued*)

Table 5-8. (*continued*)

HTML Element	Description	Example
<table>	Sets up a table of information using the sub-elements of <tr> for table row, <th> for table header, and <td> for table data	*<table> <tr> <th>First Name</th> <th>Last Name</th> <th>Occupation</th> </tr> <tr> <td>Ben</td> <td>Smith</td> <td>Barbarian</td> </tr> <tr> <td>Jill</td> <td>Wordsmith</td> <td>Miner</td> </tr> </table>*
**	Bold text	*Coming up: something in bold*
**	Italic text	*This sentence is now italic, i.e. slanted*
<u>	Underscore	*Oh good, some <u>underscored text</u>*
<h1>	Largest header style	* This is a rather big header *
<h6>	Smallest header style	* This you can't even read I bet *

Evoking JavaScript in Twine

For the simplest of JavaScript sequences in your Twine games in the SugarCube story format, all you need to do is open a passage and use the script tags to execute your operation. See the following example.

```
<<script>> alert("Look at me!"); <</script>>
```

As you may remember from the previous chapter, more complicated JavaScript should be inserted into the dedicated area in Twine called *Edit Story JavaScript*. In fact, why don't we do some of that right now?

Text Reveal Effect in CSS

Clicking *Edit Story Stylesheet* in the main project view and typing in some well-placed strings gives you the entire power of CSS. The following lines build a new class, called *.css-reveal,* which will reveal text from left to right in a rather eye-catching manner. It was named so from the viewpoint of clarity.

```
.css-reveal
{
    width: 30em;
    white-space:nowrap;
    overflow:hidden;
    -webkit-animation: type 5s steps(75, end);
    animation: type 5s steps(75, end);
}

@keyframes type{
    from { width: 0; }
}

@-webkit-keyframes type{
    from { width: 0; }
}
```

Now, use the following line inside a Twine passage to see the text reveal effect in action. In it we've associated the preceding style with the paragraph element, that is, <p>. We could've used many other elements for this purpose.

```
<p class="css-reveal">Hello there!</p>
```

By now you'll have hopefully grasped the method of both defining and implementing CSS in your Twine projects. Use the method in the examples that follow, too. Don't feel intimidated by the contents of these CSS statements; this book focuses on CSS only to the degree that is needed to utilize it in your visual novel projects.

Spicing Up the Text

Looking for creative ways of displaying your stories? Just try some of these CSS properties. Copy and paste them into your Story Stylesheet in Twine, implement them into your passages, and off you go. For clarity the names of these styles are self-explanatory. Also, for your convenience, the parts that go into your passages are presented in **bold**.

```
.shadow {
        text-shadow: 0.07em 0.07em 0.07em #000;
}

.redglow {
        text-shadow: 0 0 0.2em #F00;
}

.upside-down {
        display: inline-block;
        transform: scaleY(-1);
        -webkit-transform: scaleY(-1);
}
```

```
.mirror {
        display: inline-block;
        transform: scaleX(-1);
        -webkit-transform: scaleX(-1);
}
```

The following three CSS rules form a single effect, which accurately depict the effects of the weather in Finland. Put them all into your Story Stylesheet. Only call the last of the three in your passage to see it in action.

```
@-webkit-keyframes shake {
        50% {
                -webkit-transform: translateX(0.2em);
                transform: translateX(0.2em)
        }
}

@keyframes shake {
        50% {
                -webkit-transform: translateX(0.2em);
                transform: translateX(0.2em)
        }
}

.shake {
        -webkit-animation: shake linear 0.1s 0s infinite;
        animation: shake linear 0.1s 0s infinite;
        display: inline-block;
}
```

Here's another trifecta of CSS rules for creating an ominous and continuous fade-in-out. Again, only use the last rule inside of your Twine passages. You might spot the part where it says "4s." Yes, these refer to seconds. Change these values to either speed up or slow down the fades.

```
@-webkit-keyframes fade-in-out {
        0%,
        to {opacity: 0}
        50% {opacity: 1}
}

@keyframes fade-in-out {
        0%,
        to { opacity: 0 }
        50% { opacity: 1 }
}

.fade-in-out {
        text-decoration: none;
        animation: fade-in-out 4s ease-in-out infinite alternate;
        -webkit-animation: fade-in-out 4s ease-in-out infinite
        alternate;
}
```

Finally, we have a little something dynamic. The following CSS style, when implemented into a passage, offers a resizable-textbox.

```
.resizable-textbox {
  border: 2px solid;
  padding: 20px;
  width: 300px;
  resize: both;
  overflow: auto;
}
```

Now, try something like this in one of your Twine passages to see said element in action:

```
<div class="resizable-textbox">First line<br>Second line<br>Third line</div>
```

The player can then adjust the size of this box from the bottom right corner of the textbox.

An Introduction to Harlowe

The SugarCube story offers a fine workflow. But, as you might remember, there's two other alternatives built into Twine: *Harlowe* and *Snowman*. Let's now take a look at the hallowed Harlowe. First, create a new Twine story using this story format.

Harlowe and the Might of jQuery

jQuery is an extension (i.e., a library) to JavaScript, created by John Resig in 2006. It provides a wealth of powerful new functions to visually enhance and accelerate your Twine (and JavaScript) development experience. And yes, it can be fully integrated into Twine with all of its bells and whistles. Let's take a look at some of jQuery's basics next.

jQuery and JavaScript are used using the tag <script> inside Harlowe passages as needed. The following example, when typed into any Twine passage, creates a gray bar and two standard buttons (i.e., *button1* and *button2*). These buttons are then assigned with the element we titled *superbox* for the purposes of animation. The lines beginning with the dollar sign (i.e., $) denote jQuery.

Try it out. The button titled "Action" will change the width element of the bar to 300 pixels from the original 100 pixels. As for the reset button, you may have a vague idea as to its purpose.

```
<script>
$(document).ready(function(){
  $("#button1").click(function(){
    $("#superbox").animate({width: "300px"});
  });

  $("#button2").click(function(){
    $("#superbox").animate({width: "100px"});
  });
});
</script>

<button id="button1">Action</button>
<button id="button2">Reset</button>
<div id="superbox" style="background:#777; height:100px;
        width:100px;"></div>
```

Now, the visual effects of *jQuery* are referred to as *effect methods.* In the preceding example, we utilized only one of these methods: the one called *animate.* A whole host of eye candy is available via this wonderful JavaScript library. Most of these methods are utilized the same way. Each effect is assigned to a specific HTML element in your Twine passage and then called by user interaction.

To reiterate, the preceding example featured three arbitrarily labeled elements: *button1, button2,* and *superbox.* Study the provided example to get acquainted with the syntax and logic of using jQuery in your Harlowe-based stories. Next we'll take a look at some other effect methods at our disposal (see Table 5-9) and how to implement them.

Table 5-9. *Some common jQuery effect methods*

Effect Method	Description	Example
fadeIn	Fades in an element. Optionally accepts the fade-in values of "slow," "fast," and milliseconds	`$("button").click(function() {$("#bluebox").fadeIn("fast"); $("#redbox").fadeIn("slow");});` `<button>Click!</button> ` `<div id="bluebox" style="width:60px; height:60px; display:none; background-color:red;"></ div> ` `<div id="redbox" style="width:60px; height:60px; display:none; background-color:red;"></div>`
fadeOut	Fades out an element. Accepts the same optional variety of values as fadeIn	`$("button").click(function(){ $("#bluebox").fadeOut(1000); $("#redbox").fadeOut("fast"); });`

(*continued*)

Table 5-9. (*continued*)

Effect Method	Description	Example

slideToggle	Slides an element up or down depending on its current state. Accepts same optional values as fadeIn and fadeOut.
	Note: the attribute of *display: none;* is mandatory in the element to slide in and out
		`$(document).ready(function(){`
		`  $("#button").click(function(){`
		`  $("#panel").`**`slideToggle`**`(2000);`
		`  });`
		`});`
		`<style>`
		`#panel, #button {`
		`  padding: 3px;`
		`  text-align: center;`
		`  background-color: #red;`
		`  border: solid 1px #yellow;`
		`}`
		`#panel {`
		`  padding: 40px;`
		`  `**`display: none;`**
		`}`
		`</style>`
		`<div id="button">Click here`
		`</div>`
		`<div id="panel">Behold the`
		`hidden message!</div>`

More on Animate

Let's go back to the first jQuery effect method presented in this chapter. Our old friend *animate* is capable of much more than changing the width of an element on the fly. Several attributes are available for simultaneous tweaking. The following code, when entered into a Twine passage, demonstrates this. Watch *happybox* evolve.

```
<style>
    .happybox{
        width: 100px;
        height: 100px;
        background: red;
        margin-top: 30px;
        border-style: solid;
        border-color: black;
    }
</style>
<script>
$(document).ready(function(){
    $("button").click(function(){
        $(".happybox").animate({
            width: "200px",
            height: "200px",
            marginLeft: "30px",
            borderWidth: "10px",
          });
    });
});
</script>

<button type="button">Look at me!</button>
<div class="happybox"></div>
```

Enter Snowman!

The third and last available story format in Twine is called *Snowman.* This is the most bare-boned approach to making games with Twine. And that can be a good thing; it is the least restrictive of the story formats. Snowman uses a formatting technique called *Markdown.* This is a minimalistic approach created by *John Gruber,* where text formatting is achieved using only a minimal amount of special characters. Next we'll take a closer look at basic text formatting in Snowman (see Figure 5-6).

```
# Header1
## Header2
### Header3
#### Header4
##### Header5
###### Header6
*Emphasized*
**Bold**
~~Deletion~~
```

Putting the preceding code into a passage in Snowman produces the result shown in Figure 5-6.

Figure 5-6. *An example of text formatting in the Snowman story format*

Snowman, JavaScript, and Underscore

The Snowman story format was designed primarily to be used in conjunction with JavaScript and custom CSS. Therefore, it doesn't feature any built-in macros, unlike the SugarCube and Harlowe story formats.

Snowman includes a full implementation of the *Underscore library,* created and updated by its growing team of enthusiasts and online since 2009. Underscore features over a hundred rather advanced methods for data sorting and manipulation.

JavaScript, including Underscore, can be easily integrated into Snowman passages using the tags <% and %>. To output the end results of variable manipulation, you use the tags <%= and %>. See the following example.

```
<% alert( 'Hello there, world!' ); %>
I wonder what 1+2 is? Oh, it's <%= 1+2 %>
```

Snowman and Variables

Variables can be defined and manipulated in this story format using a global variable called *s*.

```
<%
    s.myAge = 52;
    s.myName = "Jimmy";
%>
Hi, my name is <%= s.myName %> and I'm <%= s.myAge %>!
<% ++s.myAge %>
Wait. I'm actually <%= s.myAge %>..
```

Rolling Dice in Snowman

Now, a more practical example is in order. The following lines can be likened to rolling dice in Snowman, using the _.*random method* provided by the Underscore library. Note the literal way the library is utilized with the underscore character (i.e., _) prior to each method.

```
Rolling a four-sided die: <%= _.random(1,4) %><br>
Rolling a six-sided die: <%= _.random(1,6) %><br>
My real age is actually <%= s.myAge=_.random(53,100) %> years
young
```

As you can see, the _.random method takes two values to set the range for the end results. Also, in the last line of our example listing, we assigned a previously defined variable s.myAge with a random number between 53 and 100 to demonstrate further how variables work in Snowman.

Underscore and Arrays

Let's dwell a tad deeper into the awesome power of the Underscore library, which offers developers using the Snowman story format quite a bit of extra functionality. For one, the library is very useful for building advanced inventories for your games. And this is where *arrays* come in.

Arrays are created and displayed in Underscore (under Snowman) like this:

```
<% var Friends = []; %>
<% var Items = ["Sword","Banana","Fedora"]; %><br>
Your inventory contains the following: <%= Items %>
<% Items.pop() %>
Well gosh darn it, you seemed to have lost your fedora!<br>
<br>Your inventory contains the following: <%= Items %>
```

The first line creates an empty array called *Friends.* More can be added to this array later. Now, the second line creates an array called *Items* and fills it with three values from the get-go. The third line simply prints the contents of this array onscreen.

The fourth line is actually run-of-the-mill JavaScript; *pop* is a method that deletes the last item in an array. As for adding items to arrays in Snowman? Try this other basic JavaScript method: *<% Items.**push**("New Fedora","Orange"); %>*

Take a glance at some of the more useful methods Underscore provides in Table 5-10. The possibilities for advanced item management and RPG elements are limitless on Snowman when harnessing the power of the Underscore library.

Table 5-10. *Some useful methods for arrays in the Underscore library*

Method	Description	Example(s)
_.find	Searches for a specific type of element in an array until such an element is found	`<% var DiscoverFedora = _.find(["Fedora","Banana", "Fedora"], function(string){ return "Fedora"; }); %>` `<%= DiscoverFedora %>`
_.last	Returns the last element in an array	`<% var Items = ["Sword", "Banana", "Fedora"]; %>` `<% var Inventory = _.last (Items); %>` `<%= Inventory %>`
_.first	Returns the first element in an array	`<% var Items = ["Sword", "Banana", "Fedora"]; %>` `<% var Inventory = _.first (Items); %>` `<%= Inventory %>`
_.each	Iterates (processes) an array invoking a function/method which takes three arguments (value, index, list)	`<% var Items = ["Sword", "Banana", "Fedora"]; %>` `<% _.each(Items, function (value, index, list) {%>` `<%= index + ": " + value+" "%>` `<%= "Full list: "+list %>` `<% }); %>`

(*continued*)

Table 5-10. (*continued*)

Method	Description	Example(s)

_.map	Performs operations on all items in an array, such as arithmetics	`The original values are 1, 4, and 5`
		`<% var Example=_.map([1, 4, 5], function(num){ return num * 5; });%>`
		`After_.map multiplied each by five, they are <%= Example %>`

_.sample	Produces a random sample of an array's content. Optionally accepts the sample size. In this example, we set the sample size to two items	`<% var Items = ["Sword", "Banana", "Fedora"]; %>`
		`<% var Sampling = _.sample(Items,2) %>`
		`<%= Sampling %>`

_.size	Returns the number of elements in an array	`<% var Items = ["Sword", "Banana", "Fedora"]; %>`
		`<% var Size = _.size(Items) %>`
		`<%= Size %>`

_.clone	Clones an array	`<% var Items = ["Sword", "Banana", "Fedora"]; %>`
		`<% var Cloned = _.clone (Items); %>`
		`<%= Cloned %>`

_.filter	Filters through an array for specific elements, returning all of them	`<% var Filtered = _.filter(["Fedora", "Banana", "Banana"], function(string) { return string=="Banana" }); %>` `<%= Filtered %>`

Snowman and Audiovisuals

Since Snowman doesn't include any handy macros out of the box, HTML and JavaScript are its primary means of adding a little audiovisual flair to your games. So, to add an image with an audio file player beneath it, you could come up with something like this:

```
<p>This here is a fine image:</p>
<p><img src="https://upload.wikimedia.org/wikipedia/commons/6/
6e/Napoleon_crop.jpg" width="50%" height="50%"></p>
<p>Let's not forget about some audio!</p>
<p><audio controls>
  <source src="https://upload.wikimedia.org/wikipedia/commons/
b/b4/United_States_Navy_Band_-_O_Canada.ogg" type="audio/ogg">
</audio></p>
```

As for jQuery and its impressive visual trickery? You'll be happy to find out you can use jQuery within your Snowman projects the same way you would in your Harlowe games.

In Closing

This chapter contained a hefty amount of information on the three fine pieces of software featured in this book: Ren'Py, TyranoBuilder, and Twine. After reading this rather intense chapter, you should have the knowledge of the following for Ren'Py:

- Working with different video formats
- Audio playback, advanced image control, and visual transitions
- How to customize the Ren'Py user interface using configuration files

You should also have learned the following about TyranoBuilder:

- What plugins are and how they are integrated into your games
- How to make randomized dialogue and use custom fonts
- How variables work in TyranoBuilder and how they're used to control the story flow

As for Twine, you'll have learned the following:

- The main differences between the three story formats (SugarCube, Harlowe, and Snowman)
- How to use Cascading Style Sheets (CSS) to customize the look of your Twine games
- Basic HTML elements and how to integrate them into Twine
- The basics of jQuery and Underscore JavaScript libraries

In the next chapter, we'll look at how you can deploy your games to the various desktop and mobile platforms available in Ren'Py, TyranoBuilder, and Twine.

CHAPTER 6

Deploying for Popular Platforms

Not only is the software in this book powerful and highly usable, it also deploys to a plethora of popular platforms rather wonderfully. In this chapter, we'll explore in detail how this is done for your Ren'Py, TyranoBuilder, and Twine projects.

Ren'Py and the Desktops

Ren'Py deploys out of the box for Windows, macOS, and Linux desktops, without any or much configuration. This is done by simply clicking *Build Distributions* from the Ren'Py launcher and selecting the platforms you want to deploy your game on. There may be some confusion as to what these different options refer to, so they are explained in further detail in the following (see Table 6-1).

R. Ciesla, *Game Development with Ren'Py*, https://doi.org/10.1007/978-1-4842-4920-8_6

Table 6-1. *Ren'Py deployment options for desktop operating systems*

Option	Description
PC: Windows and Linux	Creates a compressed zip file for 32-bit Windows and Linux, as well as 64-bit Linux
Linux x86/x86_64	Creates a compressed TAR.BZ2 file for 32- and 64-bit Linux
Macintosh x86/x86_64	Creates a zip file for 32- and 64-bit macOS
Windows x86	Creates a zip file for older 32-bit Windows operating systems (e.g., Windows XP)
Windows, Mac, Linux for Markets	Outputs files for Windows, macOS, and Linux optimized for online distribution via *Itch.io* and *Steam.* These files are not meant to run directly

Minimum System Requirements

Although Ren'Py games in general are light on the computer system requirements, they do have certain minimum hardware thresholds to meet. These are discussed next (see Table 6-2). For example, ample amounts of high-definition video tend to take a toll on a computer. In such a scenario, the minimal requirements may not cover all of the stress a game puts on hardware.

Luckily, the average PC in 2019 is rather capable of running almost anything a developer in Ren'Py can throw at it. Even most basic of customer PCs of today consist of 4 gigabytes (GB) of system memory (i.e., RAM) with a nice dual-core CPU (i.e., processor) to play visual novels perfectly comfortably on. In general, the visual novel is among the least demanding genres of video games, although exceptions can exist.

OpenGL and *DirectX* are visual frameworks supported by most video cards of today, at least when it comes to the versions required by games created with Ren'Py (i.e., OpenGL 2.0 and DirectX 9.0c). You do need to keep an eye on which operating system you have; luckily Ren'Py doesn't require the latest versions of them for any platform, working well even on an archaic *Windows XP* from 2001.

Table 6-2. *Minimum hardware requirements for Ren'Py games*

Platform	OS Version	Processor	RAM	Graphics
Windows	XP or higher	Core 2 Duo 2.0 GHz	2.0 GB	OpenGL 2.0 or DirectX 9.0c
macOS	10.6 (Snow Leopard) or higher	Core 2 Duo 2.0 GHz (64-bit only)	2.0 GB	OpenGL 2.0
Linux	Ubuntu 12.4 or higher	Core 2 Duo 2.0 GHz	2.0 GB	OpenGL 2.0

The file size of the final project file depends on how many audiovisual assets your game used. It's good to not go overboard with video files, for example, to keep the file sizes and download times to a minimum. Always experiment with both video and audio formats and their respective quality settings to find a balance between fidelity and file size.

Icons for Desktops

Ren'Py stores two files for application icons in the root directory: *icon.ico* for Windows and *icons.icns* for macOS. If you want custom icons for your game, which is highly recommended, you must store these files in a special format; renaming a standard .png file won't do. There are several free programs online for creating these icon files. One of the best is *iconverticons,* found on this page: **https://iconverticons.com**

Ren'Py for Mobile Devices

In addition to desktop support, Ren'Py offers deployment for the popular mobile operating systems of iOS and Android. The process for delivering for these formats is a tad more complex, however, and will be looked at in detail next.

Deploying for Android

Ren'Py supports the Android operating system to a great extent. However, some visual glitches may appear. Test your games thoroughly on your Android device(s).

Now, the first step in deploying for Android is to download the *Ren'Py Android Packaging Tool (RAPT).* This is done simply by clicking *Android* on the Ren'Py launcher; you'll be asked to download the aforementioned tool if you haven't installed it yet.

Next, you'll need the *Java Development Kit* from Oracle. It's a free download obtainable from the following URL: **`www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html`**

You now need to configure both your Android device and your PC for software development. This involves installing an *Android Debug Bridge (ADB)* connection between the device and your desktop computer. Follow these steps:

1. **Open the *Settings app* on your Android device**. Select *Developer options,* and enable *USB debugging.*

2. **Set up your PC to detect your device**. The macOS does this automatically. In Linux, you need to run the command *apt-get install adb* to download a package. As for Windows, you need to download

and install a USB driver specific to your version of the Windows operating system: https://developer.android.com/studio/run/oem-usb

3. **Select *Install SDK & Create Keys* from the Ren'Py launcher's Android screen**. A digital key will be created and used to sign packages that are sold on the market (e.g., on *Google Play*).

4. **Enter some information for Ren'Py about your game**. Choose *Configure* from the launcher's Android menu.

5. **Make sure your Android device is connected to your computer**. Build your game by selecting *Build & Install* from the Android menu of the Ren'Py launcher. You may be asked to authorize your computer for this activity.

Icons and the Splash Screen

Ren'Py will create both the foreground and background icons for your game in its base directory from image files you provide. On Android, these icons are 432 x 432 pixels in size. The foreground icon is transparent, while the background icon is not.

Pre-splash screens are displayed while your Ren'Py games are loading. In the case of Android devices, they are quite crucial; the first time your game is ran in Android, it will take some time as files will be unpacked in the background. The file *android-presplash.jpg* in your project root directory will be used as Android's pre-splash screen.

Keybindings in Android

It's worth noting that the following keybindings are enabled for Ren'Py games running on Android:

- **Home**: Returns to the Android home screen, suspending the current game and saving its state
- **Menu**: Summons the in-game menu
- **Back**: Rolls back
- **Volume Up/Down**: Used for volume control, as expected

Testing Your Android App in Ren'Py

Ren'Py provides several software emulations for several types of Android devices via the launcher's Android menu. Your PC's *Esc* key is mapped as the menu button and the *Page Up* key as the back button for all of these emulations. The following devices are available for emulation in Ren'Py:

- **Android Phone**: Touch is emulated using the mouse when a button is held down.
- **Android Tablet**: Touch is emulated the same way as it is for the simulated Android phone.
- **Television/OUYA device**: This selection emulates a television-based Android device, including the OUYA console. In addition to the controls available for the other two platforms, in this mode the arrow keys provide navigation, while *Enter* works as "select." Also, this mode provides a simulated "safe area" overlay. Areas outside of this safe area may or may not display on the average TV.

Deploying for iOS

The process of deploying Ren'Py projects for the iOS platform can only be done on a desktop running macOS. iOS support provided by Ren'Py is experimental as of Q1 2019. The developers state your projects aren't 100% guaranteed to fit the tough standards of the *Apple App Store,* although some games have made it through. Some technical issues, that is, fallout from the export process, may be the cause. In addition, Apple tends to prefer more "wholesome" titles in general for their App Store. Therefore it makes sense to include as little violence and nudity in your games as possible.

The tools for testing your games, however, are rather robust in Ren'Py. Software emulations of the average iPhone and iPad are built right into the software.

Now, the first step for deploying for iOS is to download the free *renios software;* click the iOS link on the Ren'Py launcher and you'll be asked to do so, unless it's already installed. Once done installing, a new set of actions particular to iOS devices become available. Most importantly, you now have the ability to emulate your games on virtual iPhones and iPads using the two options below *Emulation.* Note: while this functionality provides a preliminary view of your Ren'Py projects on the iOS platform, extensive testing should be also done on actual hardware.

Xcode and the iOS Process

Apple doesn't make it easy to get your games on the App Store. It's a rather time-consuming process as well as a tad pricey. However, the first step is free, and it deals with installing Apple's *Xcode integrated development environment (IDE).* It's safe to assume you already have an Apple ID if you're a Mac user. So, just download Xcode for free from the App Store on your Mac and install.

Once you have Xcode on your Mac, the following steps enable you to deploy your Ren'Py games for iOS. It's time to get both thorough and patient.

1. **Enroll in the *Apple Developer Program* using the following link**. Be prepared to pay an annual fee of $99 (as of Q1 2019) for the iOS program. Your personal Apple ID will be then associated with the program.
   - **`https://developer.apple.com/programs/enroll/`**
2. **Use the Ren'Py launcher to create a new Xcode project**. Do this by clicking iOS on the main launcher page and *Select Xcode Projects Directory*. Next, click *Create Xcode Project.* It will be named automatically based on the game's name in Ren'Py.
3. **Access your new project in Xcode**. Click *Launch Xcode* in the Ren'Py launcher.
4. **Add your Apple ID to Xcode's *Account Preferences***. Go to the *Accounts tab* in Xcode. Use the plus sign icon on the bottom of the screen to add your Apple ID to the project.
5. **Assign your project into a team**. Select your project in the Xcode project editor. Click *General.* Then click *Signing* to show the relevant controls. Make sure the checkbox for *Automatically manage signing* is checked.
6. **Execute your game on an iOS device**. Connect an iOS device to your Mac. Running your project on actual iOS hardware will tell Xcode to create all the necessary signing assets relevant for deployment.

7. **Export your *signing certificates* and *provisioning profiles***. This is an optional, cautionary step for peace of mind. To make backups of the signing certificates and provisioning profiles (i.e., your developer account), simply visit the Accounts tab in Xcode and select *Export Developer Accounts* from the bottom of the window beneath the list of Apple IDs.

8. **Enter a file name in the *Save As* field**. Enter a password in both the *Password* and *Verify* fields. A file containing your developer account is now safely encrypted and password protected at a location of your choosing.

Oh, and should you later want to re-introduce a lost developer account into the Xcode environment, just select *Import Developer Accounts* in the Accounts tab and dig up a file you've previously created. And don't forget the password.

Updating Your iOS Projects

Whenever you make changes in your Ren'Py project and want to transfer them over to the iOS side of things, simply click *Update Xcode Project* in the Ren'Py launcher. If you've recently updated to a new version of the Ren'Py software itself, however, you need to create an entirely new Xcode project for your games: using the aforementioned technique won't work.

App Icons and Splash Screens for iOS

Both the app icons and splash screens for your iOS projects are manipulated exclusively in Xcode. Apple is pretty strict when it comes to the specifications of the icons (see Table 6-3).

Table 6-3. *Apple's specifications for App icons as of Q1 2019*

Platform	Resolution (in Pixels)	Platform	Resolution (in Pixels)
iPhone	180 x 180 and 120 x 120	*iPad & iPad Mini*	152 x 152
iPad Pro	167 x 167	*Apple App Store*	1024 x 1024

Note: there are many useful and free services online for creating all types of Apple-approved icons from a single image file, such as *App Icon Generator* (`https://appicon.co`).

Splash screens, called *launch screens* in the Apple ecosystem, are mandatory in all software sold on the App Store. Let's take a look at some approved dimensions for these launch screens in Table 6-4. Note: the resolution for landscape mode is simply the reversed for portrait mode (e.g., from 1125 x 2436 to 2436 x 1125).

Table 6-4. *Apple's specifications for Launch Screens on select devices in portrait mode*

iOS Device	Resolution (in Pixels)	iOS Device	Resolution (in Pixels)
iPhone X	1125 x 2436	*iPad Pro (12.9")*	2048 x 2732
iPhone 8, iPhone 7, iPhone 6s	750 x 1334	*iPad Pro (11")*	1668 x 2388
iPhone SE	640 x 1136	*iPad (9.7")*	1536 x 2048

To set a launch screen, just work with the *LaunchScreen.storyboard* in Xcode. Add your image file of the proper resolution into the folder called *Assets.xcassets.* Drag the image from the Xcode media library onto the LaunchScreen storyboard. You should then have a brand new launch screen for your iOS Ren'Py game.

Deploying for Chrome OS/Chrome Browser

Google's *Chrome OS* is a Linux-based operating system which uses *Chrome* as its primary online browser. The latter is a free download available for most operating systems. Chrome OS is primarily distributed on specific laptops and desktop computers, such as *Chromebooks* and *Chromeboxes*. Now, Ren'Py games can be deployed for the Chrome browser to be played as web applications by taking the following steps:

1. **Download and install the latest version of the Chrome browser.**
2. **Download and install the *Android Runtime for Chrome (ARC)* software**. Do this inside Chrome.
    - `https://chrome.google.com/webstore/detail/arc-welder/emfinbmielocnlhgmfkkmkngdoccbadn`
3. **Package your game like you would for Android** (see "Deploying for Android" in this chapter).
4. **Run the ARC software from inside of Chrome browser.**
5. **Locate the path to your application ending in .APK.**
6. **Set the following options**: Landscape orientation, Table form factor, Resize: disabled, and Clipboard access: disabled.

Choose *Test* to run your game and *Download Zip* to generate a compressed file ready for distribution on the *Chrome Web Store*.

Legalese for Android and iOS in Ren'Py

Parts of the *Ren'Py Android Packaging Tool (RAPT)* and the iOS implementations of Ren'Py feature software libraries licensed under the *GNU Lesser/Library General Public License.* This should be acknowledged in the description of your game, just to be on the safe side. Simply integrate the following note into the documentation of your game:

> *This program contains free software licensed under a number of licenses, including the GNU Lesser General Public License. A complete list of software is available at* `https://www.renpy.org/l/license/`.

Ren'Py for the Quirky: Raspberry Pi

Since 2012 the computing scene has seen a surge of bare-boned and somewhat quirky little devices. Such a device is called a *Raspberry Pi,* a miniature computer of little cost, usually priced at under $40. With sales of approximately 20 million by 2019, the Raspberry Pi has been quite a success. With very little effort, you too can capitalize on this emerging market with your Ren'Py games.

Ren'Py offers you the functionality to deploy to Raspberry Pi, but with some caveats. Since the device is rather lightweight, some restrictions apply that do not apply on Android or iOS. Your audiovisual assets should be kept to a minimum when porting to Raspberry Pi. Consider making a rather stripped-down version of your game for the system; a direct port from a desktop computer isn't usually a sound idea.

Setting Up a Pi for Ren'Py

Raspberry Pi runs *Raspbian,* a Linux-based operating system. Ren'Py is not guaranteed to work on anything else than a Raspberry Pi model 3B. Also, the following settings should be set by typing *sudo raspi-config* into the *LXTerminal* application in Raspbian:

- Memory split: 256 MB/1280 x 720 screen resolution or lower/GL Driver: GL (Fake KMS)

Hold on: your Raspberry Pi isn't quite ready to tackle Ren'Py yet. In addition to the preceding text, you need to install a Linux version of the SDK as well as the Raspberry Pi support files. Find the former on the page provided in the following by clicking *Download SDK tar.bz2.* The latter is also available on the same page, listed under *Additional Downloads.*

- www.renpy.org/latest.html

TyranoBuilder for Desktops

TyranoBuilder is a very user-friendly tool also when it comes to exporting to different platforms. The easiest to export to are Windows, macOS, and browser. It simply takes a few clicks of the mouse.

Select *Project* ➤ *Export Game* from the top menu in TyranoBuilder. Select either *Browser Game, Windows Application,* or *Mac Application* from the *Export Type* drop-down menu. Confirm the export by clicking *Ok* when presented with the prompt saying "Proceed with export?" After just a few measly seconds of processing, you are given the option to open the folder on your computer where the files were just created. You now have the game in your chosen format, ready for distribution. That's basically all there is to it.

Note: it is a good practice to include a manual and license with your game files, no matter how basic. A well-edited manual in a printable PDF format can add a touch of class to any game.

TyranoBuilding for iOS

The effort needed for mobile deployment is, as always, more involved than that for the desktops. That is the case for TyranoBuilder, too. The initial steps are the same for iOS (and Android); select *Project ➤ Export Game* from the top menu in TyranoBuilder. You'll get your game in a distributable form in no time. However, this is where it gets somewhat trickier.

The additional requirements for iOS deployment on TyranoBuilder are quite similar to those for Ren'Py:

- A Macintosh computer running TyranoBuilder.
- An Apple Developer Account for iOS (costing $99 a year).
- Xcode: Available for free from the App Store.
- Approval from The Apple App Store. A family-friendly approach to your game writing helps.

For details on the aforementioned steps, see "Xcode and the iOS Process" earlier in this chapter. What you need to bring to the table most for iOS are a *certificate* and a *provisioning profile,* two little files that are crucial for iOS deployment.

Note the following restrictions for iOS deployment: all of your games' video files must be in the mp4 format. As for your audio files, they must be in either the m4a or mp3 formats. Using other file formats may result in your game not running properly. Also, avoid using Japanese characters in your file names.

Now, you'll also need a free piece of software called *TyranoPlayer*. Download it from the following page:

- **http://tyrano.jp/download/player/TyranoPlayerFramework_ios_v112.zip**

Open the TyranoPlayer file folder and a sub-folder titled *game*. Copy all of the files you created earlier via the Export Game function of TyranoBuilder to this directory. Locate the file called *TyranoPlayerFramework.xcodeproj* in the TyranoPlayer directories and double-click it to open Xcode.

The next step is to test your game on either a software simulation of an iOS device or an actual iPhone and/or iPad. You can run iOS emulation in Xcode by clicking the play button in the top of the Xcode interface. To test your TyranoBuilder project on a hardware iPhone or iPad, simply connect the device while Xcode is running; your device will appear in the emulator box for you to test.

TyranoBuilding for Android

To deploy for Android, make the same initial steps by selecting *Project* ➤ *Export Game* from the top menu in TyranoBuilder. Next, you need to install the Android Studio software, which is available for download from the following URL: **https://developer.android.com/studio**. It's a rather hefty sized file at around a gigabyte, so you might want to go have your tea break.

Then, it's time to install TyranoPlayer for Android, which is another free download: **http://tyrano.jp/download/player/TyranoPlayerFramework_android_v112.zip**

As is the case with TyranoBuilder's iOS deployment, your Android projects should only contain video files in the mp4 format and audio files in the m4a or mp3 formats. Also, Japanese characters are not supported in file names.

Run Android Studio next. Select *File* ➤ *New Project* from the top menu. Enter your project details, such as your application name, and click next. On this screen, focus your attention on the *Phone and Tablet* selection. For the setting for *Minimum SDK,* choose *API 19: Android 4.4 (KitKat).* Click next.

On the screen titled *Add an Activity to Mobile,* select *Empty Activity* as the setting (see Figure 6-1).

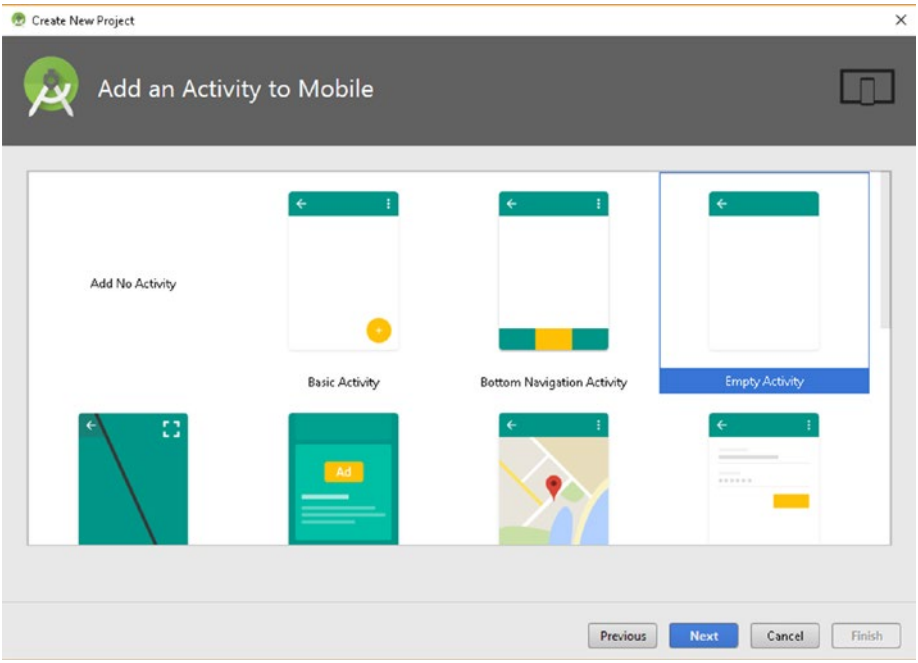

Figure 6-1. *The activity view in Android Studio*

Next, confirm the following settings:

- Activity Name: "MainActivity"
- Layout Name: "activity_main"

Press *Next* and *Finish*. Android Studio will crunch some numbers for a couple of minutes resulting in the project information needed to compile your game. After this stage you still need to right-click the folder called "app" in Android Studio (see Figure 6-2) and select *Show in Explorer* to view the files.

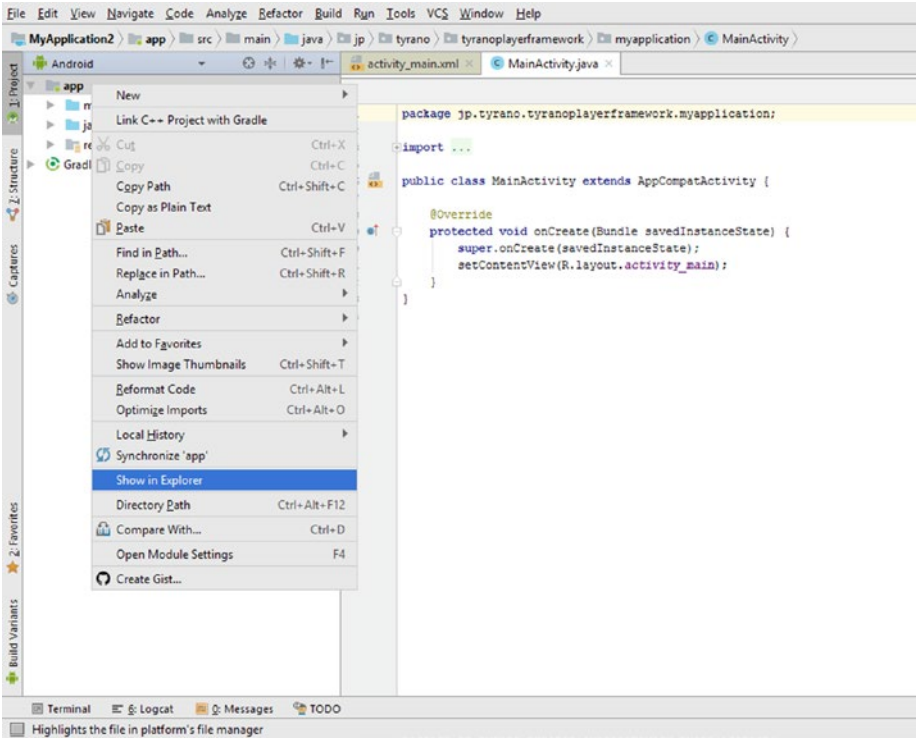

Figure 6-2. *The project view in Android Studio*

When the explorer view opens, enter the directory */app/src*. Delete the folder called *main*. Now, bring up the folder you previously worked with in TyranoPlayer. Copy the contents of the main directory built with TyranoPlayer into the main directory created by Android Studio.

Enter Android Studio and click the play button on the top of the interface. If the game works, you can congratulate yourself: you're ready to enter the rather lucrative Android market. If you see error messages, you might be missing some crucial components. These can be installed by clicking the text link stating *Install missing platform(s) and sync project* at the very bottom of the message window. This might lead to downloads the size of several gigabytes, so it's time for another cup of tea. Choose a simulation type and re-click the play button to test your project.

Additional Android Advice

The landscape mode might not work properly on simulated Android devices. However, this doesn't mean it won't work on actual hardware. Also, your Android app name might be something ludicrous by default, such as *TyranoPlayerFramework*. To change this, navigate to *App* ➤ *Res* ➤ *Values* in your TyranoPlayer file structure. Edit the file *Strings.xml* and locate the line <*string name="app_name">TyranoPlayerFramework </string*>. Change *TyranoPlayerFramework* into your game's actual name and save the file.

Twine for the Desktops

With its standardized main components, HTML5 and JavaScript, Twine games are perhaps the most compatible with the most operating systems and devices. All desktop devices compatible with these technologies via browsers (i.e., pretty much all of them) can run Twine games right after they've been exported.

Exporting in Twine is done by simply clicking the cogwheel icon next to a project in the main view. Then select *Publish to File* and select a directory location for your files. You now have a game ready to run on most desktops, regardless of their operating system, and most browsers online.

Twine for iOS and Android

The easiest way to deploy for both iOS and Android devices is by using a free online tool, *PhoneGap Build,* provided by Adobe. What this service does is it accepts HTML/JavaScript applications and churns out either iOS, Android, or Windows Phone executables. Like you may have guessed, for iOS, you should get familiar with the following resources:

- An Apple Developer Account for iOS (costing $99 a year)
- Xcode: Available for free from the App Store

For details on the aforementioned steps, see "Xcode and the iOS Process" earlier in this chapter. As always, what you need to bring to the table for iOS are a *certificate* and a *provisioning profile.*

Now, as for PhoneGap Build, just sign up for a free Adobe account on any Adobe site. This grants you access to the tool, which is to be found on the following page: **https://build.phonegap.com**

Note: although PhoneGap Build still supports (as of Q1 2019) Windows Phone, we won't be looking at how to deploy to this platform. The reason is the announcement in which Microsoft stated the end of support for Windows Phone by the end of 2019.

The Wonders of PhoneGap Build

To work with Adobe's wonderful tool, you must upload a compressed zip file containing two files: your exported Twine game and an xml configuration file called *config.xml.* The following lines can be used as the

contents of the xml file. Simply copy and paste them into a new text file and save it as config.xml. Note: make sure there are no empty lines at the top of this file!

```
<?xml version="1.0" encoding="UTF-8" ?>
<widget xmlns   = "http://www.w3.org/ns/widgets"
    xmlns:gap   = "http://phonegap.com/ns/1.0"
    id          = "com.happygame.example"
    versionCode = "10"
    version     = "1.0.0" >

  <name>Happy Game</name>

  <description>
      An amazing adventure set in the bathroom.
  </description>

  <author href="https://www.happygames.com" email="support@
  happygames.com">
      David McDeveloper
  </author>

</widget>
```

Next, follow these steps:

1. **Name your Twine file as *index.html* and nothing else**. Find the file that came out of the Twine export process and rename it.
2. **Open config.xml** and modify the file if needed.
3. **Create a folder on your hard drive which has both index.html and config.xml**. Nothing else is needed in said folder, which you can call whatever you wish. We'll refer to this as the PhoneGap folder.

4. **Compress the folder you just created.** On a Mac, this is achieved easily by navigating to the structure where your PhoneGap folder is, right-clicking said folder, and selecting *Compress <folder name>*. On Windows you can use free utilities such as *7-zip* to create the .zip file.
    - `www.7-zip.org/`
5. **Go to Adobe's PhoneGap page and click *Upload a .zip file.*** Locate the zipped PhoneGap folder on your PC and upload it.
6. **Click Ready to build.**

You should see blue download links for *iOS, Android,* and *Windows Phone* by clicking *Builds* (see Figure 6-3). You can download and try the Android (and Windows Phone) files right away. iOS is more finicky and requires you to upload both a *p12 certificate* and a *provisioning profile* by clicking *No key selected* and *add a key* in the PhoneGap panel. We'll look at the iOS implementation in detail later in this chapter.

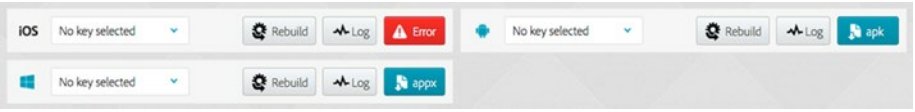

Figure 6-3. *The Builds view in PhoneGap*

Note that you can also download apps by scanning the QR codes presented by PhoneGap.

Splash Screens for Android

To create splash screen for your Android app, you need a single image file with the dimensions of 360 x 480. Also make sure it is in the *Portable Network Graphics (PNG)* format. Put this file into your PhoneGap folder. Next, add the following code to the config.xml file, right before the tag of *</widget>*.

```
<plugin name="cordova-plugin-splashscreen" source="npm"
spec="~3.2.1" />
      <preference name="SplashScreenDelay" value="3000" />
      <preference name="ShowSplashScreenSpinner" value="false" />
      <preference name="FadeSplashScreen" value="false" />
      <preference name="SplashMaintainAspectRatio" value="true" />
      <preference name="SplashShowOnlyFirstTime" value="false" />
<splash src="splash.png" />
```

Icons for Android

The process of implementing icons for your Android app is a tad more involving. We'll go through it next, step by step:

1. Add the following code into config.xml, again, before the tag *</widget>*.

```
<platform name="android">
     <icon density="ldpi" src="res/icon/android/ldpi.png" />
     <icon density="mdpi" src="res/icon/android/mdpi.png" />
     <icon density="hdpi" src="res/icon/android/hdpi.png" />
     <icon density="xhdpi" src="res/icon/android/xhdpi.png" />
     <icon density="xxhdpi" src="res/icon/android/xxhdpi.png" />
     <icon density="xxxhdpi" src="res/icon/android/xxxhdpi.png" />
</platform>
```

2. **Navigate to your PhoneGap folder on your PC.** Create a sub-folder called *res* and open it. Create another sub-folder inside this folder called *icon.* Again, open this folder and create yet another folder called *android.* You should now have a folder structure resembling *YourApp/res/icon/android,* where YourApp is whatever name you gave to your PhoneGap folder.

3. **Create the icon file itself using your favorite image-editing program.** The resulting file should be 1024 x 1024 pixels in resolution and saved in the PNG format.

4. **Build a set of Google-approved app icons out of the base image file you just made.** This is easiest done using free online tools, such as *ResizeAppIcon,* available on the following page:

   - `https://resizeappicon.com/`

5. **Find the link labeled Upload File on the aforementioned web site.** Give the site the base image file. Wait for the upload to complete.

6. **Find the section on Android.** Click the checkbox labeled *All.*

7. **Scroll down the page and find the section *Download Selected*.** This will result in a zip file containing all of the necessary icons for your Android project.

8. **Unpack the zip file and copy the contents into your PhoneGap folder's *android* sub-folder.**

Splash Screens for iOS

Apple has stricter requirements for splash screens than Google. While a single image file might work for Android, iOS requires several images in numerous resolutions and orientations. Luckily, free online tools can help you with this endeavor, too. One of the best is *Resource Generator,* available on the following web site:

- **www.resource-generator.com**

The makers of this tool recommend nontransparent PNG files in a 2208 x 2208 pixel resolution for optimal splash screen creation. Simply click *Browse* underneath *Splash screen* and navigate to this image file. Click *Upload files.* After a minute or two, your gorgeous Apple-approvable screens will have arrived on your PC.

Now, we need to navigate to your PhoneGap folder and create a new sub-directory in *res,* called *screen.* And into *screen* you should create a new folder called *ios.* The folder structure should look like this: `YourApp/res/screen/ios`. Copy the files you created with Resource Generator into this directory.

Next it's time to add lines into the venerable config.xml file. As always, insert the following lines before the tag called </widget>.

```
<platform name="ios">
<splash src="yourApp/res/screen/ios/Default-568h@2x~iphone.
png"platform="ios" width="640"  height="1136" />
<splash src="yourApp/res/screen/ios/Default-667h.png"
platform="ios" width="750"  height="1334" />
<splash src="yourApp/res/screen/ios/Default-736h.png"
platform="ios" width="1242" height="2208" />
<splash src="yourApp/res/screen/ios/Default-Landscape-736h.png"
platform="ios" width="2208" height="1242" />
```

```
<splash src="yourApp/res/screen/ios/Default-Landscape@2x~ipad.
png"platform="ios" width="2048" height="1536" />
<splash src="yourApp/res/screen/ios/Default-Landscape~ipad.png"
platform="ios" width="1024" height="768" />
<splash src="yourApp/res/screen/ios/Default-Portrait@2x~ipad.
png" platform="ios" width="1536" height="2048" />
<splash src="yourApp/res/screen/ios/Default-Portrait~ipad.png"
platform="ios" width="768"  height="1024" />
<splash src="yourApp/res/screen/ios/Default@2x~iphone.png"
platform="ios" width="640"  height="960" />
<splash src="yourApp/res/screen/ios/Default~iphone.png"
platform="ios" width="320" height="480" />
</platform>
```

Icons for iOS

The process for including Apple-approvable icons in your PhoneGap project consists mostly of the same steps as the one for Android. Revisit the ResizeAppIcon tool, upload your base image, and select iOS as your platform of choice. Click *Download Selected* to receive your Appstore-friendly icons.

If needed, create a sub-folder called *res* and open it. Also create another sub-folder inside this folder called *icon* unless you previously did so. Now, open this folder and create a new folder called *ios*. Unpack the zip file you received your icons in into this directory. The folder structure should now look like this: *yourApp/res/icon/ios*.

Also, add the following code into config.xml, again, before the tag *</widget>*. Note: you can combine your splash screen and icon metadata under the same <platform> tag. This is demonstrated in the following with the bold line right before the end of the platform structure. All definitions for iOS can and should go here, but for the sake of brevity, we won't be demonstrating this right now.

```
<platform name="ios">
    <icon src="yourApp/res/icon/ios/icon.png"      platform="ios"
    width="57"   height="57" />
    <icon src="yourApp/res/icon/ios/icon@2x.png"   platform="ios"
    width="114"  height="114" />
    <icon src="yourApp/res/icon/ios/icon-40.png"   platform="ios"
    width="40"   height="40" />
    <icon src="yourApp/res/icon/ios/icon-40@2x.png" platform="ios"
    width="80"   height="80" />
    <icon src="yourApp/res/icon/ios/icon-50.png"    platform="ios"
    width="50"   height="50" />
    <icon src="yourApp/res/icon/ios/icon-50@2x.png"  platform="ios"
    width="100" height="100" />
    <icon src="yourApp/res/icon/ios/icon-60.png"    platform="ios"
    width="60"   height="60" />
    <icon src="yourApp/res/icon/ios/icon-60@2x.png"  platform="ios"
    width="120" height="120" />
    <icon src="yourApp/res/icon/ios/icon-60@3x.png"  platform="ios"
    width="180" height="180" />
    <icon src="yourApp/res/icon/ios/icon-72.png"     platform="ios"
    width="72"   height="72" />
    <icon src="yourApp/res/icon/ios/icon-72@2x.png"  platform="ios"
    width="144" height="144" />
    <icon src="yourApp/res/icon/ios/icon-76.png"     platform="ios"
    width="76"  height="76" />
    <icon src="yourApp/res/icon/ios/icon-76@2x.png" platform="ios"
    width="152"  height="152" />
    <icon src="yourApp/res/icon/ios/icon-small.png" platform="ios"
    width="29"   height="29" />
    <icon src="yourApp/res/icon/ios/icon-small@2x.png"
    platform="ios" width="58" height="58" />
```

```
    <icon src="yourApp/res/icon/ios/icon-small@3x.png"
    platform="ios" width="87" height="87" />

    <splash src="www/res/screen/ios/Default-568h@2x~iphone.
    png"platform="ios" width="640"  height="1136" />
</platform>
```

The Apple p12 Certificate and PhoneGap

Using PhoneGap Build for iOS requires not only an Apple developer certificate, but it needs to be provided in a specific format, which is the *Personal Information Exchange* format. This is often referred to as the *p12 certificate.* The following steps tell you how this is done:

1. **Open *Keychain Access* on your Mac**. This tool is found usually in your Applications/Utilities folder.
2. ***Select File*** ➤ ***Import*** **to bring your Apple-provided certificate file (i.e., the file with the extension of *.cer*).**
3. **Select the Keys category in Keychain Access.** Choose the private key associated with your iOS Development Certificate. The key is identified by a public certificate that is paired with it.
4. **Hold down the CMD key and click the Developer Certificate**. Select *Export iOS Developer Certificate.*
5. **Save the keystore in the p12 format.**
6. **A prompt will appear requesting a strong password**. This will be needed when transferring your keys and certificates between keystores or when signing apps.

In Closing

This chapter dealt with how to deploy games made with Ren'Py, TyranoBuilder, and Twine for the most popular platforms today. After reading this chapter, you should have the knowledge of the following for Ren'Py:

- How to deploy to Windows, macOS, and Linux desktops
- How to obtain and use *Ren'Py Android Packaging Tool (RAPT)* to deploy for Android
- Using *Android Runtime for Chrome (ARC)* to create web apps for Google's *Chrome OS* and browser
- How to obtain the necessary frameworks and digital certificates from Apple needed to deploy for iOS

After reading this chapter, you should have the knowledge of the following for TyranoBuilder:

- Deployment to Windows, macOS, and browser
- How to deploy TyranoBuilder games for iOS using *TyranoPlayer* and Apple's *Xcode*
- How to obtain and use the *Android Studio* software to deploy your games for Android

As for deploying in Twine, you should have the following knowledge at this point:

- Deployment to Windows, macOS, and browser
- How to use Adobe's *PhoneGap Build* online tool to create both iOS and Android apps

Other things you have learned include

- How to use online tools to create icons and splash screens to Apple's and Google's exact specifications
- What Apple's *p12 certificate* is and how it's obtained
- The "legalese" you should include in the documentation of your Ren'Py games when deploying for Android and iOS

In the next chapter, we'll actually be implementing our know-how on these pieces of software by creating three little games with them.

CHAPTER 7

Three Little Games

In this chapter we'll create an actual visual novel. We'll see how the synopsis from Chapter 1 translates into Ren'Py, Twine, and TyranoBuilder as we create a little game called *Taking Back August.* This project will be split between the three aforementioned frameworks with the majority of the game being presented in Ren'Py.

You can, and should, write your own stories. However, it's useful to see how the process evolves from synopsis to game, especially if you haven't written your first game yet.

Laying Out a Plan

Before embarking on the coding side of things, it's good to lay out a plan for your adventure. This means you should catalogue the characters and the most relevant venues in your game into representations that can be easily referenced. It is paramount especially when working in larger teams.

We'll now lay out some tables for the techno-thriller *Taking Back August.* For the purposes of this book, the method of tables works best. Of course, you are free to use any visual approach in this process. The crucial thing is to not skip this phase and go straight to the coding; such an approach could backfire!

R. Ciesla, *Game Development with Ren'Py*, https://doi.org/10.1007/978-1-4842-4920-8_7

Cast of Characters

Let's start off with the relevant characters (see Table 7-1). Feel free to return to Chapter 1 of this book to refresh your memory if these names no longer sound familiar.

It may be a good idea to rehash the principles of Joseph Campbell's 12 character archetypes, also found in Chapter 1, as the example game does make a use of them. Not all archetypes are necessary for an adventure, as you can see.

Table 7-1. *The main characters in our Ren'Py adventure*

Character	Role/Archetype	Gender and Age	Appearance
Reginald Pennelegion	Protagonist (i.e., player)	Male, early 30s	Medium build and height, professional look
Mervyn Popplewell	Explorer	Male, early to mid-30s	Gaunt build and medium height, somewhat ragged look
Royston Honeybun	Sage	Male, late 50s	Heavy build, casual look
Claire	Ruler	Female, late 20s	Athletic build, medium height, fashionable look
Overalls Man	Rebel	Male, age unknown	Athletic build, bald and tall, bizarre look
Raine	Lover	Female, early 30s	Average build, petite

Locations

Visual novels aren't usually thought of in terms of the number of locations or rooms. When it comes to the genre, the metric for depth is often the number of words of dialogue and narration a game contains. On average, it's good to settle between 10,000 and 50,000 words total per game. Note: for the sake of brevity, the tutorial games presented in this book will all fall short of the aforementioned word count.

While the relevant characters in an adventure are easily catalogued, it's more challenging to decide on the number and type of venues (and later, rooms) in a game. Too few locations hinder a game's atmosphere, and too many simply confuse the player. It's best to start with a top-down approach (see Table 7-2), focusing only on the most crucial venues first and splitting them into smaller units (i.e., rooms).

We use three categories for mapping a story: *settings, venues,* and *rooms.* This is for the sole reason of continuity, in regard to both storytelling and the audiovisual side of things.

- **Settings** can and should share the same theme and atmosphere, when it comes to the writing and/or visual elements (e.g., the stylistic choices with the backgrounds).
- **Venues** might, for example, share a soundtrack (or other ambient backdrop) and/or visual components.
- **Rooms** included in a venue can usually be thought of as being the smallest units for locations in a game, some of which are interconnected.

Table 7-2. *The main settings and venues in Taking Back August*

Setting	Venue	Example Room Description
The Office Complex	*Reginald's work space*	You're idling at a tidy desk with a desktop computer and stacks of papers. Only a sticker of a cyborg woman makes your workstation unique to all of the others'.
The Office Complex	*The Top Floor (i.e., The Special Cell Phone Storage Area)*	You enter a somewhat run-down part of the office premises, several floors above Reginald's desk, and several decades behind in furniture style and decoration.
London	*The Wellington Arch, Hyde Park*	The Arch stands in the dark London night as almost a sinister monument in the light of recent events.
The Office Complex (On Fire)	*Reginald's desk*	All hell has broken loose in the inferno that used to be your workplace. You shield your face with your briefcase and dive into the fire.
London (Residential Area)	*Reginald's Apartment*	Your once familiar dwelling is now clouded in sinister apprehension as strange sounds emit from behind the door.
London (Train Station)	*Euston Train Station*	With the taste of blood in your mouth, you frantically eye the timetables for the next train; any train will do.
Train	*Train to Nottingham*	Sitting down in a mushy train seat, a woman with black hair opposite to you dons a smile. Taking her headphones off, she introduces herself.

(*continued*)

Table 7-2. (*continued*)

Setting	Venue	Example Room Description
Bedford Streets	*Bedford Train Station*	Doing your best to blend in the crowd, you are suddenly shaken by an arm grabbing you by the shoulder.
Bouvet Island, Norway	*Bouvet Island*	You exit the hovercraft into an almost alien world. The freezing temperature chills your blood. The craft begins to reverse immediately as you're left to deal with the Atlantic winds – and the Faction – on your own.
Bouvet Island, Norway	*The Underground Bunker*	Unnoticeable from the outside, the four-room structure is surprisingly roomy on the inside. With better furniture, it could be turned into an exotic hostel.
South Atlantic Ocean	*The Hovercraft*	A second craft emerges a few hundred yards to the starboard. Like the hovercraft, it has no lights on. You begin to panic.
Norway	*Oslo Airport*	You enter an exceptionally busy airport spanning what seems like miles. You take some comfort in being able to disappear into the massive crowd.
London	*Heathrow Airport*	Jet-lagged tourists pull their luggage around a surprisingly calm Heathrow as you mentally prepare for the fight of your life.

(*continued*)

Table 7-2. (*continued*)

Setting	Venue	Example Room Description
London	*Buckingham Palace*	There's no time to admire the courtly facades and stately monuments behind you. You must only run. The sound of gunfire makes you almost trip on the exquisite pavement.
New Office Complex	*Reginald's new work space*	Before moving on to a more secluded part of the building, he takes one last look at the ancient mobile phone before storing it in a very special filing cabinet, ready for use.

Now it's time to divide the aforementioned venues into smaller units. After all, a game with only 14 locations tends to run out of steam rather quickly. Using the three categories of locales, we map out some rooms for the first setting (i.e., The Office Complex) of our adventure (see Table 7-3). We'll then do this for all of the different locations in the example game.

Table 7-3. *The Office Complex setting in Taking Back August*

Setting	Venue	Room	Connects to Room(s)
The Office Complex	*Reginald's work space*	*Reginald's desk*	*Drinking fountain area, Royston's desk*
		Drinking fountain area	*Reginald's desk, The neighboring desk*
		The neighboring desk	*Drinking fountain area*
	The Top Floor (i.e., The Special Cell Phone Storage Area)	*Royston's desk*	*Reginald's desk, Special filing cabinet*
		Special filing cabinet	*Royston's desk*

Setting I: The Office Complex

As you may remember, our adventure begins with Reginald receiving a mysterious email from a deceased former colleague, one Mervyn Popplewell.

Design notes for **The Office Complex**:

- The tone for the writing in this setting should be somewhat somber and foreboding.
- As far as audio atmosphere building goes, the relevant venues might benefit from copier machine sounds, muffled voices, and perhaps a radio playing in the background in one of the rooms.

Setting II: London

Now we're on our way to the Wellington Arch, as per the instructions in the mysterious email. On to the streets of London we go (see Table 7-4).

Table 7-4. *The Office Complex setting in Taking Back August*

Setting	Venue	Room	Connects to Room(s)
London	*Hyde Park*	*Hyde Park*	*The Wellington Arch*
	The Wellington Arch, Hyde Park	*The Wellington Arch*	*Hyde Park*
	Street	*Road past the office*	*The Wellington Arch*
		Flames in the distance	*None*

Design notes for **London**:

- The tone for the writing in this setting should still be foreboding.
- Audio wise, we should incorporate normal street sounds: cars passing by, people talking into their cell phones, footsteps, and perhaps the beeps of traffic lights.

Setting III: The Office Complex on Fire

This is a troublesome moment in our protagonist's adventure. Reginald is determined to head back to the office, which is now almost completely engulfed in flames (see Table 7-5). With nothing but a briefcase to shield him, he takes on the challenge nonetheless.

Table 7-5. *The Office Complex setting in Taking Back August*

Setting	Venue	Room	Connects to Room(s)
London	*Office back entrance*	*Back alley*	*Fire ladder*
The Office Complex (On Fire)		*Fire ladder*	*General Office Space*
		General Office Space	*Reginald's desk*
		Reginald's desk	*Neighboring desk A*
		Neighboring desk A	*Reginald's desk, Neighboring desk B*
		Neighboring desk B	*Neighboring desk A*

Design notes for **The Office Complex (On Fire)**:

- The tone for the writing in this setting should be distressed and confused.
- For audio, the sounds of fire engines, flames, and things falling apart are what's needed.

Setting IV: London (Residential Area)

At this point in the story, Reginald heads home, as instructed. However, things aren't quite ideal; strange sounds can be heard coming from his apartment. In fact, entering his home would be downright detrimental to Reginald's health; hence, there's no coming back from that room (see Table 7-6).

Table 7-6. *London (Residential Area) setting in Taking Back August*

Setting	Venue	Room	Connects to Room(s)
London (Residential Area)	*Reginald's house*	*Street*	*None*
		Corridor	*Street*
		Reginald's Apartment Door	*Corridor, Reginald's Apartment*
		Reginald's Apartment	*None*

Design notes for **London (Residential Area)**:

- The writing in this brief but intense setting should convey a sense of doom.
- When it comes to audio, the venue would benefit most from echoing footsteps and bizarre, alien sounds.

Setting V: London (Train Station)

Now under pressure to leave London immediately, Reginald dashes to the train station. There, he enters the first northbound train (see Table 7-7).

Table 7-7. *London (Train Station) setting in Taking Back August*

Setting	Venue	Room	Connects to Room(s)
London (Train Station)	*Euston Train Station*	*Stephenson Statue*	*Platform A*
		Platform A	*Stephenson Statue, Platform B*
		Platform B	*Train*
		Train	*None*

Design notes for **London (Train Station)**:

- The tone set in the previous setting continues; Reginald is being pursued and he's panicking, after all.
- Audio in this setting should be kept similar to the other London-based settings, only to be slightly busier due to higher concentration of people.

Setting VI: Train

Entering a train, Reginald feels slightly more at ease. However, this calm won't last very long; he's still being chased (see Table 7-8). In fact, he ends up locking himself in the train toilet with a pair of maniacs running after him. Receiving a call on the special mobile phone, he's told to leave at the next station, which happens to be Bedford.

Table 7-8. *London (Train Station) setting in Taking Back August*

Setting	Venue	Room	Connects to Room(s)
Train	*Train to Nottingham*	*Train doors*	*None*
		Train car A	*Train car B, Train doors*
		Train car B	*Train car A*
		Train toilet	*Train car B, Train car C*
		Train car C	*None*

Design notes for **Train**:

- This setting offers a breather in terms of dramatic tension. However, toward the end of this setting, the action ramps up again.
- The ambience should consist of quiet train noises, that is, cars rolling and clicking on rails.

Setting VII: Bedford Streets

Reginald gets off at Bedford Station, unsure of what to do next. Dashing around the platforms, he is shook as someone grabs him by the arm. Luckily, it turns out to be Royston Honeybun, the guy from tech support. They stroll into a small Bedford park, sitting down on a bench. Reginald is then briefed on some of the details of the situation (see Table 7-9).

Table 7-9. *The Bedford Streets setting in Taking Back August*

Setting	Venue	Room	Connects to Room(s)
Bedford Streets	*Bedford Station*	*Train platform A*	*Train platform B*
		Train platform B	*Train platform A, Road to a Park*
		Road to a Park	*Park Bench*
		Park Bench	

Design notes for **Bedford Streets**:

- Aside from a single shock, this setting has a more relaxed tone overall compared to the others so far. The writing should reflect the fact that the protagonist now feels somewhat safe, being in the presence of an ally.
- The audio for Bedford should be similar to that of the London settings, although slightly more muted and sparse.

Setting VIII: Bouvet Island, Norway

As Royston Honeybun departs into the night, Reginald receives another call on the special mobile phone. Raine informs him he now needs to ditch the phone and relocate to the most remote island on the planet: Bouvet Island. A rather complicated trip involving numerous trains, ferries, and fishing boats ensues, but Reginald makes it in a little less than 3 days (see Table 7-10).

And who else is greeting Reginald at the island but Mervyn Popplewell, the man who was supposedly dead. Hidden from sight is a somewhat spacious four-room bunker, where Reginald is taken for tea and debriefing. He also completes his work on August at this venue.

Table 7-10. *The Bouvet Island setting in Taking Back August*

Setting	Venue	Room	Connects to Room(s)
Bouvet Island, Norway	*Bouvet Island*	*Landfall*	*Path to the Bunker A*
		Path to the Bunker A	*Path to the Bunker B*
		Path to the Bunker B	*Bunker entrance*
		Bunker entrance	*Bunker room A*
	The Bunker	*Bunker room A*	*Bunker room B, Bunker room C, Bunker room D*
		Bunker room B	*Bunker room A, Bunker room C, Bunker room D*
		Bunker room C	*Bunker room A, Bunker room B, Bunker room D*
		Bunker room D	*Bunker room A, Bunker room B, Bunker room C*

Design notes for **Bouvet Island, Norway**:

- Bouvet Island is a place of recovery for our protagonist and the writing should reflect this. After an intense beginning, the player should be made to feel at ease at this point.
- This setting offers a vastly different soundscape. Being remote and arctic, the island's main ambient component consists of heavy winds and oceanic sounds.

Setting IX: South Atlantic Ocean

A few days later, after being visited by Raine, Reginald is invited to leave the bunker. An emergency is taking place in Buckingham Palace. Reginald takes on the offer and boards a hovercraft. Some major action ensues in this short but intense setting as enemy operatives storm the craft (see Table 7-11).

With our team unable to fend for themselves, Royston Honeybun comes to the rescue with his helicopter, creating a second venue for this series of rooms.

Table 7-11. *The South Atlantic Ocean setting in Taking Back August*

Setting	Venue	Room	Connects to Room(s)
South Atlantic Ocean	*The Hovercraft*	*Hovercraft deck*	*Hovercraft control room*
		Hovercraft control room	*Hovercraft deck*
	Helicopter Rescue	*Hovercraft control room*	*Hovercraft deck*
		Hovercraft deck	*Hovercraft control room*

Design notes for **South Atlantic Ocean**:

- The writing for this setting should convey a sense of stress and immediacy.
- The audio in this setting should be very intense with sound of the hovercraft's engines providing a backdrop for heavy footsteps, banging on the cabin door, ocean sounds, and eventually the overbearing sound of a helicopter at close range.

Setting X: Norway

Reginald and the gang make landfall somewhere on the coast of Norway. A car is waiting for them, taking them to Oslo Airport where a private jet awaits (see Table 7-12). A turbulent flight to London begins as Reginald learns of a dire situation at Buckingham Palace.

Table 7-12. *The Norway setting in Taking Back August*

Setting	Venue	Room	Connects to Room(s)
Norway	*Landfall*	*Coast of Norway*	*Car to Airport*
	Oslo Airport	*Car to Airport*	*Airport Area A*
		Airport Area A	*Airport Area B, Car to Airport*
		Airport Area B	*Jet to London*
		Jet to London	*None*

Design notes for **Norway**:

- The writing should reflect the lack of immediate threats, as a large swathe of antagonists were defeated in the previous setting. However, a situation at Buckingham Palace is yet to be resolved; a lot is still at stake.
- This setting should have a somewhat soothing series of ambient backdrops, from a now worry-free hovercraft trip, to a long drive, to the sound of jet engines spinning up.

Setting XI: London

Reginald and his friends arrive at Heathrow and immediately head to Buckingham Palace, which is the ground zero for a rather messy situation (see Table 7-13). The prime minister has been kidnapped and will only be

released if Reginald implements a back-doored, flawed implementation of August the firewall. With the palace premises flooding with Faction antagonists, a nervous Reginald sets foot in the Throne Room, where Claire and her overalls-covered bodyguard await.

Reginald does, in fact, deliver the goods but in such a way that August is fool-proof and inaccessible save for the British government. Finally, SAS snipers finish the task as Reginald and Raine run to safety from the palace. After a brief visit home, he goes back to work where he learns he's now earned the position once held by one Royston Honeybun. The end!

Table 7-13. *The London setting in Taking Back August*

Setting	Venue	Room	Connects to Room(s)
London	*Heathrow Airport*	*Arrivals*	*Car to Central London*
		Car to Central London	*Constitution Hill*
	Buckingham Palace	*Constitution Hill*	*Main Entrance, Living Room*
		Main Entrance	*Throne Room, Constitution Hill*
		Throne Room	*Main Entrance*
	Reginald's house	*Living Room*	*Bedroom*
		Bedroom	*Living Room, Balcony*
		Balcony	*Bedroom*

Design notes for **London**:

- The tone for this setting should be rather matter-of-fact, cool, and calculated as this reflects the most reasonable approach our protagonist would take in

such a situation. Reginald has experienced quite a bit in the last few weeks and is wiser and more resourceful as a result of his adventures.

- Audio wise, the setting benefits from both the usual city sounds (e.g., klaxons and crowd noises) and a more minimalistic ambience inside Buckingham Palace. The latter works to create a contrast between the intensity of the things at stake and the externally rather austere actions.

Setting XII: The New Office Complex

Reginald returns to work. The office has been completely renovated during his quest abroad. There's no sign of any fire damage; fancy new computers and desks adorn the premises (see Table 7-14).

Royston shows up, stating he's retiring. He offers Reginald his old job at "tech support." Reading between the lines, Reginald agrees. He moves his post to the top floor, close to the special cell phone, ready for any new adventures that may follow.

Table 7-14. *The New Office Complex setting in Taking Back August*

Setting	Venue	Room	Connects to Room(s)
New Office Complex	*Reginald's work space*	*Reginald's desk*	*Drinking fountain area, Royston's desk*
		The new neighboring desk	*Reginald's new desk*
	The Special Cell Phone Storage Area	*Royston's desk (Reginald's new desk)*	*Reginald's new desk, Special filing cabinet*
		Special filing cabinet	*Royston's desk*

Design notes for **New Office Complex**:

- The writing should invoke a sense of triumph and optimism.
- When it comes to audio, the New Office Complex is a serene and modern environment with no intense elements.

Part I: The Beginnings of *Taking Back August* in Ren'Py

According to our catalogue of locations, we ended up with a total of 61 rooms for *Taking Back August.* This is enough to introduce you to the Ren'Py workflow. It's now time to move on to the coding process itself. As previously mentioned, this is but a small adventure with the word count falling somewhere between 2000 and 2500 words. We will, however, utilize most of the powerful features Ren'Py offers for making this game.

Now, go ahead and launch Ren'Py; it's showtime.

Starting the Project

After opening the Ren'Py launcher, click *Create New Project.* You'll be asked to enter a project name. We'll use *Taking Back August.* Next, Ren'Py wants to know your choice of screen resolution, defaulting to 1280 x 720 (HD). This is a good choice, so merely click *Continue.* You'll be presented with a screen titled *Select Accent and Background Colors.* Pick the ones that you fancy most. These settings can be changer later at any time.

After a few moments of processing, Ren'Py takes you back to the launcher main screen. This is where you work on your adventures. Select Taking Back August from the left, underneath *Projects.* You'll find a file

called *script.rpy* under *Edit File.* Click it. The file should open within a text editor. This is the main script for our game. We'll mostly be working with this file throughout this tutorial.

Ren'Py is very finicky with whitespaces and syntax. This can't be stressed enough. For example, some text editor software uses automatic quotation mark adjustment, replacing the Ren'Py-friendly simple *quotation mark* (i.e., "Hello") with *double curved quotes* (i.e., "Hello"). This will result in Ren'Py not being able to process the script. Make sure to adjust your word processor's options to not automatically "fix" said punctuation.

Note: the title screen in a Ren'Py project is found by clicking *gui* on the launcher. Now navigate to the *overlay* directory and you'll find the file (i.e., *main_menu.png*) for customization with your favorite image editor.

Setting Up the Characters

You'll find some pre-made code in any new Ren'Py script file, featuring the stalwart Eileen as the sole character. We'll now start to replace this listing with our own by first entering the main cast into the script, color coding their names for the dialogue as we see fit.

Now, you might remember the fact that Ren'Py uses standard HTML-compliant color coding. Each color definition is entered in hexadecimal notation. The first two digits after a dash sign represent red, the next two green, and the last two adjust the amount of blue in a hue. The range for these values is between 0 and 9 for the first ten, continuing with A to F for values between 10 and 16. As a refresher, this is what pure red would look like: *#FF0000.* For black, we would enter *#000000.*

Look for the following line in the default script file (i.e., *script.rpy*):

```
define e = Character("Eileen")
```

Now add the following lines in its place:

```
define reg = Character("Reginald Pennelegion", color="#0099BB")
define merv = Character("Mervyn Popplewell", color="#007799")
define roy = Character("Royston Honeybun", color="#003399")
define rai = Character("Raine", color="#8888EE")
define cla = Character("Claire", color="#AA1100")
define man = Character("Overalls Man", color="#EE1100")
```

What this does is create the main cast of characters for our example adventure, assigning each with a shorthand tag for more comfortable typing later on. You'll find these tags denoted in bold in the preceding listing purely for the sake of convenience. When it comes to color coding, we gave our protagonist and his crew a set of blueish hues, while the antagonist side gets painted with red.

Custom Transitions

You may remember the various stock visual transitions that Ren'Py has built in (e.g., *fade, dissolve, pixellate*). While there's nothing wrong with using them, sometimes you want a little extra control over the transitions in your game. Add the following line after the previous ones; it'll define a new 2-second transition called *slideleft* as well as one called *fireflash,* both of which we'll use later. The latter is a quick fade to bright orange and back, for the dramatic purposes of simulating a burning environment.

```
define slideleft = CropMove(2.0, "slideleft")
define fireflash = Fade(0.1, 0.0, 0.5, color="#e40")
```

Assigning Images to Characters

You'll notice the Ren'Py launcher has a link titled *Open Directory ➤ images.* This creates a directory view of the image files associated with the active project.

Now, the naming convention in Ren'Py is as follows: each file name for a character should share the exact one assigned in the preceding section in this book (for the purposes of our example adventure). For example, for our six characters, we'll need six image files with the exact names of *reg.png, merv.png, roy.png, and so on*. In our case, files named *reg.png* or *Reg.png* would both work; however, *Reginald.png* wouldn't.

Remember, Ren'Py takes images for characters in the PNG format, although it also accepts WEBP files. For background files, the software accepts JPG, PNG, and/or WEBP files.

Preparing Other Audiovisual Assets

Although Ren'Py automatically seeks out the character images provided you've named those correctly, most other audiovisual assets need to be defined in the script file. The vast swathe of these assets included in our tutorial game consists of background graphics in the jpg format, as you can see from the following code, which should sit below the character definitions laid out previously.

One exception is the definition of a second expression for one of our characters, Raine. She dons a more serious face at one point in the adventure. This needs to be stated in the source code prior to said moment. For logic's sake, we use the additional keyword *serious* and type in the following:

```
image rai serious = "rai_serious.png"
```

We can then summon this expression for Raine's character at our leisure, using something like *rai serious "Yes, I'm being serious!"* Feel free to add any number of expressions for your characters using this method.

Just to reiterate: you can use the image statement to define both the basic character portraits and any additional expressions (e.g., *image jimmy = "jimmy.png"* or perhaps *image jimmy happy = "jimmyhappy.png"*). However, you need a character definition before that (e.g., *define jimmy = Character("Jimmy")*, etc.) As you probably remember, we defined our tutorial game's characters and their associated image tags under the header *Setting Up the Characters* a couple of pages ago.

Now, let's define the sepia-toned visuals for the office complex in the game. These can be summoned and hidden at your will using the show and hide commands (e.g., *show office* will display the image file *office1.jpg*, whereas *hide office* will, you might've guessed it, hide said image):

```
image office1 = "office1.jpg"
image office2 = "office2.jpg"
image email = "email.jpg"
image topfloor = "topfloor.jpg"
image cooler = "cooler.jpg"
```

Next, we assign some images for the outdoor scenes, this time the files sharing a blue hue:

```
image london = "london.jpg"
image london2 = "london2.jpg"
image park = "park1.jpg"
image park2 = "park2.jpg"

image alley = "alley.jpg"
image door = "door.jpg"
image window = "window.jpg"

image station = "station.jpg"
```

Finally, we assign a quadruplet of fiery images representing the chaos of a full-blown fire storm. They will be displayed at random at one point in the adventure.

```
image fire1 = "fire1.jpg"
image fire2 = "fire2.jpg"
image fire3 = "fire3.jpg"
image fire4 = "fire4.jpg"
```

Into the Fray!

Now, we'll get to the meat of the action by setting up the scene with a few descriptive lines of who you are and what you do. Provided the character images are in the correct directory, we'll also display our hero, Reginald, with the nice custom sliding effect we defined earlier. We'll also use the xpos attribute to position him on the right side of the proceedings. Remember, with xpos the value of 0.0 is the absolute left and 1.0 is the absolute right.

But first, we define some variables. They will be used and explained in detail later.

```
# The game starts here.

label start:

# Define variables

    $ sips = 0
    $ time = 0
    $ items = []
    $ dvd_found = False
```

Look for the line in the script which says *$ dvd_found = False.* Next, add the following line underneath this definition and make sure to adhere to the strict and uniform indentation Ren'Py expects (i.e., start each line with the same exact number of spaces). We'll be hearing some mouse clicking next:

```
play sound [ "<silence 1.5>", "sounds/mouse_clicks.wav" ]
```

The preceding line plays a sound file found in the sounds directory, placing 1.5 seconds of silence before doing so for dramatic purposes. You could've used a simpler syntax, naturally, as in *play sound "sounds/mouse_clicks.wav"* as well. Next, we'll have some visuals.

```
show office1
with slideleft
```

The preceding lines display the image file associated with the handle of *office1* using a custom transition (i.e., *slideleft*) which we previously defined. Once more, the two commands (i.e., *show* and *with*) must share the exact same indentation; you won't be able to run the game if one of these keywords is, say, a single space further from the left than the other. Some (free) text editors, like *Editra*, assist you in indentation by allowing you to insert text blocks with the tab key.

```
show reg:
    xalign 0.0
    xpos 0.7
    ypos 0.2
with easeinleft

"You, Reginald Pennelegion, a government cyber security
expert, are browsing nonsense at your desk workstation.."
```

```
"You're supposed to be working on a big project, but
instead you're drifting into a world of memes, online
auctions, and silly video clips."

"You are still depressed about the passing of your best and
only friend at the office, one Mervyn Popplewell."
```

Running this project in Ren'Py will now result in the default Ren'Py starting menu, followed by the preceding narration being displayed and a lovely portrait of our protagonist sliding in. Don't see any changes when clicking *Launch Project?* Make sure to save your script file before switching over to Ren'Py.

Commenting Your Code

It's a good idea to comment your code, especially if you're working as a part of a larger team. As a reminder, in Ren'Py this is done easily with the hashtag character. Add this before the first line of narration ("Reginald Pennelegion, a government…"):

```
# Room 1: Reginald's Desk
```

Despite Ren'Py's rather stringent requirements when it comes to indentation, you can luckily forgo that aspect of script writing when it comes to comment lines. You can jot them however many spaces from the left as you like; they aren't considered a part of a text block in the software.

Your First Menu

We'll now implement some interaction into the proceedings using the menu element. The following lines add this functionality to our adventure. Put them underneath the preceding comment. Again, unless you're finicky and uniform with your indentation, Ren'Py will not function. Also, you

can't use the tab key on your keyboard to add whitespaces to your Ren'Py code; it will merely result in an error message. Stick to pressing the space bar instead.

Let's insert some variable functionality into our budding project. To define variables in Ren'Py, you use the following syntax: *$ variable_name = 0*. These definitions should be put after the starter label. Make the one in our project look like this:

```
label start:
    $ sips = 0
    $ time = 0
    $ items = []
```

The variable called *sips* will be used to count the times our protagonist ingests some water from the drinking station, as you'll soon discover. The variable called *time* will be used, perhaps unsurprisingly, to gauge the passage of time. The variable named *items* is actually a currently empty array of variables; we'll be using it for a simple inventory system later on. Unlike many programming languages, Ren'Py doesn't have arrays per se. Instead, it utilizes *lists* in their place.

Now, add the following code to the project after the comment line (i.e., *# Room 1: Reginald's Desk*):

```
    menu deskaction:
     "Choose your action"
       "Visit the drinking station":
         $ time += 1
         stop sound fadeout 1.0
         hide office1
         show cooler
         with dissolve
         jump drinkingfountain
```

```
 "Examine your colleague's desk":
     $ time += 1
     stop sound fadeout 1.0
     hide office1
     show office2
     with dissolve
     jump neighboringdesk

menu drinkingfountain:
         "Choose your action"
         "Return to your desk":
             jump deskaction

         "Drink":
             $ sips += 1

             "Gulp. You take sip number [sips]!"
             jump deskaction

label neighboringdesk:
       if time>3:
           jump emailreceived

       if time<=2:
           "One of your colleagues left early. His desk is
           much tidier than yours."
           hide office2
           show office1
           with dissolve
           show reg
           jump deskaction
       else:
           "Yes, the desk next to yours is rather tidy."
           hide office2
```

```
        show office1
        with dissolve
        show reg
        jump deskaction
```

Examine the preceding listing. It's a simple demonstration of the main Ren'Py control elements, highlighted in bold. The menu element doesn't work on its own and needs to be assigned with a label; in this case we called it *deskaction.* A combination of jump and label elements takes the player to wherever you want them. Indentation aside, do pay attention to punctuation, such as the colons after both the labels and menu items.

When it comes to our variable, you'll see it's manipulated using the operator of += and displayed by using square brackets. Since Reginald is not a particularly thirsty character at this point, he'll only take one sip per visit to the drinking station. We could've made him drink, say, 60 sips using said variable (*$ sips += 60*), but that would've been rather preposterous, don't you think?

Using Conditional Statements

We can add variation and excitement to the stories with conditional statements of *if, elif,* and *else.* Replace the lines of code starting at *menu drinkingfountain:* and ending at *jump deskaction* with the following:

```
menu drinkingfountain:
        "Choose your action"

        "Return to your desk":
            jump deskaction

        "Drink":
            $ sips += 1
        play sound "sounds/gulp.wav"
```

```
if sips<3:
    "Gulp. You take sip number [sips]"
 show office1
    with dissolve
    jump deskaction
elif sips==3:
    "Gulp. You are beginning to feel full at
    sip number [sips]"
 show office1
    with dissolve
    jump deskaction
else:
    "You decided it was best to stop
    drinking."
 show office1
    with dissolve
    jump deskaction
```

As you can probably tell, Mr. Pennelegion really isn't dehydrated, stopping the hydration at sip number three. The aforementioned conditional elements are bolded for your convenience, and they are used here to study the contents of our one and only variable *sips. If* is a self-explanatory statement. *Elif* stands for *else if.* If an *else statement* is present, it will be executed if all other evaluations in the same text block fail.

As always, watch those colons, avoid pressing the tab key for whitespaces, and make sure your indentation is perfect to keep Ren'Py working. Now, let's add some more conditional action into our script, using the other variable we defined and called *time.* Add the sections in bold under the previously typed code (do not re-type the other parts):

```
"Visit the drinking station":
    $ time += 1
    jump drinkingfountain
```

```
"Examine your colleague's desk":
    $ time += 1
    jump neighboringdesk
```

Also, add the following new lines directly under *label neighboringdesk:*

```
    if time>4:
        jump emailreceived
```

The preceding mechanic simply checks for the number of user actions in the game so far (i.e., either drinking water or examining your colleague's desk), and when that number is greater than four, we're jumping to a new label called *emailreceived.*

Now we're going to change the scenery somewhat. Add the following lines to the script before *return* and after the listing so far (i.e., after the last line with *jump deskaction*):

```
# Email time
label emailreceived:
    scene email
    with dissolve
```

The scene command deletes all displayables (i.e., backgrounds and character sprites), presenting a new backdrop in their place. Now, let's play a little chime to add to the atmosphere.

```
    play sound "sounds/email.wav"

    "No time for that now! Your workstation sounds off.
    You've received email."
    "You open the message. It says: 'Meet me at Hyde Park
    at seven pm tonight. I'll be by the Wellington Arch.
    Don't tell anyone..'"
    "'..signed Mervyn Popplewell'"
```

```
"This is some kind of sick joke. Mervyn is gone."
"You decide to investigate the origin of the email by
phoning Royston at tech support.."
"After a phone call upstairs, it becomes apparent the
email is genuine. Royston asks you to fetch something
from the top floor."
```

It's time to change venues; say hello to the top floor. Adding the following lines to the script, we are moving the story forward as per our synopsis.

Once again, conditional statements help to spice up the level of immersion and provide replayability. Here we examine the sips variable to see if the player overhydrated at the water station and, if so, display a mildly humorous message.

```
label topfloor:

    scene topfloor
    with dissolve

    # Show the phone-sprite at specific coordinates
    show phone:
        xalign 0.0
        xpos 0.5
        ypos 0.18
    with easeinleft
```

Images (i.e., *displayables* in Ren'Py parlance) aren't just reserved for backgrounds or characters. The occasional sprite, especially when paired with a suitable transition, can liven up the proceedings quite a bit. For one, these can be used to introduce items. The preceding code brings in a sprite of an archaic mobile phone using the rather sassy built-in transition of *easeinleft.* Some dialogue is displayed and the phone is then taken off the screen using *easeoutright,* which works well in conjunction with the previous transition.

```
    "You locate a mobile phone in an obscure location. It's
    really quite old, looking like it dates back to the 80s.
    You pick it up."
    hide phone
    with easeoutright
```

We'll use a specific sound to signal to the player any inventory-related events from now on. Also, we'll add the first item to this inventory using the method of *append.*

```
    play sound "sounds/sound.wav"
    $ items.append("special phone")

    scene london
    with dissolve

    # If they player took their time drinking water, display a
      message
    if sips >= 3:
        "You feel the need to use the bathroom, but you are in
        a hurry.."
    "You decide to follow the instructions in the strange
    email. Hyde Park, here we come."

# Hyde Park
label hydepark:
    play music [ "sounds/park.mp3" ] fadein 10.0 loop
```

The preceding line demonstrates the use of the music channel. Like you may remember, Ren'Py has three channels for audio by default: *sound, music,* and *voice.* Here we used the music channel to play some background ambience from a park; by stating *fadein* and *10.0,* we'll be fading in the track during a period of 10 seconds. By stating *loop,* we do just that: we set the track so that it starts playing from the beginning each time it reaches the end.

```
scene park
with dissolve

"Hyde Park is just a walking distance from the office. It's
getting darker as you make your way past busy Londoners.
The Wellington Arch now looms in the distance. "
$ items.append("coin")

# Sort the items-list
$ items.sort()

play sound "sounds/sound.wav"
"You notice a coin in the ground. You pick it up and pocket it."
```

Like you may have deduced, we used the previously empty *items* list for the first time with the preceding bolded lines. We simply added two strings (i.e., *coin* and *special phone*) into this list using the *.append* method. We can study the context of the aforementioned list later in the game to direct the proceedings of the adventure at hand. A typical use for Ren'Py's list structure would be checking if the player has a key to open a specific door.

Just to be fussy, we also used the handy sort method to put the items in an alphabetical order (i.e., *Coin* followed by *Special Phone* instead of the default order of vice versa).

Setting the Text Speed

You may have noticed the dialogue is presented in a single block of text so far without the classic method of one character at a time, as with most visual novels. We'll rectify this at once by accessing the file *options.rpy* from the launcher application. Find the line that says *default preferences.text_cps = 0* and change the number to 20. Save the file and re-run the game. You'll now enjoy a classic typewriter effect for the rest of the adventure.

Upgrading the Inventory System

Now, the player would probably appreciate a visual representation of their in-game belongings. After all, very few enjoy keeping a pen-and-paper record of these things. Let's add the following code to the very beginning of the script file. The init statement makes sure the code is run before anything else in the script.

```
init python:
    items = []
    def display_items_overlay():
        if len(items)>0:
            inventory = "Briefcase: "
            for i in range(0, len(items)):
                item_name = items[i].title()
                if i > 0:
                     inventory += ", "
                inventory += item_name
            ui.frame()
            ui.text(inventory)
    config.overlay_functions.append(display_items_overlay)
```

The preceding code creates the fundamentals of an inventory listing, displaying it on the top left corner of the screen. The Python statement tells Ren'Py the lines to follow are to be interpreted as pure Python, that is, the language Ren'Py is based on.

Now, our little inventory system works like this: if the previously defined list called *items* contains at least one element, its contents are displayed onscreen. Should it contain more than one element, these are to be displayed but separated with commas. We implemented this inventory system from the get-go, right after the variable definitions, so it runs in the background throughout the game. Also, you might want to glance at Table 7-15 for some handy methods delivering additional list manipulation in case you ever need it.

Table 7-15. *Some useful methods for list manipulation in Python and Ren'Py*

Method	Description	Example	Method	Description	Example
append	Add to list	fruit.append("apple")	*count*	Counts the number of items found in a list. Case-sensitive	fruit.count("Pear")
remove	Remove item from list	pocket.remove("pie")	*sort*	Sorts the items in a list alphabetically	last_names.sort()
insert	Inserts an item at given index position	inventory.insert(2, "deodorant")	*clear*	Removes all items from a list	inventory.clear()
reverse	Reverses a list (e.g., "Fish", "Cat" becomes "Cat", "Fish")	names.reverse()	*len*	Returns the length of a list (i.e., the total number of items in a list)	if len(items)>0: "Hooray!"

Let's continue with the adventures of our protagonist, Reginald Pennelegion. The following code goes after the line *$ items.append("coin")* in the script:

```
    scene park2
    with dissolve

    "You arrive at the Wellington Arch, on time. No-one is
    there to greet you."
    "You wait for quite a while, but not a soul approaches you."
    "Disappointed, you begin the trip home."
```

Now, let's engage in some rather dramatic events. The script continues:

```
# Office Inferno
    label inferno:

    "Your disappointment doesn't last long. You see flames in
    the distance!"
    reg "Maybe if I'd done some overtime instead of going to
    Hyde Park I could've prevented this!"
    play sound "sounds/phone.wav" loop

    "Panicking, Reginald is alarmed by the phone in his briefcase.
    The ancient thing is ringing. You answer the call."

    stop sound
    show roy:
        xalign 0.0
        xpos 0.2
        ypos 0.2
    with easeinright

    roy "Get the pink DVD and get it out of there. You have ten
    minutes before its devoured by fire."
```

```
hide roy
play sound "sounds/siren.wav" fadein 5.0 fadeout 5.0

"It's about August, the prototype for the first fully
cyber-attack proof firewall to be implemented in all of Her
Majesty's agencies later this year. "
```

Adding Functions (and Reusing Variables)

Functions are reusable code that can be called when needed. They tidy up the code and speed up the development process. In Ren'Py they are invoked using the *call* command.

Add the following line underneath the current variable definitions: *$ dvd_found = False*. This defines a *boolean variable* named dvd_found. A boolean has only two states: true or false. These are great for flagging events in a Ren'Py game. Like you may have gathered, the aforementioned variable is used to check whether a special DVD is in your possession or not. This is done in conjunction with a certain function, *check_dvd,* which will be defined next.

Note Ren'Py is very picky with booleans. It simply refuses to acknowledge non-capitalized values for these types of variables. Make sure to capitalize them at all times (i.e., *True* is correct, while *true* causes an error).

Let's next define three functions that will prove useful in our game's development. We do this by adding the following code into the script. These and other functions should be defined in the script before the main label (i.e., before *label start:*).

```
label show_fire:
    $ num = renpy.random.randint(1, 4)
    $ which = "fire" + str(num)
    show expression which
    with fireflash
    return

label check_dvd:
    # play sound if "dvd_found" hasn't been set to "True" yet
    if dvd_found == False:
      play sound "sounds/sound.wav"
    $ if dvd_found == False: items.append("Pink DVD")
    $ if dvd_found == False: items.sort()
    $ if dvd_found == False: dvd_found = True
    return

label checktime:
    # call another function, show_fire, from within this function
    call show_fire

    play sound "sounds/woosh.wav"
    $ time -= 5
    if time < 5:
      jump burn
    return
```

The first function, *show_fire*, is used to select a backdrop at random from a pool of four images. It uses a variable called *num* to draw a random number between one and four. This number is then added to a string via a second variable, *which,* that results in strings between *fire1* or *fire4*. Finally, this is passed on to a show command with the addition of a modifier called *expression* to make it compatible with said command. The end result of this function is a fiery background image being displayed using the custom transition called *fireflash* we defined earlier.

The function called *check_dvd* first examines whether a boolean variable called dvd_found is set to false. If so, an item is added to the inventory using the append method. The items list is then also sorted alphabetically. Finally, the variable (i.e., *check_dvd*) is set to true so that the aforementioned processes won't be run again. This is to avoid inserting the pink DVD into the inventory more than once, which could happen if the player revisited the room it's available in (i.e., your other colleague's desk).

Now, you may have noticed we pulled out the variable called *time* and assigned it a value of 25. Reusing variables is a perfectly fine and, when possible, recommended.

So, we are entering a rather hectic sequence in the adventure where the player is frantically searching for a special pink DVD in a burning office complex. The setting consists of four rooms (i.e., *officefire, firedesk_a, firedesk_b,* and *firedesk_c*). The following information is classified: the pink DVD is located in *firedesk_c, that is, Your other colleague's desk.* Every dash to a different room causes a 5-second reduction in the available time. Once that reaches zero, the player is engulfed in flames and the game is over.

Back to the main script; it continues as follows (after *"It's all about August.."*):

```
# The Inferno Proper
label actionscene:

scene alley
with dissolve

play music [ "sounds/fireplace.mp3" ] fadein 10.0 loop

"You reach the back alley of the office building, feeling a
sense of urgency. It's now or never. You climb up the fire
ladder."
$ time = 25

call show_fire
```

Particles with SnowBlossom

It's time to add some eye candy in the form of *particles.* These refer to small image files (i.e., sprites) which are used in large numbers to create effects such as rain, snow, and explosions. Ren'Py supports particles via its built-in SnowBlossom effect. This effect has been used in quite a few visual novels to push leaves and cherry blossoms around; we'll use it for animating a bunch of sparks.

```
# Set-up and display particles using the SnowBlossom-effect
    image sparks = Fixed(
        SnowBlossom(im.FactorScale("images/fireparticle.
        png",1.0),count=12,start=5),
        SnowBlossom(im.FactorScale(im.Alpha("images/
        fireparticle.png",0.8),0.6), count=15,
        yspeed=(50,125)))
```

The main attributes for SnowBlossom are as follows: *count, start, yspeed,* and *xspeed.* Start refers to the delay between inserting a particle into a scene, in seconds. In our script this is set to 5 seconds, as you probably gathered. Count sets the maximum amount of particles onscreen.

Next, yspeed addresses the vertical speed, while xspeed controls the horizontal speed of sprites/particles. These two attributes can take negative values and/or tuples of two numbers (i.e., *(5,10)* or *(-10,-5)*). When used with tuples, Ren'Py selects a random value between the two. With our sparks, a yspeed between 50 and 125 is set for each particle, making them fall down rather slowly, which is exactly what we want.

What we have in our game is actually two instances of SnowBlossom: the first one (presented in bold) produces full-sized particles, while the second one creates smaller variations of these sprites. This works to create

an illusion of depth. The second line of SnowBlossom also works on the alpha channel (i.e., transparency) of the spark sprites, making these particles translucent. It achieves this by adjusting the attribute of *im.Alpha* to 0.6.

Now, for a very basic example of SnowBlossom in action, you could do something like this:

```
image sparks = Fixed(
   SnowBlossom(im.FactorScale("images/fireparticle.png",1.0),
   count=10, yspeed=(100,110), xspeed=(1,2), start=4))
```

The previous lines of script would create a nice snowfall effect. However, our sparks need to be a tad more complicated so we'll stick with the previous code.

Next, we use the following single line to activate our particles; our dear friend the show command is at work once again:

```
show sparks

menu officefire:
 "Choose your action. You have [time] seconds left. You are
 in the general office area."
 "Dash to your desk":
     call checktime
     jump firedesk_a

 "Dash to your colleague's desk":
     call checktime
     jump firedesk_b

 "Dash to your other colleague's desk":
     call checktime
     call check_dvd
     jump firedesk_c
```

The player is presented with three choices in each room. The *checktime* function is called before changing locations. It simply reduces the time variable by five units. Also, should the value of time fall under five, the function makes sure the player is transported to the label *burn* as it is indeed game over at that grim point.

The function named *check_dvd* is only ever requested if the player visits the room with the DVD in it (i.e., *firedesk_c*). It would be unnecessary to treat all of the rooms with this function; avoid redundant code if you can.

```
menu outwindow:
    "Choose your action. You have [time] seconds left. You are
    in the general office area."
    "Climb Out the Window":
        call checktime
        jump window

    "Dash to your desk":
        call checktime
        jump firedesk_a

    "Dash to your colleague's desk":
        call checktime
        jump firedesk_b

    "Dash to your other colleague's desk":
        call checktime
        call check_dvd
        jump firedesk_c
```

There are two almost identical menus for the location of the preceding *General Office Area*. The initial menu (i.e., *officefire*) is presented, while *dvd_found* returns False; the second menu (i.e., *outwindow*) is put to use when said variable returns True. In other words, the option to climb out the window becomes available, from this room

only, when the player has collected the DVD (as in he or she visited the room *firedesk_c* at least once).

```
menu firedesk_a:
 "Choose your action. You have [time] seconds left. You are
 at your own desk. You find nothing but flames here."

 "Dash to the general office area":
     call checktime
     if dvd_found == False:
          jump officefire
     else:
          jump outwindow

 "Dash to your colleague's desk":
     call checktime
     jump firedesk_b

 "Dash to your other colleague's desk":
     call checktime
     call check_dvd
     jump firedesk_c

menu firedesk_b:
 "Choose your action. You have [time] seconds left. You are
 at your colleague's desk. You find nothing but smoke here."

 "Dash to the general office area":
     if dvd_found == False:
          jump officefire
     else:
          jump outwindow

 "Dash to your desk":
     call checktime
     jump firedesk_a
```

```
    "Dash to your other colleague's desk":
        call checktime
        call check_dvd
        jump firedesk_c
```

Ah yes, finally we reach the special location with the DVD in it.

```
    menu firedesk_c:
     "Choose your action. You have [time] seconds left. You are
     at your other colleague's desk."

     "Dash to the general office area":
         if dvd_found == False:
              jump officefire
         else:
              jump outwindow

     "Dash to your desk":
         call checktime
         jump firedesk_a

     "Dash to your colleague's desk":
         call checktime
         jump firedesk_b
```

Should our protagonist suffer a fiery death and be in possession of the aforementioned special DVD, we'll display an additional line of narration using a conditional statement, like this:

```
label burn:
    "You pass out from the fumes and burn to death."
    if dvd_found == True:
        "They find your corpse clutching a scorched pink DVD.."

    # Back to main menu
    $ renpy.full_restart()
```

The command *full_restart* resets the game and takes the player back to the main menu; it is game over after all. Now, a label for a successful escape is inserted immediately afterward.

```
label window:
    "You find your way out of the window and slide down the hot
    fire ladder!"
```

Randomizing Dialogue

Let's carry on with our story and add a new element: randomized dialogue. For one, this will do wonders for replayability.

```
    $ randomdialogue = renpy.random.choice(['The phone in the
    briefcase rings again.',
'You are startled by a shrill noise emanating from your
briefcase.',
'The ancient mobile phone is ringing.'])

    play sound "sounds/phone.wav" loop

    # Display our random dialogue
    "[randomdialogue]"

    stop sound
    show roy:
        xalign 0.0
        xpos 0.2
        ypos 0.2
    with dissolve
    roy "Well done. Go home and stay there for further
    instructions. Protect the disc with your life, if
    necessary."
```

The line in bold displays one of the three lines of narration stored in the variable called *random_narration.* As always, make sure your syntax is perfect or Ren'Py will not play ball with you.

Now, should we need to conjure up a random value at some point in our adventure, we would do this:

```
# Generate a random number between 20 and 80
$ random_number = renpy.random.randint(20, 80)
"You feel [random_number]%% motivated to continue your quest!"
```

In the preceding text, we created a variable called *random_number* and assigned to it a value between 1 and 100. You can, of course, use any range for these values that fits your project best (e.g., *(5, 10)* or perhaps *(0, 1000),* etc.).

On the next line, we displayed this aforementioned variable. But why the double character when it comes to the percentage sign? Well, without this approach, Ren'Py would throw an error.

And should we have needed a random floating point value between 0 and 1 (e.g., 0.5 or perchance 0.9), we would've done this: *$ random_number = renpy.random.random()*

Styles and Hyperlinks

Our little techno-thriller's script resumes as follows:

```
label home:

    scene london2
    with dissolve

    # We use the music-channel to play ambient sounds. This is
    because only this channel
    # allows for both the looping and the fadein for audio
    play music [ "sounds/london_bridge.wav" ] fadein 10.0 loop
```

```
"The adrenaline begins to slowly wear off as you pace
towards your residence."

play sound "sounds/phone.wav" loop

"The old phone rings again."
stop sound

"This time, it's a woman's voice."

# Show the serious face for Raine
show rai serious:
    xalign 0.0
    xpos 0.2
    ypos 0.2
with dissolve
```

The preceding passage demonstrates the use of character expressions in Ren'Py. As you might remember, we defined a serious face for Raine early on in the script, and with the simple command of *show rai serious,* we summoned that look.

```
rai "{i}Whatever you do, don't go home!{/i} Leave London
right {u}now.{/u} Go as far North as you can. A train is
your best bet."
rai "I'll call again. Go! {b}And don't lose the disc!{/b}"
```

The next passage hides Raine's serious expression and evokes her natural cheeky expression, which is her default portrait. By omitting any additional attributes, the show command defaults to the character image files we named after their in-script shorthand (e.g., *rai.png, roy.png,* and *reg.png*).

```
# Hide serious Raine and show her more cheeky face
hide rai
```

```
show rai:
    xalign 0.0
    xpos 0.2
    ypos 0.2
```

We used three types of new styles in the preceding dialogue: bold, italic, and underline (all presented in bold for your convenience). These styles are implemented using tags created from curly brackets (i.e., *{* and *}*) with the desired style inside them. Use them sparingly to spice up the dialogue every now and then.

Now, perhaps you feel like some blatant advertising by inserting hyperlinks into the proceedings.

```
rai "Oh, and, why not visit {a=http://www.robertciesla.com}
this great site{/a} when you have the time?"
```

As with HTML, hyperlinks in Ren'Py are embedded using the a-tag. A slightly more Spartan syntax is used in the latter framework as you can see from the preceding example.

Sometimes you want to change the text size in game. This is done using the intuitively named size tag. The following line utilizes this tag and also demonstrates how you can combine different attributes.

```
rai "I personally visit that {size=+10}{i}fascinating{/i}
{/size} website every day."
hide rai
# Replace the ambient sound with another one
play music [ "sounds/ambience.wav" ] fadein 10.0 loop

# Again, the music-channel is great for ambience, too, for
its versatility with options
```

Adding Videos

As long as your video files are in the correct format, playing them back in Ren'Py is a breeze. Next we summon the Python command of *renpy.movie_cutscene* to play a video file, after which we fade in a new background graphic (i.e., *door.jpg*). Once again, be very careful with the capitalization and location of your video files or Ren'Py won't play ball. The sample video file is stored using the webM container format, which is probably the most compatible and best choice for Ren'Py projects.

```
$ renpy.movie_cutscene("videos/Interlude.webm")
    scene door
    with dissolve
```

Note: your video editing software may not support exporting the WebM format out of the box. It might be necessary to install plugins for this purpose. Alternatively, you can first export to whichever high-quality format you desire and then convert the video file into WebM using external software. The following links provide some free tools for these tasks:

- **Fnord's Plugin** for *Adobe Premiere Pro* and *Media Encoder:* `www.fnordware.com/WebM`
- **Transmageddon,** a general-purpose WebM converter for Linux: `https://github.com/GNOME/transmageddon`
- **XMedia Recode,** a WebM converter for Windows: `www.xmedia-recode.de/en`

Text Speed on the Fly

You may remember us activating the typewriter effect for this project earlier in this chapter using the options file (i.e., *options.rpy*). While that approach indeed provides a global setting for *characters per second (cps),* this can be controlled from inside the main script as well.

```
"You hear a strange humming noise coming from your flat.
Putting your ear against the door, {cps=5}the noise gets
louder.{/cps}"
```

By applying the cps tag to the desired passage, you can set the text speed in game at your leisure. It works great for those more dramatic moments in your story.

More Fun with Text

Ren'Py offers a wealth of styles for presenting your story; you aren't limited to the aforementioned attributes.

```
"{k=-1.5}Something is up.{/k} {k=1.5}You decide to heed the
girl's advice and leave.{/k}"
"Running down the street toward the train station you look
back once more.{vspace=25}{w}A human-like figure with
unnaturally large eyes stares back."
```

The preceding snippet of the script demonstrates three more effects: text kerning, the vertical space, and the wait. Kerning refers to the space between characters. A negative kerning value will bring the letters closer, while a positive one will do the opposite.

A vspace element creates a vertical space of however many pixels you want. The wait tag simply awaits a mouse click in the middle of dialogue before continuing with the story.

```
"It's dressed in light blue uniform, briefly reminding you
of a life-sized action figure of some kind.{fast} Your
heart skips a beat or two."
```

The fast element displays the text after it in an instant, as per the default setting in the Ren'Py options file.

```
scene station
with dissolve
stop music fadeout 5.0

"After running what felt like a marathon, you reach Euston
train station, panting heavily. No one seems to have been
following you."
"You remember the girl's advice and look for the next
northbound train.."
"You've now reached the end of this tutorial visual novel.
Check out the source code to learn more."
```

And that's the end of the first part of *Taking Back August*. We've now demonstrated most of the functionality of Ren'Py. And that's how we develop with this wonderful software, from synopsis to the game itself. Perhaps you feel like completing the adventure with the building blocks provided. In any case, we're moving on to other software.

Part II: The Middle of Reginald's Story with TyranoBuilder

We're now switching to the world of TyranoBuilder with all of its graphical user interface magic to resume telling the story of *Taking Back August.* Let's begin by simply creating a fresh new project in the software.

You may remember the concept of a *sound novel* from Chapter 4. This is a more minimalistic variety of visual novel with the dialogue taking up most of the space, with the emphasis being less on visual representations of characters. We won't be picking this approach, rather we're going for the more traditional style of game.

After entering the game's name, set up the project as follows:

- Game Type: *Visual Novel*
- Screen Size: *Landscape (1280 x 720)*
- *No Title Screen & No Menu Button (for Save, Load, etc.)*

Delete the default background graphic by clicking the *Background Image* block in the main designer view; we're going to keep an ominous minimalistic vibe going for this leg of the adventure, too.

A Couple of Characters

Since we're exploring most of TyranoBuilder's main functionality in this tutorial project, we will be needing some characters to manipulate. Select *Project* ➤ *Characters* from the top menu. Enter the following characters one by one in the input box: *Claire, Overalls, Reginald,* and *Raine.* TyranoBuilder will automatically create directories on your hard drive for each character created. These are used to store the related image files. These directories will be numbered in the order you created the characters, that is, "1" for Claire, "2" for Overalls, and so on. You can access them as sub-directories at *ProjectName/data/fgimage.* This will be demonstrated in more detail later in this chapter.

On a Train

Now, on with the story. Our stalwart protagonist will find himself aboard a train. Copy the following text block into the red Text field below *Show Text.*

```
After running what felt like a marathon, you reach Euston train
station, panting heavily. No one seems to have been following
you. You remember the girl's advice and look for the next
northbound train.
```

Next is another piece of narration for a second component of Show Text:

```
"Excuse me!", you suddenly hear. Out of nowhere, a dark-haired
woman dashes in front of you, blocking entrance to the train.
"Is this the train to Nottingham?" She gives a wide smile.
```

As we know, TyranoBuilder offers a robust graphical user interface for making your visual novels with. However, we shouldn't forget its scripting features; the TyranoScript component offers a lot of flexibility for the developer(s). We'll be mostly utilizing TyranoScript from now on.

TyranoBuilder, Assets, and Directories

Before utilizing any audiovisual assets, we need to get acquainted with the TyranoBuilder directories. These will be automatically generated for each project. Now, the most common way of using TyranoBuilder is via Steam, regardless of the platform. To open your project directory using the Steam app, take the following steps:

- Right-click TyranoBuilder in the Steam library view and select *Properties*.
- Click the tab called *Local Files*.
- Click *Browse Local Files*.

A directory view of the TyranoBuilder program should open. Open the *myproject* directory. Double-click the project name you're interested in working on (e.g., *MyHappyGame*). Double-click *data*. You'll now see a directory structure where you'll be storing your audiovisual assets (see Table 7-16). The audiovisual files and their corresponding directories will be described in the following.

Table 7-16. *The most relevant directories for TyranoBuilder projects (under "project-name" ➤ data)*

Directory	Used for	Directory	Used for
bgimage	Background images	*others*	Plugins (i.e., downloadable add-ons)
bgm	Background music (in .ogg or .wav)	*scenario*	Scene files (e.g., *scene1.ks*)
fgimage	Character images. Will be automatically managed by TyranoBuilder	*sound*	Sound effects (in .wav or .ogg)
image	Various image files related to the user interface	*video*	Video files (.webM is preferred)

We'll proceed to add some sounds to our adventure. Let's first take a look at some of the most useful audio-related tags in TyranoBuilder (see Table 7-17). You either use the method of square brackets in your TyranoScript components for longer commands or utilize the at sign for tags taking no more than a single line (e.g., *@playse storage=cheer.ogg*). In the following table, we've exclusively used square brackets for simplicity's sake.

Note: TyranoScript uses semicolons (;) for commenting purposes.

Table 7-17. *Some useful tags in TyranoScript for manipulating audio*

Tag	Description	Example
[playse]	Plays a sound effect. Loop and clear parameters optional; the latter interrupts an already playing sound effect with the new one	`[playse storage= cheer.ogg loop= false clear=true]`
[stopse]	Stops playing a sound effect. Takes no parameters	`[stopse]`

(*continued*)

Table 7-17. (*continued*)

Tag	Description	Example
[seopt]	Sets sound effect volume	`[seopt volume=70]`
[wse]	Waits for sound effect to stop playing before continuing. Takes no parameters	`[wse]`
[playbgm]	Plays background music. Additional parameters: *loop, time* (in milliseconds, for the playback to start at)	`[playbgm storage="song1.ogg" loop=true]`
[stopbgm]	Stops background music playback. Takes no parameters	`[stopbgm]`
[bgmopt]	Sets the background music volume	`[bgmopt volume=50]`
[xchgbgm]	Crossfades background music with another track. Additional parameters: *loop, time* (in milliseconds)	`[xchgbgm storage=song2.ogg loop=true time=4000]`
[fadeoutbgm]	Fades out background music track. Takes time in milliseconds	`[fadeoutbgm time=3000]`
[fadeinbgm]	Fades in background music track. Takes time in milliseconds	`[fadeinbgm time=5000]`

Sounds on a Train

Now, onward with our adventure. Drag a component called *Change Background* from the Images category below the previous component. Use the component's Browse button to the file called *train2.jpg*. Next add a TyranoScript component beneath the component called *exit scene*. Insert the following code:

```
;Set your intoxication level to zero using a custom variable
"f.rumlevel"
[eval exp="f.rumlevel = 0"]
```

What the line in bold does is define a variable called *f.rumlevel* and give it a value of zero. In-game variables in TyranoBuilder need to adhere to this syntax, that is, the *f.* needs to begin each variable name (e.g., *f.happiness* or *f.attraction_level*). Now, let's continue with our TyranoScript.

```
;The [r] tag inserts a new line
The way she appeared out of nowhere makes her suspect. You
confirm this is the correct train and push past her. [r]
;The [l] tag makes the game wait for a mouse click, while the
[cm] tag clears all text.
You find your seat and soon the train starts its trek. [l][cm]
;Start playback of a looped ambient track
[fadeinbgm storage=train_01.wav loop=true time=3000]
;Display a new background image
[bg storage=train1.jpg time=6000 wait=true]
Claire dons a pair of headphones and closes her eyes.[r]
You're pleased there's no more small talk to interrupt your
flow of thoughts.
;Let's play a little (unskippable) movie
[movie storage=interlude.webm skip=false]
```

Like the comment line says, in addition to text, this code will begin the playback of a looped ambient track of train noise, creating some nice extra atmosphere. Instead of abruptly playing said file, we fade it in using the tag called *fadeinbgm* and a time setting of 3000 milliseconds (i.e., 3 seconds).

We are also changing the background graphic with the next actual line of code (shown in bold) using a 6-second fade-in transition. Finally, we play a pretty much universally compatible webM video file, stored in TyranoBuilder's video directory. See Table 7-18 for specific information on image and video file usage in TyranoScript.

Table 7-18. *Some useful tags in TyranoScript for working with layers, text, and images*

Tag	Description	Example(s)
[image]	Displays an image. Parameters: *layer, page, visible, width, height, x, y.*	`[image storage="dude.jpg" layer=1 page=fore visible=true width="256" height="256" x="640" y="200"]`
	Sets layer to *"base"* to put the image on the background. Positive numbers put the image on the foreground. Page takes either *"fore"* or *"back".*	`[image storage="bg.jpg" layer=base page=back visible=true width="1280" height="720" x="0" y="0"]`
[bg]	Changes the background image. Parameters: *method, time, wait.* Method refers to transition type (i.e., *crossfade, explode, slide, blind, bounce, clip, drop, fold, puff, scale, shake, size*). Wait specifies whether or not to stop processing until the transition is complete.	`[bg storage=bg1.png method=slide time=2000 wait=true]` `[bg storage=bg2.png method=puff time=4000 wait=false]`
[layopt]	Controls display layers. Parameters: *page, visible, left* (position from the left), *top, opacity* (0–255 where 255 is transparent).	`[layopt layer=1 visible=true opacity=100]` `[layopt layer=1 visible=false]`

(*continued*)

Table 7-18. (*continued*)

Tag	Description	Example(s)

[anim]	Animates/moves an image or character sprite.
	
	Optional parameters: *layer, left, top, width, height, opacity, color, time, effect.*
	
	Effect takes these predefined macros: *jswing* | *def* | *easeInQuad* | *easeOutQuad* | *easeInOutQuad* | *easeInCubic* |*easeOutCubic* | *easeInOutCubic* |*easeInQuart* | *easeOutQuart* |*easeInOutQuart* | *easeInQuint* |*easeOutQuint* | *easeInOutQuint* | *easeInSine* | *easeOutSine* | *easeInOutSine* | *easeInExpo* | *easeOutExpo* | *easeInOutExpo* | *easeInCirc* | *easeOutCirc* | *easeInOutCirc* | *easeInElastic* | *easeOutElastic* | *easeInOutElastic* | *easeInBack* | *easeOutBack* | *easeInOutBack* | *easeInBounce* | *easeOutBounce* | *easeInOutBounce.*
		`[anim name="Billy" time=3000 left=100 top=40]`
		`[anim name="Reginald" time=2000 left=800 top=40 effect=easeInOutQuint]`
		`[anim name="Gayelord" time=1000 left=100 top=40 effect=easeInOutQuint color=red opacity=50]`

[ptext]	Displays text. Accepts HTML tags. Parameters: text, size, x, y, color, vertical.	`[ptext layer=2 page=fore text="Hello  <i>friends!</i>" size=30 x=30 y=180 color=green]`

[mtext]	Displays animated text using dozens of different methods.
	Parameters: *text, x, y, in_effect, out_effect.*
	
	See https://tyrano.jp/mtext/ for a full live demonstration.
		`[layopt layer=0 visible=true]`
		`[mtext text="Hello there!" x=200 y=100 in_effect="fadeIn" out_effect="hinge"]`
		`[layopt layer=0 visible=true]`
		`[mtext text="Wow! What is this?" x=200 y=100 in_effect="bounceIn" out_effect="bounceOut"]`

[filter]	Applies a filter to a layer or object. Options: *grayscale, sepia, saturate, hue, invert, opacity, brightness, contrast, blur.*	`[filter layer="0" sepia=50]` `[filter layer="0" invert]`
[free_filter]	Disables filters.	`[free_filter]`
[movie]	Plays an mp4 movie. Parameters: *skip* (defines if movie is skippable or not).	`;Show an unskippable video-file` `[movie storage="happymovie.mp4" skip=false]`

(*continued*)

Table 7-18. (*continued*)

Tag	Description	Example(s)
[bgmovie]	Plays a video background. Parameters: *volume, loop.* Note: for maximum compatibility between platforms, use webM files.	`;Display a looping video at 80% volume` `[bgmovie storage="movie.webm" volume=80 loop=true]`
[stop_bgmovie]	Stops playing a video background.	`[stop_bgmovie]`

First Glimpses of Interaction and Variables

Isn't the TyranoScript component a blast? Let's continue the story right in it also adding a little interaction.

```
;Let's implement some interaction, shall we?
Pulling out her headphones, Claire suddenly offers a drink from
a hip flask.[l]
[dialog type="confirm" text="Drink?" label_ok="Yes, please."
storage="scene1.ks" target="yes_label" label_cancel="No,
thanks.." storage_cancel="scene1.ks" target_cancel="no_label"]
```

We invoked a confirmation dialogue window with the preceding code using the dialog command, presented here in bold. Should the player agree to a sip, he or she will be taken to a label named *yes_label.* If the player disagrees with the notion of tasting potentially intoxicating liquids, he or she will be transported to *no_label.* Both labels can be handily implemented with the graphical interface in TyranoBuilder by the dedicated *label* component.

Let's do just that and add a label component, calling it no_label. Add another TyranoScript component underneath it with the following code:

```
[cm]You decline. "Suit yourself", Claire says taking a long sip
from her flask.[l]
;Jump over the yes_label choice
[jump storage=scene1.ks target=*continue]
```

Now it's time for the other label, that is, the yes_label. Add this and also add a TyranoScript component below it with the following lines:

```
[playse storage=gulp.wav loop=false ]
;Add your intoxication-level by one
[eval exp="f.rumlevel +=1"]
```

```
[cm]You agree. "Here you go..", Claire says offering you the
flask. It's some type of rum.[l][cm]
```

Should our protagonist feel thirsty, we'll hear a gulping sound effect and see some related dialogue. This does, of course, require an audio file called *gulp.wav* in the TyranoBuilder sound directory. Also, we increase the value of the variable *f.rumlevel* by one by using the eval (as in "evaluation") tag. Now, it's time for another block of TyranoScript.

```
Passing rows of drowsy commuters, a bald man in blue farmer's
overalls approaches you and Claire.[l][r]
He seems out of place and somewhat strange in his mannerisms.[p]
He triggers something in you. You instinctively move towards the
corridor.[r]Claire glances over and nods at the strange man.[p]
;The plot thickens
You begin pacing down the train corridor to the opposite
direction. The bald man follows.[l][r]You're being chased.[l][cm]
[bg storage=train3.jpg time=3000 wait=false]You find your
way into a toilet and lock the door. [playse storage=knock.
ogg loop=false]Loud knocks sound off in your eardrums. You're
trapped.[l][cm]
```

In the preceding code, we play an ominous knocking-on-the-door sound effect mid-narration (shown in bold). This adds to the immersion; in other words, you don't have to wait for a passage to be fully displayed to startle the player. Also, by now you should be familiar with the text control tags offered by TyranoBuilder (e.g., *[l]* and *[cm]*).

Let's continue our script by introducing some variable evaluation. Add the following to the TyranoScript component at hand.

```
;Evaluate and display variable
[if exp="f.rumlevel==1"] You feel a little tipsy...Your rum-
level is [emb exp=f.rumlevel].
[endif]
```

The preceding code evaluates our sole custom variable so far, *f.rumlevel,* to see if it's set to one. If so, the player will be shown a special string of text containing the contents of the aforementioned variable. Now, to recap the three of TyranoScript's basic variable operations:

- [eval exp..] is for assigning values.
- [if exp..] is for comparing values.
- [emb exp..] is for displaying (i.e., embedding) variables.
- In-game variables need an *f.* in the front.

Random Dialogue in TyranoBuilder

Now, let's implement some randomized dialogue, like we did with Ren'Py.

```
;Play some looping audio and display one of three random lines
of narration
[playse storage=phone.wav loop=true ]
[cm][eval exp="f.random_number = Math.floor((Math.random() * 3)
+ 1)"]
[if exp="f.random_number==1"]Your ancient telephone rings.
[endif]
[if exp="f.random_number==2"]The nearly fossilized mobile phone
is ringing. [endif]
[if exp="f.random_number==3"]The relic of a telephone drowns
out all other noises. [endif]
```

We use the familiar eval tag to define a new variable called *f.random_number*. This variable is then assigned a value between one and three using two new functions: *Math.floor* and *Math.random*. The latter function summons a random number. The former then rounds this floating point number (e.g., *1.4*) down into the nearest integer (e.g., *1*).

Because Math.random starts its range at zero, we add a plus one to the end of the expression. This value is then multiplied by three, creating a trio of random choices for the end result: integers 1, 2, or 3.

Let us continue with the adventure.

```
;Display Raine and stop the phone from ringing
[chara_show name="Raine" wait=true top=40 left=50]
[stopse]
"You're on your way. Good. Are they after you?"[p]
"Just wait. Stay put. They're not authorized to use full force."[p]
[anim name="Raine" time=2000 left=800 top=40]
"I need you to leave the train at the next stop. Do you hear me?"
The woman hangs up.
[filter name="Raine" blur=20][chara_hide name="Raine" time=1000
wait=true]
[p]
Puzzled, you do what you're told. [playse storage=knock.ogg]The
knocking continues for another five minutes or so then abruptly
stops.
[playse storage=knock.ogg volume=30][p]
[bg storage=train2.jpg time=3000 wait=true]
You open the toilet door warily; There's no one behind it.
Claire is gone as is the bald man.[p]
```

The preceding code features mostly familiar elements, but we also introduce the character-related methods of *chara_show, chara_move,* and *chara_hide*. These are used here to summon and relocate our agent extraordinaire, Raine. See Table 7-19 for more information on these tags.

In addition, we also added a blur filter on Raine slightly before her call ends at 20% strength. Remember, these effects in TyranoBuilder can be applied on full layers and single character sprites alike.

Adding Labels in TyranoScript

Labels aren't only added using the graphical interface in TyranoBuilder; TyranoScript offers this functionality as well. In the following code, we're once again examining the variable of *f.rumlevel* to gauge Reginald's energy level. The sections in bold demonstrate the label functionality of TyranoScript as we're introducing two new tags: *jump* and the asterisk-powered label (e.g., **still_tipsy*).

Ah yes, we shouldn't forget one can use HTML tags, too, in TyranoScript. This is also demonstrated in the following with the bold and italic tags around the name of a lovely city.

```
[bg storage="platform1.jpg"]
You hear an announcement: next stop <b><i>Bedford!</i></b>[p]
[camera zoom=2 from_zoom=1 x=180 y=100 time=2000]
;Reset camera
[reset_camera]
As soon as the train stops, you're out on the streets, looking
over your shoulder. No one seems to be following you.[p]
[if exp="f.rumlevel==1"]  [jump target=*still_tipsy]
[else] [jump target=*full_of_energy][endif]

;Add a label
*still_tipsy
You feel somewhat drowsy. But you must go on.[p] [jump
target=*resume_story]

;Add a second label
*full_of_energy
You feel adrenaline surging in your veins.[p]
```

```
*resume_story
Only a mere minute into the crowds, you're grabbed by the
arm![p]
```

The Might of the 3D Camera

TyranoBuilder has a feature the developers (or marketing) decided to call *3D Camera.* What this refers to are basically simple panning and zooming capabilities for plain 2D images. Although slightly grandiose in its naming convention, the compact feature set is actually usable as demonstrated in the preceding code.

With a mere couple of tags, namely, *[camera]* and *[reset_camera],* we added some dramatic zooming effects onto our scene, creating a sense of urgency. Using the virtual camera is simple: you define the desired amount of zoom and add some coordinates with an optional time setting in milliseconds. The attribute of *from_zoom* specifies the pre-zoomed dimensions of the image. In our example we let it stay at the original values (i.e., at one). A reset_camera tag is then called to return the visuals to their original settings; these tags are simple and fun to use. However, the 3D Camera is best used sparingly.

TyranoScript Macros

Macros are a type of coder-defined shorthand. In essence you can define new custom tags with them. The following lines in bold demonstrate this approach. Two new tags are created mid-game and used to set text color via the *font color* property.

```
;Define two macros
[macro name="redtag"][font color=0xff0000][endmacro]
[macro name="yellowtag"][font color=0xffff00][endmacro]
```

```
[redtag]"I think we should find a quieter venue to talk", a
vaguely familiar voice tells you. It's <b>Royston Honeybun</b>
from tech support.[p]
[bg storage="park.jpg"][chara_show name="Royston" wait=true
top=40 left=50]
[yellowtag]"I sent you the email in your friend's name. Sorry
about that."[p]
[chara_mod name="Royston" storage="chara/6/Roy2.png" time=0]
[resetfont]
"I had to get your out of there", he says.[p]
```

In addition to the two macros, we also used the character image modification tag for the first time in this tutorial; *chara_mod* is used to change the appearance of your characters. We set the time parameter to zero for an instant face swap. The command defaults to a slow crossfade, but we felt like a more instant change of faces. See Table 7-19 for more character-related tags.

Finally, to return to the default font style and color, we implemented the tag of *resetfont.*

Table 7-19. *Some tags for characters in TyranoScript*

Tag	Description	Example(s)

[chara_show]	Displays character.
	Parameters: *wait, time, layer, left, top.*
	Wait creates a delayed appearance for a character. Time sets the transition time in milliseconds (the default being 1000). Layer sets the character's specific layer (the default being the foreground). Left and top control the image's placement.
		`[chara_show name="Billy"]`
		`;Showing a character at a specific point`
		`;on-screen with a delay`
		`[chara_show name="Gayelord" wait=true top=100 left=50]`

[chara_hide]	Hides character from screen.	`[chara_hide name="Billy"]`

[chara_move]	Relocates a character image onscreen using the transition defined with chara_config.
	Parameters: *time, anim, left, top, width, height, wait, effect.*
	Anim accepts true or false, animating the image in accordance to the TyranoBuilder animation macros, defined in "effect" (see right for a list). Width and height set the dimensions of the image at the destination (in pixels).
		`[chara_move name="Gayelord" time=2000 left=800 top=40 anim=true effect=easeInCubic]`
		`; TyranoBuilder animation macros:`
		`;jswing |def |easeInQuad |easeOutQuad ;easeInOutQuad |easeInCubic |easeOutCubic;easeInOutCubic |easeInQuart |easeOutQuart ;easeInOutQuart |easeInQuint |easeOutQuint ;easeInOutQuint|easeInSine| easeOutSine ;easeInOutSine |easeInExpo |easeOutExpo ;easeInOutExpo |easeInCirc |easeOutCirc ;easeInOutCirc |easeInElastic ;easeOutElastic |easeInOutElastic ;easeInBack |easeOutBack |easeInOutBack ;easeInBounce |easeOutBounce ;easeInOutBounce`

(*continued*)

Table 7-19. (*continued*)

Tag	Description	Example(s)

[chara_mod]	Alters a character's appearance. Parameters: *time, reflect, wait, cross.* Setting reflect to "true" reverses the image horizontally. Cross controls whether the new image is crossfaded with the old one. Time sets this crossfading in milliseconds (with a default of 600 ms).	`;Basic character modification`
		`[chara_mod name="Billy"`
		`storage="billy/1/sadface.png"]`
		`;More specific transition`
		`[chara_mod name="Billy"`
		`storage="billy/1/happyface.png"`
		`cross=true time=1000]`

[chara_delete]	Permanently erases a character from the game.	`[chara_delete name="Billy"]`

Mixing Graphics with Text

You're not limited to background and character images in TyranoBuilder. By using a little tag called *graph,* you can interject your writing with the odd visual representation or two. Just make sure these image files are located in your project's image directory.

```
;Add some inline images
[macro name="phone"][graph storage="Cellphone.png"][endmacro]
[chara_mod name="Royston" storage="chara/6/Roy.png" time=0]
The upcoming government firewall, August, is designed to be
perfect. Turn out you made it too perfect.[p]
A faction of the government needs backdoors in it,
vulnerabilities which can be utilized at their will, Mervyn
explains.[p]
You're told to wait for a call. [phone] It'll be Raine, you
spoke with her on the train.[p]
[chara_hide name="Royston" time=2000 wait=true]
```

Graphical Buttons

TyranoBuilder offers a handy graphical button system implementation right in pure TyranoScript. Using the tag called *glink,* you can easily summon buttons for all your interactive needs. TyranoBuilder even has a chic set of built-in colors for these buttons (i.e., *black, gray, white, orange, red, blue, rosy, green,* and *pink*). There's also plenty of room for customization when it comes to the fonts and other visuals used with these elements.

In the following, we're implementing a three-button branching menu demonstrating some of the styles available for the glink tag. Note: when using graphical buttons, it's wise to end the menu with the tag *[s],* which pauses the adventure until the player makes a choice.

```
;Add graphical buttons
*cool_buttons
[glink target="ponder" text="Ponder" size=20 width="300" y=250
color=rosy font_color=0x000000]
[glink target="try" text="Relax" size=20 width="300" y=300
color=blue]
[glink target="resume_adventure" text="Onwards!" size=20
width="300" y=350 color=gray]
[s]
*ponder
You stay behind on the park bench, digesting everything you
were just told.[p] [jump target=*resume_adventure]
*try
You do your best to not ponder recent events, but you fail.[p]
*resume_adventure
```

The Grand Finale Featuring Nasuka

And so we're about to move on from TyranoBuilder to other game-making software, mainly *Twine.* But it's not quite over yet. We'll first display a fancy farewell message using the tag of *mtext,* defined here to use a heftily sized font. In addition, we'll startle the player with a touch of the quake effect, a visual novel staple. The position tag is also used to hide the message background by setting its opacity attribute to zero.

The main attraction in this segment is, of course, the lovely Nasuka. She's a Live2D model, meaning she's capable of much more than static character images (no offense to Royston and Raine). Just a reminder: to

enable Live2D in TyranoBuilder, go to *Project* ➤ *Customize Tool Area* on the top menu. Next, click the Live2D component selection. If you then go to the *Asset Library* on the top menu, you'll see a new drop-down menu for Live2D assets, including Nasuka. She's put to good use in this tutorial as the listing continues:

```
What's this? Oh, you've reached the end of this tutorial game.
See the project files for the source code.[p]
[position opacity=0][quake count=3 time=200 hmax=20]
[live2d_new name="Nasuka"] [live2d_show name="Nasuka"]
[live2d_trans name="Nasuka" time=2000 left=200 top=-200]
[live2d_motion name="Nasuka" filenm="pleased.mtn" idle="ON" ]
[wait time="2000"]
[live2d_motion name="Nasuka" filenm="idle.mtn" idle="ON" ]
[mtext text="Cheerio!" layer=2 size=48 x=680 y=160 in_
effect="bounceIn" out_effect="hinge"]
[live2d_scale name="Nasuka" scaleX=4.8 scaleY=4.8 time=3000]
[live2d_opacity name="Nasuka" opacity=0 time=4000]
[wait time="3000"] [close ask=false]
```

As you can tell, our Live2D friend is assigned with quite a few tags (see Table 7-20). First, she's defined and displayed using *live2d_new* and *live2d_show.* She's then transported across the screen by 200 pixels to the right and 200 pixels toward the top of the display using *live2d_trans.* Nasuka is then assigned a motion file to display; in this case it's the intuitively named *pleased.mtn.* A 2-second delay is inserted for Nasuka to show off her capabilities, after which she's returned to her idle state using the same tag of live2d_motion.

Next, we show off TyranoBuilder's animated text tag, *mtext.* As Nasuka bids us her adieus, she's also scaled up in size (during a period of 2 seconds) for maximum dramatic effect. After this it's time to automatically end the game using the close tag in tandem with its ask parameter set to false.

Table 7-20. *Some tags for Live2D in TyranoScript*

Tag	Description	Example(s)

[live2d_new]	Creates a new Live2D model onscreen.
	Parameters: *name, left, top, width, height, zindex, opacity, glleft, gltop, glscale.*
	Left and top position the model.
	Zindex controls its depth onscreen.
	Glleft and gltop adjust the model's position relative to the canvas (taking values between 0.0 and 2.0).
	Glscale controls the model's scale also taking values between 0.0 and 2.0.
	Note: only *name* is mandatory.
		`;A simple Live2D-evocation`
		`[live2d_new name="Jill"]`
		`;A more elaborate one`
		`[live2d_new name="Nasuka" opacity=1.0 left=50 top=50]`
		`;One with even more elaborate string of ;parameters`
		`[live2d_new name="Laverne" opacity=1.0 glleft=0.2 gltop=0.5 zindex=2 glscale=1.5]`

[live2d_show]	Displays a Live2D model. Takes a time parameter in milliseconds.	`[live2d_show name="Nasuka" time=1000]`
[live2d_hide]	Hides a Live2D model. Takes a time parameter in milliseconds.	`[live2d_hide name="Nasuka" time=2000]`
[live2d_expression]	Plays back an expression motion file for a Live2D model. Accepts a parameter called *filenm* for said file, set in *model.json.*	`[live2d_expression name="Billy" filenm="F01.mtn"]`

(*continued*)

Table 7-20. (*continued*)

Tag	Description	Example(s)
[live2d_trans]	Moves a Live2D model. Parameters: *left, top, time.* Left and top take the amount of pixels to move from the current position. The optional parameter of time is entered in milliseconds (its default is 1000).	`[live2d_trans name="Nasuka" top=100 left=50 time=2000]`
[live2d_ opacity]	Sets the opacity of a Live2D model. Accepts time and opacity parameters, the latter of which is in the 0.0 to 1.0 range	`[live2d_opacity name="Nasuka" opacity=0.5 time=1500]`
[live2d_color]	Adjusts the Live2D model color using the RGB method. Takes the *red, green,* and *blue* parameters in the range of 0.0 to 1.0.	`[live2d_color name="Nasuka" red=0.5 green=0.7 blue=1.0]`

Various Tags and Tools

In addition to all of the audiovisual power at your disposal, TyranoBuilder offers much in the way of general-purpose scripting (see Table 7-21). For one, you can display web sites in game using the HTML tag. The mouse cursor and the glyph (i.e., the icon displayed when awaiting a mouse click) are fully customizable.

Sometimes preloading assets is a good idea, in particular if there's lots of them. This can be achieved in TyranoBuilder by using a tag called, you guessed it, *preload*.

Table 7-21. *Some useful general-purpose tags in TyranoScript*

Tag	Description	Example(s)
[title]	Sets the game title.	`[title name="Chapter 2 of Happy Game"]`
[cursor]	Changes the mouse cursor image.	`[cursor storage="new_cursor.gif"]`

[html]	Adds an HTML layer. Can be used for any HTML, including embedding videos from, e.g., YouTube.
	Parameters: *top, left.*
		`;Embed and autoplay a great YouTube-video`
		`[html top="50" left="50"]`
		`<iframe src="http://www.youtube.com/embed/f4QBRgyitFs?&autoplay=1" width="560" height="315"></iframe>`
		`[endhtml]`

[endhtml]	Ends the HTML layer. Uses no parameters. See the preceding [html].	
[web]	Opens a web site in the player's default browser.	`[web url="http://www.robertciesla.com"]`
[glyph]	Sets the location for the icon displayed when awaiting for a mouse click. The image file is located in this directory: *tyrano/images/kag/nextpage.gif.* Paremeters: *fix* (enables the next two positional parameters), *left, top.*	`;Set glyph coordinates by enabling "fix"` `[glyph fix=true left=100 top=100]`

(*continued*)

Table 7-21. (*continued*)

Tag	Description	Example(s)

[dialogue]	Displays a dialogue window. This can be either a simple alert, an ok/cancel window, or a text input prompt.
	Parameters: *type* (takes *alert, confirm, input*), *target, storage, label_ok, label_cancel.*
	In the *confirm* and *input* windows, the storage attribute refers to the scene you'll be transported to when clicking a choice. The target parameter simply sets the label you're taken to within this scene.
	You can also rename the contents of the ok and cancel buttons using the *label_ok* and *label_cancel* attributes (shown in bold).
		`;Simple alert`
		`[dialog type="alert"`
		`text="Hello!"]`
		`;Ok/cancel window`
		`[dialog type="confirm"`
		`text="Say hi?"` **`label_ok="Yes!"`** `storage="scene1.ks" target="yes_label"` **`label_cancel="No."`**
		`storage_cancel="scene1.ks"`
		`target_cancel="no_label"]`
		`;Text input window`
		`[dialog type="input"`
		`text="Enter your name"`
		`storage="scene1.ks"`
		`target="happy_label"]`

[loadcss]	Loads a *Cascading Style Sheet (CSS)* while a game is in progress. Great for completely changing the look of a game, when needed.	`[loadcss file="./data/others/css/new.css"]`
[wait]	Halts the game for a duration defined in milliseconds.	`[wait time="2000"]`

(*continued*)

Table 7-21. (*continued*)

Tag	Description	Example(s)
[close]	Quits the game. Optionally takes an attribute of *ask;* when set to "false" it won't present the player with a confirmation dialogue.	`[close ask=true]`
[preload]	Preloads audio and image files. Takes an optional attribute called *wait.* When set to true, it halts the game until the assets are fully loaded.	`[preload storage="data/images/apress.jpg" wait=true]`

At this point the second leg of the tutorial adventure *Taking Back August* is complete. As you can tell, TyranoBuilder offers quite a robust framework for making audiovisually rich games. We focused on the TyranoScript approach due to its flexibility and the development speed it offers as opposed to the graphical user interface. Hopefully you've learned the basics of this powerful system and feel inspired to create your own sagas with it; TyranoBuilder is indeed a fine piece of software.

Part III: Telling Tales with Twine

We'll now move on to telling the rest of the story with Twine; offering perhaps the most traditional game creating process, there's quite a bit of typing involved. However, with its clean interface and automated passage creation, Twine is a joy to use. Here's *Taking Back August,* Part III (see Figure 7-1). We'll again start with the basics, adding audiovisuals and other more advanced elements as we progress with the story.

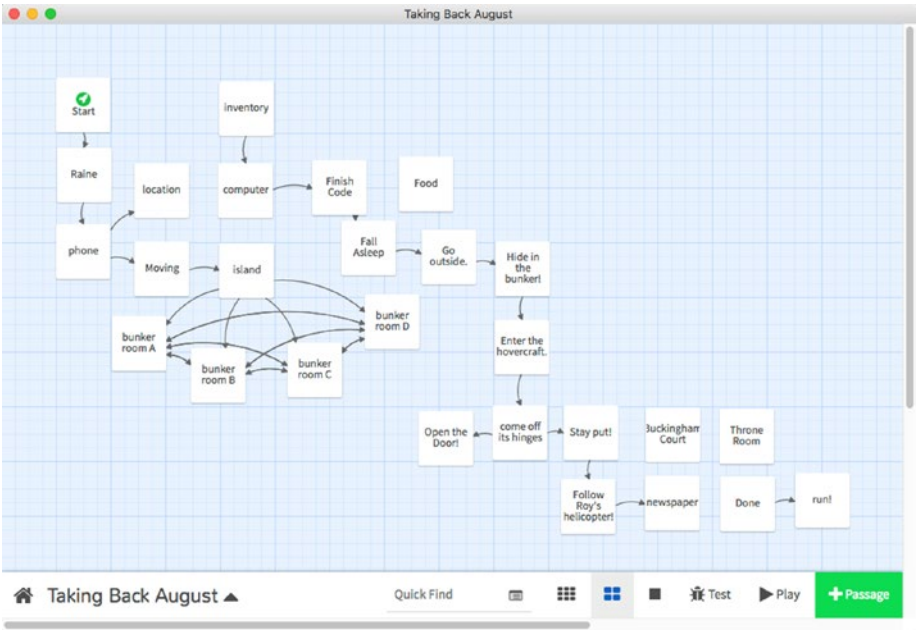

Figure 7-1. *A project view of our completed tutorial game*

We'll begin by opening up Twine and clicking the green plus sign to create a new story and naming it. Let's work with the popular Harlowe story format. We're immediately taken into the minimalistic user interface of the software.

Double-clicking the first room (i.e., a *passage* in Twine parlance), we enter this code:

```
Only a mere minute or so later, the old mobile phone rings.
"Raine?", you utter, answering the call. "You met with
Honeybun. Good. Yes, it's me, [[Raine]]", a female voice
explains.
(set: $variable to 0)
```

As you may remember, entering double square brackets into a Twine passage creates new ones. In the case of the preceding code, Twine creates a new passage called *Raine*. Also, we used the Harlowe method of declaring a variable, which we dubbed, well, *$variable*. Notice the use of dollar sign, parentheses, and the tag called *set:*.

Fonts and Colors

The default font looks rather plain. Let's change that, shall we? Click the game title (i.e., *Taking Back August*) and select *Edit Story Stylesheet*. We can add Cascading Style Sheets (CSS) into this form. Go ahead and add the following lines:

```
body, tw-story
{
  font-family: Courier New;
  font-size: 22px;
  color: #EE9900;
  text-shadow: 1px 1px 1px #000000;
  background: rgb(194,169,45);
  background: linear-gradient(180deg, rgba(194,169,45,1) 0%,
  rgba(110,71,71,1) 31%, rgba(0,0,0,1) 86%, rgba(127,117,117,1)
  100%);
}
```

All of our passages in this adventure will now have a somewhat more pleasing Courier New font, complete with drop shadow, and a nice autumnal color-gradient backdrop.

Now, Twine doesn't package fonts into its output. Basically a player needs to have the font you defined in Twine installed in their operating system. Your safest bet is to use fonts generally found among most users. These days you're thankfully not usually limited to Times New Roman. Popular fonts are sometimes referred to as *web safe fonts* (see Table 7-22).

Table 7-22. *Common web safe fonts*

Font	Type	Font	Type	Font	Type
Arial	Sans-serif	*Garamond*	Sans-serif	*Times*	Serif
Arial Black	Sans-serif	*Georgia*	Serif	*Times New Roman*	Serif
Bookman	Serif	*Helvetica*	Sans-serif	*Trebuchet MS*	Sans-serif
Courier New	Serif	*Impact*	Sans-serif	*Verdana*	Sans-serif

Now, onto our adventure and its second passage, which should look like this:

```
She tells you you must ditch the [[phone]] as it's being
tracked by "them": its signal encryption will be compromised
shortly.
```

The current color scheme is nice and all, but the blue links are kind of an eyesore. Time to fix that by going back to the stylesheet editor in Twine. Add the following lines after the previous lines of CSS:

```
tw-link /* Set both base link colors */
{ color: #ffcc00; }
tw-link:hover /* Set both hover link colors */
{ color: #ffff00; }
.visited /* Visited links */
{ color: #ffcc00; }
.visited:hover /* Visited hover links */
{ color: #ffff00; }
```

We're in business; this look is much more uniform and pleasing to the eye.

Fun with Harlowe and Variables

Friends, it's time to use a variable in the project.

```
Raine also tells you if the "overalls man" finds you now,
the entirety of Britain and later the rest of Europe are in
jeopardy.<br>
You're given a new set of [[coordinates]] and told you're
guaranteed complete safety in this new
(if: $variable < 3)[[[location.|location]]]
(else:)[[[Time to move.|Moving]]]
```

In the preceding passage, we are using Harlowe's tag of *if:* to examine the contents of our variable, *$variable.* Again, pay attention to correct use of parentheses and square brackets; as you can tell, Twine doesn't exactly have a distaste for the latter. The next passage, called *location,* demonstrates the use of variables further.

We are also demonstrating the use of the tag called *else:*, which refers the player to a new passage called *Moving* when the location simply called *location* has been visited three times. Notice the use of the pipe character (i.e., |) to separate the link text from the link itself.

Note: sections of Harlowe code surrounded by square brackets are referred to as *hooks.*

```
(if: $variable is 0) [You are quite curious about the location.]
(if: $variable is 1) [Yes, you are still very curious about the
location.]
(if: $variable is 2) [Now you feel like actually visiting this
location!]
(set: $variable += 1)
(link: "It's all a grand mystery.")[(go-to:"phone")]
```

This passage (i.e., location) simply displays messages based on the content of our variable. Three different messages are provided after which this passage can't even be visited from the previous passage of *phone.* As it happens, we are entering an icy world. Let's make the cosmetic side of things reflect that. First, here's the new passage itself (i.e., *Moving*).

```
You drop the phone and embark on the trip right away. A rather
complicated three-day journey on trains, ferries, and fishing
boats eventually take you to Bouvet Island, Norway, the most
remote [[island]] on the planet.
```

Custom Tags and Background Visuals

Let's add some visual variety into the passage. Insert the following CSS into the game by clicking *Edit Story Stylesheet:*

```
tw-story[tags~="snow"] {
background-image:url("https://upload.wikimedia.org/wikipedia/
commons/4/44/Bouvet_island_0.jpg");
  background-size: cover;
  color: blue;
}
tw-story[tags~="snow"] tw-link {
  color:blue;
}
tw-story[tags~="snow"] tw-link:hover {
  color:white;
 }
```

What the preceding lines do is to create three new element definitions: one for the main story and two for our links. The text in bold is a part of Twine's custom tag system; you may remember the software allows you

to add specific tags to your passages. This is done by entering the editing mode for a passage and clicking the icon entitled *+Tag*. You can then enter these custom tags. Let's do that for our current passage of *Moving*.

Note: make sure the capitalization of your tags is shared by both the passage and the css definitions; *Snow* is very much different to *snow* in Twine.

Now the passage called *Moving* should have the customized tag of *snow* with a non-capital s. In the CSS side of things, we're using the tags element (i.e., *tags~="snow"*) to assign specific parameters to all passages sharing the tag of *snow*. At the moment it's just one room and this room gets an auto-scaling background graphic courtesy of *Wikipedia,* a clear blue font, and a brand new paint job for its links. These changes should reflect the icy world of Bouvet Island far better than our former autumnal color scheme.

As you probably gathered, using Twine's custom tags is a great way to change visual elements in a game with ease by having a specific set of passages share them.

Say, why don't we come up with even more custom looks for our future passages? Let's add the following code to the CSS of the project using the Edit Story Stylesheet form:

```
tw-story[tags~="snow2"] {
  color: ivory;
  background: rgb(34,193,195);
  background: linear-gradient(0deg, rgba(34,193,195,1) 0%,
  rgba(157,157,157,1) 100%);
  }
tw-story[tags~="snow2"] tw-link {
  color:#444;
  }
tw-story[tags~="snow2"] tw-link:hover {
  color:white;
  }
```

```
tw-story[tags~="bunker"] {
  color: white;
  background: rgb(46,46,46);
  background: linear-gradient(0deg, rgba(46,46,46,1) 0%,
  rgba(157,157,157,1) 100%);
  }
tw-story[tags~="hovercraft"] {
  color: white;
  background: rgb(28,142,118);
  background: linear-gradient(0deg, rgba(28,142,118,1) 0%,
  rgba(157,157,157,1) 100%);
  }
tw-story[tags~="bham"] {
  color: cornsilk;
  background: rgb(110,71,71);
  background: linear-gradient(180deg, rgba(110,71,71,1) 20%,
  rgba(224,230,125,1) 100%);
  }

tw-story[tags~="bham"] tw-link {
  color:peru;
  }
tw-story[tags~="bham"] tw-link:hover {
  color:wheat;
  }

tw-story[tags~="finale"] {
  color: white;
  background: rgb(2,0,36);
  background: linear-gradient(90deg, rgba(2,0,36,1) 0%,
  rgba(121,9,9,1) 35%, rgba(0,0,0,1) 100%);
   }
```

An Inventory in Harlowe

The Harlowe story format has several macros suitable for in-depth variable manipulation. It supports arrays, for one, which is a great data structure for creating an inventory system. Let's make one right now.

First, we need to configure an array, which is basically a group of strings. There's basically two ways of making it: either one with preexisting items (i.e., strings) or one which is completely blank. Let's configure the former first. These definitions work best inserted into the first passage of your game.

```
(set: $items to (a:))
```

Now, if you wanted an array/inventory with items, you would do something like this:

```
(set: $items to (a: "key", "book", "mirror"))
```

To print the contents of the inventory, you use the macro of *print:* as well as one called *join*, which specifies you want a comma character and an "a" between the strings/items.

```
Your inventory contains a (print: $items.join(", a ")).
```

Adding and removing items to and from an array in Twine is simple using basic arithmetic operators:

```
(set: $items to $items + (a: "key"))
(set: $items to $items - (a: "key"))
```

If you want your inventory to be of any use, you need to be able to examine its contents. We would do this with the little macros called *if:* and *else:*.

```
(if: $items contains "key")[You use the key to open the
[[locked door]].]
(else:)[The door won't budge. It remains locked. You need to
find a key for it.]
```

Note: the inventory in the tutorial game will be defined separately; the preceding code is for the sake of demonstration only.

Refining Our Inventory and the Twine Footer

Although the basic functionality for an inventory in Harlowe presented earlier works, it could still be improved. For one, even if your inventory is empty, it uses the comma convention to display the nonexistent contents. Let's change that right now.

```
(if: $items's length > 0)[Your inventory contains a (print:
$items.join(", a ")).]
(else:)[Your inventory is empty.]
```

Yes, that's better; an empty inventory now displays a different message. However, if you're going to have an inventory in your game, wouldn't you want the option to access it whenever you wanted? To achieve this, we'll use a special passage in Twine called the footer. Basically, any room tagged with *footer* will be a special passage displayed at every other passage.

So create a new passage, titling it whatever you want; "inventory" would work. Assign a tag to this passage and call it *footer.* Again, this passage will now display at the bottom of all of the other passages. Give it the following content:

```
<hr>
(if: $items's length > 0)[Your inventory contains a (print:
$items.join(", ")).]
(else:)[Your inventory is empty.]
```

The HTML tag at the top gives your footer passage a nice horizontal line to separate it from the other content in your game.

Now, for dramatic consistency, you may remember how our protagonist Reginald heroically fetched an important pink DVD from a building office. Let's put that item into his inventory, shall we? Open the *very first passage* in this Twine project and add the following line:

```
(set: $items to $items + (a: "Pink DVD"))
```

Resuming Our Story

Let's get back to our game, *Taking Back August*, and utilize some of the techniques outlined in the preceding text. The passage called *island* should have the following contents:

```
A human figure welcomes you as you make landfall in a blizzard.
Taking off his goggles, the host becomes recognizable:
it's <b>Mervyn Popplewell</b>, your supposedly dead former
colleague. He shakes your gloved hand and says "Welcome to
Bouvet Island, or limbo as I call it!"
Go to [[bunker room A]], [[bunker room B]], [[bunker room C]],
or [[bunker room D]].
```

Remember our Story Stylesheet and all the definitions therein (e.g., *snow*, *snow2*)? Now it's time to start tagging passages en masse to enable all those visuals in our stylesheet. Tag the preceding passage with *snow2* (see Figure 7-2). This will give it a unique look with a suitably icy color scheme.

Also, the four bunker rooms we just created would benefit from a slight variation in their backdrops. We can achieve this at this point by tagging these rooms with the keyword "bunker," which will assign some of our previously defined, funky CSS elements to these passages.

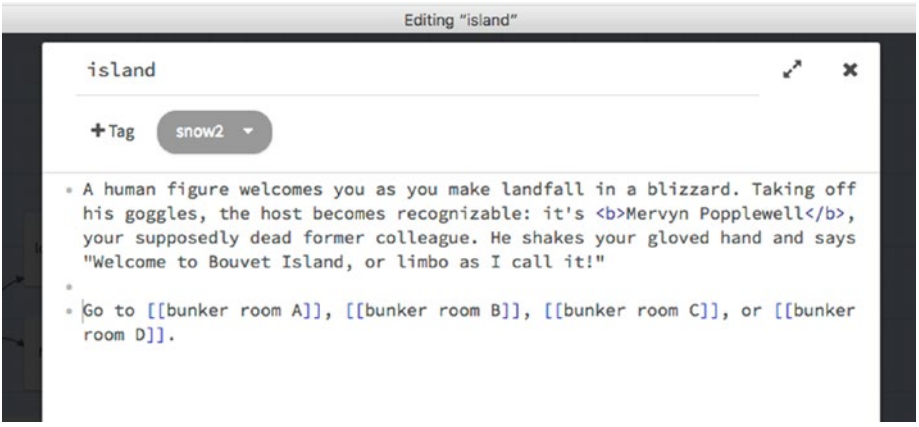

Figure 7-2. *The island passage from Taking Back August (Part III)*

Now then, Reginald is now facing a four-room underground bunker in a very cold and desolate place. Let's make it so that he has to collect three additional items (from bunker rooms A, C, and D) for the story to progress: a USB stick, a programming manual, and a password on a piece of paper.

The following is a table for the various bunker room passages (see Table 7-23).

Table 7-23. *The bunker complex in Taking Back August for Twine*

Passage	Script
Bunker room A	This room is exceptionally cold. (if: $items contains "USB-stick")[The room is empty.] (else:)[You find a USB-stick!(set: $items to $items + (a: "USB-stick"))] Go to [[bunker room B]], [[bunker room C]], or [[bunker room D]].
Bunker room B	This room is quite barren. (if: $items contains "Programming Manual")[The room is empty.] (else:)[You find a Programming Manual!(set: $items to $items + (a: "Programming Manual"))] Go to [[bunker room A]], [[bunker room C]], or [[bunker room D]].
Bunker room C	The room is cold and empty. Go to [[bunker room A]], [[bunker room B]], or [[bunker room D]].
Bunker room D	(if: $items contains "Password on a Piece of Paper")[The room is empty.] (else:)[You find a Password on a Piece of Paper!(set: $items to $items + (a: "Password on a Piece of Paper"))] Go to [[bunker room A]], [[bunker room B]], or [[bunker room C]].

Unlocking Locations with Items

Now, we'll need to check if the player has acquired all of the necessary items and give them access to a new passage called *computer*. The code for this is as follows:

```
(if: $items contains "USB-stick" and "Programming Manual" and
"Password on a Piece of Paper")[You're ready to get to work at
the bunker computer [[computer]].]
```

We don't need to check for the "Pink DVD" as it is expected to be in the player's possession from the get-go. However, where do we stick the preceding code? In every bunker room? We could do that, but it's more efficient to have it in one element of the game which is present throughout the whole experience: the footer passage. Let's modify said passage and make it look like this:

```
<hr>
(if: $items's length > 0)[Your inventory contains a (print:
$items.join(", ")).]
(else:)[Your inventory is empty.]
(if: $items contains "USB-stick" and "Programming Manual" and
"Password on a Piece of Paper")[You're ready to get to work at
the bunker computer [[computer]].]
```

There it is. Now the player gets access to a new passage should all of the required items be in his or her possession. You should see this new passage, that is, *computer*, appear in the Twine design view. Its code is shown in the following. Notice how we delete all items from the inventory array as we won't be taking them out of the computer room.

```
You must make sure the Faction never gets the backdoors they want
in August, the Britain-wide firewall-to-be. If they get them, they
can infuse pretty much every electronic device with malicious code
that will render the entire country vulnerable for attack.
```

```
"You must make modifications so after implementing them, not
even you can undo them", Mervyn explains.
<!-- Clear inventory -->
(set: $items to (a:))

[[Finish Code]]
```

Food, Dramatic Moments, and More Macros

Let's resume the story and introduce a few more macros for Harlowe. The following code will be for the passage called *Finish Code,* created earlier. It's to be tagged as *snow2* for the intended visual theme.

```
After a mere two days in the bunker, it begins to feel a second
home to you. The outside world is dangerous, unpredictable.
Food delivery is provided weekly to the island by the British
government, including items like caviar, avocado with shrimp,
and Belgian waffles.
<br>You've found home.
<!-- Time to "enchant" a food item -->
(enchant: "avocado with shrimp", (text-colour: white) + (text-
style:'bold'))
(display: "Food")
[[Fall Asleep]]
```

Harlowe allows you to change the styling in your passages using a wonderful macro called *enchant:*. This macro gives developers great flexibility to re-design some elements of their passages at will.

As for the macro called *display:* – it is used to show the contents of external passages within a specific passage. For the preceding macro to work, we need a brand new passage called *Food* in order to use *display:*. The contents of Food could be simply something like this:

```
(Your favorite food is, indeed, avocado with shrimp!)
```

You'll notice the enchant-macro addresses both the originating passage of *Finish Code* and the later one called *Food*; in both passages the same string (i.e., "avocado with shrimp") will be highlighted.

Datamaps and Datasets

Harlowe includes support for data structures known as *datamaps* and *datasets*. Simply put, what datamaps do is they create structures of key-value pairings. They can be used to create character statistics or other useful data collections. Datamaps utilize Harlowe's common variable definition of the dollar sign (e.g., *$whatever_variable*).

Accessing datamaps is done using the intuitive element of *'s* (e.g., *$info's*) optionally with the macro called *print:*. The familiar if-else notation also applies to datamaps as demonstrated next in the passage *Fall Asleep*, again to be tagged with snow2 for the visuals.

```
<!-- Define a datamap with two keys (temperature and energy)
and assign them with values -->
(set: $info to (datamap: "temperature", -20, "energy", 5))
<!-- Display the datamap structures -->
Note: your energy-level is (print: $info's energy) out of 10.
The current temperature is (print: $info's temperature) C.
<!-- Check the values of the keys and display messages if
appropriate -->
(if: $info's energy is < 10)[You are somewhat tired.]
(if: $info's temperature is > 10)[It is quite warm!]
(else:)[It is very cold!]<br>
```

As for datasets, think of them as arrays (i.e., the type of structure we used for our inventory system) that use specific, easy-to-remember manipulators, such as "*is in*" and "*contains*" as demonstrated by the

following passage called *Fall Asleep*. Since an "alarm clock" isn't included in our dataset, the related second message won't be displayed. Also note the use of the handy and operator in the last line of dataset examination.

Now, the passage continues like this:

```
During your third day on the island, you're startled by a
noise. At first it seemed to be coming somewhere inside the
bunker, but it soon became clear it's originating from the
surrounding sea.
<!-- Create a new inventory with a dataset -->
(set: $briefcase to (dataset: "pencil", "eraser"))
<!-- Examine contents of the aforementioned dataset using "is
in" and "contains" -->
(if: "pencil" is in $briefcase)[You have your trusty pencil in
your trusty briefcase.]
(if: "alarmclock" is in $briefcase)[You are also carrying an
alarm clock in your briefcase.]
(if: $briefcase contains "eraser")[You are also carrying an
eraser in said briefcase.]
(if: $briefcase contains "eraser" and $briefcase contains
"pencil")[You feel well prepared.]
[[Go outside.]]
```

Extreme Fun with Arrays

Arrays in Harlowe's can be manipulated in various ways; you're not limited to simply iterating through them in order. Let's take a look at the next passage (i.e., *Go Outside.*) and some of these nifty array manipulations therein. This passage, too, could do worse than be tagged with *snow2*.

```
You pinpoint the source of the noise and associate it with a
small orange dot in the horizon. It's obviously a boat of some
sorts, slowly making it way towards Bouvet Island.
```

```
<!-- Create a new array, $array, assign four strings into it,
and randomize its order -->
(set: $array to (shuffled: "escape", "pencils", "fish",
"August"))
Panicking, you are thinking about (print: $array)!
<!-- Create another array, assign four numbers, rotate the
array by two -->
(set: $numbers to (a: 1,4,5,8))
And your briefcase lock number.. Which was it: (print:
$numbers) or(set: $numbers to (rotated: 2, ...$numbers))
(print: $numbers)?
<!-- Create a new array, fill it with four strings, arrange
them alphabetically -->
(set: $bands to (a: 'Abba', 'Megadeth', 'Tiffany', 'Enya'))
It's times like these you think about your favorite bands:
(print: (sorted: ...$bands)).
[[Hide in the bunker!]]
```

Some of the most useful array manipulations in Harlowe are *shuffled:*, *rotated:*, and *sorted:*, as demonstrated in the preceding text. The triple dot (i.e., ...) is called a *spread operator* in Twine. It's used to insert all of the values in an array into a macro (e.g., *sorted: ...$bands*).

Let's continue onward to the next passage of us hiding in the bunker. Oh and can you guess which tag would go well with such a passage? (It's *bunker*.)

```
The craft makes contact with terra firma. You can do little
else but observe through the fortified bunker windows. After
a few minutes of nothing but howling wind a somewhat petite
female form strolls towards your residence. She wears (either:
"thick black rimmed", "hipster") glasses and a (either: "dark
blue", "chic") winter jacket.
```

```
There's a knock on the entrance. "Reginald, it's me, <b>Raine
</b>", she informs and continues, "We must leave now. We only
have (random: 10,20) seconds!"
[[Enter the hovercraft.]]
```

In the preceding passage, we used two macros to create some variety: the invigorating *either:* and the handy *random:*. The former's function is rather self-explanatory, while the latter creates a random whole number between 10 and 20. You can, of course, enter any range of numbers at your leisure for this macro.

More Visual Effects

Now, the plot thickens as we enter the hovercraft. We even animate the text passages to reflect the tense atmosphere of the story at this point. Note the use of hooks (i.e., square brackets) needed to envelop the paragraphs. The following is a passage called *Enter the hovercraft.* For this and the four passages that are connected to it, we should assign the tag of, yes, *hovercraft*, for that oceanic color scheme.

```
(text-style: "Shudder")[Now aboard the craft and scurrying
across the waves, you and Raine notice a second hovercraft
emerging from the mist. "It's them", Raine tells you.]<br>
(text-style: "Rumble")[The black Faction craft is soon on the
starboard side of her and you with more than a dozen of their
stocky troopers aboard, wearing thick layers of arctic clothing
and military boots.]
(text-style: "Shudder")[(text-style: "Smear")[You and Raine
back off inside the craft canopy as it gets overrun.]]<br>
<!-- Apply an effect to a specific section in a passage (i.e.
[beg] and [ins]) -->
(set: $string to (text-style: "Shudder")) The heavily reinforced
cabin door $string[beg]$string[ins] to [[come off its hinges]].
```

As you can see, adding more than one visual effect to sections of a passage using *text-style* involves using hooks to surround these other text-styles with. Also, it's possible to create reusable string variables for text-styles and apply them where necessary. See Table 7-24 for a partial list of these visual effects. Note: the usage is always *(text-style: "effect name")[text]*.

Table 7-24. *Some settings for Twine's "text-style" macro*

Non-animated Effects			Animated Effects
Bold	Superscript	Condense	Rumble
Italic	Subscript	Shadow	Shudder
Underline	Mark	Outline	Blink
~~Strike~~	Expand	None	Fade-in-out

Real-Time Twine

Games made with Twine aren't just limited to pensive clicking. Oh no: one can implement some serious real-time drama with countdowns by utilizing a macro called *live:!* Let's try this out in the next passage, called *come off its hinges*.

```
The antagonists are about to break through the cabin door.

[[Stay put!]] / [[Open the Door!]]
(set: $time to 15)
(set: $string to (text-style: "Shudder"))
(set: $string2 to (text-style: "Rumble"))
<!-- Display dramatic messages every 0.8 seconds-->
{(live: 0.8s)[
```

```
    (either: "","","Double ")
    (either: "$string[Thump!]", "Wham!", "Yikes!", "Oof!",
    "$string2[Bam!]")
]}You have |amount>[$time] seconds left!
(live: 1.0s)[
      (set: $time to it - 1)
      (if: $time is 0)[(go-to: "Open the Door!")]
      (replace: ?amount)[$time]
]
```

First, we create a simple variable called *$time*, assigning it with a value of 15. If this variable reaches zero, the player is transported to a passage called *Open the Door!*, which is also available as the "wrong" choice at the top of the current passage through the usual means. Staying put is the only way to survive this passage.

The macro called *live:* simply creates a real-time hook, to be repeated by a specific interval. In this passage we assigned two live hooks: one displays intense messages every 0.8 seconds, and the other decreases our aforementioned variable by one every second. A macro called *replace:* is utilized to display the updated contents of the timer variable. Also, you'll notice we utilize the previously introduced macro called *either:* to create some variety in our messaging system.

But why don't we make the countdown timer even more dramatic by changing its color to red? We might as well make the numbers bold while we're at it using the *font-weight* attribute. Let's add the following to the Story Stylesheet:

```
tw-hook[name="amount"] {
      color: red;
  font-weight: bold;
}
```

Our First Game Over

Should the player choose to open the cabin door while the invading forces are aboard the hovercraft, the game ends. The passage called *Open the Door!* should look like this:

```
You open the door in an attempt to fight the intruders. You
are overrun in seconds.
(live: 3s)[
       (stop:)
           (text-style: "Outline")[<h1>GAME OVER</h1>]
       (link:"Try, Try Again")[(goto:"Start")]
    ]
```

You'll notice it has a new macro called *stop:*. This is used in conjunction with the live macro to create a 3-second delay before displaying the dreaded words of "Game Over."

Hiding That Pesky Inventory

There are passages in which the player doesn't need to keep an eye at the inventory; at times, keeping it displayed is just frustrating for your audience. You may have noticed some of the recent passages in this tutorial were quite busy. Let's take care of that right now.

Find the inventory passage in the project. Make it look like this:

```
(if: $show_footer is true)[
<hr>
(if: $items's length > 0)[Your inventory contains a (print:
$items.join(", ")).]
(else:)[Your inventory is empty.]
(if: $items contains "USB-stick" and "Programming Manual" and
"Password on a Piece of Paper")[You're ready to get to work at
the bunker computer [[computer]].]
]
```

Some new sections are displayed in bold. What these do is examine a boolean variable, *$show_footer*, to see if it's set to "true" (booleans are variables with only two states: *true* or *false*). If it is, a hook displaying the inventory is shown. If said variable is set to *false*, no parts of the inventory passage are shown. Note: be careful with the capitalization of booleans in Twine, too. *True* is not the same as *true*.

Now, to enable or disable the inventory within any passage, enter one of the following lines into it (preferably as the very first one for the sake of clarity):

```
(set: $show_footer to false) <!-- Hide inventory -->
(set: $show_footer to true) <!-- Show inventory -->
```

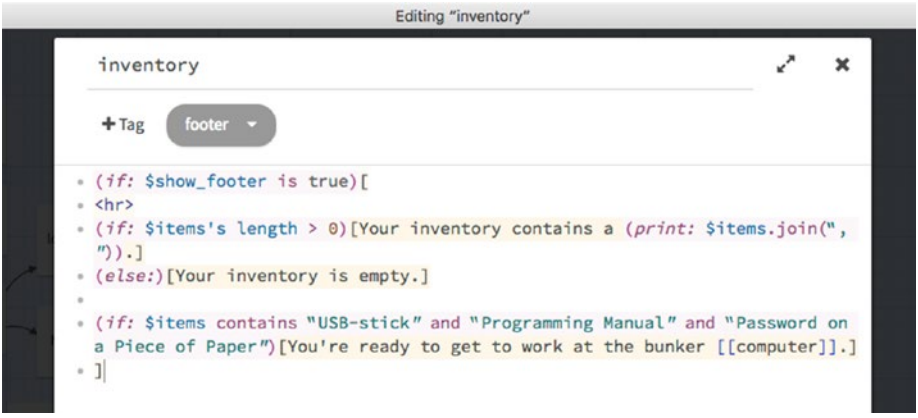

Figure 7-3. *The completed inventory passage from Taking Back August (Part III)*

See Figure 7-3 for the final form of our inventory passage. In our project, we should hide the inventory in the following passages: *Enter the hovercraft.* and *Go Outside*. Also, we should enable it in the very first passage of the adventure, to make sure it defaults to being visible. In addition, do remember the variable (i.e., *$show_footer)* maintains its value until you change it again.

Adding Graphical Bars

There's nothing quite like visual representations of data in a video game context. Whether you're implementing character statistics or any type of progress, you should invest some of your time into doing that visually. Let's create some of those fine bars right now in our next passage, called *Stay put!*

```
(set: $hose to 100)
A stream of water begins to flood the hovercraft cabin from the
skies. It's much more intense than seaspray or rain.

You identify the emerging sound as a helicopter. "It's Roy",
Raine yells and continues, "It has to be him!"

Royston is almost done removing the bad guys off the
hovercraft:
 (live: 0.25s)[
 (if: $hose>0)[
 (set: $hose to $hose - (random: 1,5))
 ]
(print: '<progress value="' + (text: $hose) + '" max="100">
</progress>')
 (if: $hose < 10)[ [[Follow Roy's helicopter!]]]
       ]
```

In this passage we're simply introducing an HTML element known as <*progress*> into the proceedings using the Twine macro called *print:*.

After first defining a new variable called *$hose* and giving it a value of 100, we integrate this data into the progress element. By using the now probably familiar live macro, we reduce said variable's value between one and five units every quarter of a second. However, we have controls in place which guarantee that this will only occur if the value of the aforementioned variable is above zero; we don't want any funny business to occur with our bars and data.

When the value of our hose-related variable falls below ten, a link to a new passage (i.e., *Follow Roy's helicopter!*) will be displayed. However, the default visuals provided by the progress element are rather uninspiring. Let's summon some CSS to correct that, shall we? We create a nice new look to our progress bar by adding the following code into the Story Stylesheet:

```
progress {
    background-size: 20px 20px, 100% 100%, 100% 100%;
    box-shadow: 5px 5px 5px black;
}
```

What the preceding CSS does is give the progress bar a nice, thick green look and a shadow to boot. Said shadow will be offset by 5 pixels both horizontally and vertically, feature 5 pixels of blur, and be black in color.

Transitions and Rotation: More Visual Flair

You can introduce parts of your passages in style with the macro known as *transition:*. It takes a number of animation styles as its parameter. In the following code, we used the rather striking *pulse* as our transition of choice, which is a good way to display news headlines. In addition, we can make things even more tabloidy by using a macro called *text-rotate*. Finally, our old friend *text-style* emerges again to create an embossed and smeared look for the headlines. The following passage is called *Follow Roy's helicopter!*

```
The hovercraft makes landfall somewhere in the coast of Norway.
An unremarkable car awaits you, Raine, and Royston. "There's a
private jet awaiting for us at Oslo Airport. Let's get going",
Royston says, opening a passenger door.
```

```
Picking up a newspaper in the car, a headline startles you:
(transition: "pulse") [
(text-style: "emboss")[
<h2>(text-style: "smear")[(text-rotate: 2)["Buckingham Palace
and Number Ten on lockdown!"]</h2>
(text-rotate: -2)["Britain shocked by PM's disappearance!"]]
]
Finish reading the [[newspaper]] ]
```

Replacing Links with Passages

We continue the story in a passage called *newspaper,* which is presented in the following. Here we utilize a macro called *click-replace:* to create a link out of the string of "Proceed Inside.." Clicking this link will then display the contents of a separately defined passage called *Buckingham Court* inside the current one. It's also the time to switch to a brand new color scheme by tagging this passage with the magic word *bham*. This also goes for the passage to follow, that is, *Throne Room*.

```
Your team arrives in London after another long drive, this time
from Heathrow. "We have snipers all over the place", Royston
says.

The Faction managed to enter Buckingham Palace which has its
surrounding areas sealed off from the public for now.

Proceed Inside..
(click-replace: "Proceed Inside..")[(display: "Buckingham Court")]
```

The simple passage called *Buckingham Court* is presented in the following.

```
A duo of Faction operatives open the doors to Buckingham Palace.
Raine and Reginald are kept a careful eye on as they enter the
premises after being searched for weapons of any kind.

Inside, an absolute silence makes every footstep sound like a
hundred decibels.

(link-goto: "Enter the Throne Room", "Throne Room")
```

Prompting the User

And so we enter the *Throne Room*. Now it's time to introduce another element Harlowe is capable of: the user prompt. We get to enter a password next, and should it be the correct one (i.e., "reginald"), enter a new passage. If the player fails to get it right, they're presented with a blinking error message and given the opportunity to try again by reloading and thus resetting the current passage. Yes, hacking is sometimes hard, friends.

```
(set: $password="")
Our friends are escorted into the Throne Room, where two
familiar faces await them: it's Claire from the train and her
bodyguard, the overalls man.

Claire informs them the Faction still wants the code for the
backdoor to August.

"Failure to do so will result in two things: the execution of
your prime minister and a massive electromagnetic pulse which
```

```
will cripple not only your capital city, but the entirety of
your country", Claire explains.

> Enter password.(click: "password")[
(put: (prompt: "Enter Your Password (it's reginald):", "") into
$password)
(if: $password is "reginald")[(goto: "Done")](else:)[(text-
style: "blink")[> Access denied!](link-goto: "> Try again? <",
"Throne Room")
]
]
```

You'll notice another macro we haven't discussed yet: *put:*. This is simply a different implementation of the familiar set macro which uses a slightly different syntax; both of these macros create and modify variables. Instead of *(set: $password* to *...),* we chose to use *(put: ... into $password).*

We're almost there. The two remaining passages are stylized with a dramatic red hue courtesy of the tag called *finale*. The following passage is called *Done.*

```
You activate the system with all of the requested backdoors
open – or so it seems.

"Very good, Mr Pennelegion", Claire says with a smile, grabbing
the tablet from Reginald and handing it over to the overalls man.
"Excellent. We have a deal. The coordinates are now being
transferred into your tablet", she says and continues: "You're
free to leave".

Walking slowly towards the front doors, Raine notices something
in the corner of her eye: one of the guards is having difficulty
maintaining his balance. The air turns freezing cold.

Raine whispers to you: "Do you feel that? That's our cue to
[[run!]]"
```

And for the grand finale itself, here's something a little different. Enjoy the very last passage of this tutorial, called *run!*

```
"We fumigated the palace air conditioning with our special
blend: iodine and liquid nitrogen mist. Their Achilles' heel,
Reg", Raine says and adds, "An SAS team is on its way to get
our prime minister. We expect him back in less than an hour.."
(live: 3s)[(stop:)(transition: "Shudder") [(text-style:
"Smear")[<h1>THE END</h1>](link:"Re-Start")[(goto:"Start")]]]
<audio controls autoplay>
<source src="https://ia802805.us.archive.org/7/items/
RelaxingHarpMusicSleepMusicMeditationMusicSpaMusicStudy
MusicInstrumentalMusic49_201807/Relaxing%20Harp%20Music%20
Sleep%20Music%2C%20Meditation%20Music%2C%20Spa%20Music%2C%20
Study%20Music%2C%20Instrumental%20Music%20%E2%98%8549.mp3"
type="audio/mp3">
Your browser does not support the audio element.
</audio>
```

So far, our tutorial game has been rather quiet. How about we add some sound? Like you may remember, Twine's Harlowe story format doesn't have built-in macros for audio; that needs to be implemented using HTML or JavaScript. For our final passage, we used the HTML tag <*audio*> enabling its options for both autoplaying a track and for user controls.

The rather rebellious URL points to a lovely track of harp music at Archive.org, a digital library which provides free public access to its materials.

We have now completed *Taking Back August (Part III),* a tutorial game for Twine, thus demonstrating the basic mechanics of the Harlowe story format. Although a portion of the story remains untold, the epilogue would merely be a repetition of the aforementioned mechanics. Surely at this point, you, dear reader, are aching to create your very own adventures from the ground up.

In Closing

After finishing this fairly intense chapter, you should have knowledge on the following:

- How to translate a synopsis into a catalogue of locations and characters for visual novel development
- The importance of keeping track of interconnected rooms/passages in a game

For Ren'Py, you are now fully familiar with

- Working with variables and creating branching stories using conditional statements
- Performing advanced variable manipulation with lists and Python
- Defining custom transitions and adding other audiovisual elements, including particles

In the case of TyranoBuilder, you should be comfortable with

- TyranoScript and its most useful macros in place of, or with, the graphical user interface
- Advanced character transitions
- The basics of implementing Live2D characters

For Twine, you'll have mastered the following:

- Using the Harlowe story format and its main dedicated macros
- Creating interconnected Twine passages and stylizing them using *Cascading Style Sheets (CSS)* and *HTML*
- Using variables to influence game events

- Using basic Twine data structures, including inventory systems using arrays
- Utilizing the live macro to create real-time events

That's quite a lot of potentially new information to digest. Now, the next chapter will be somewhat more amenable, dealing instead with marketing essentials and promotional strategies.

CHAPTER 8

Promotional Strategies

Like stated early on in this book, the visual novel is a thriving genre. For you, a developer, this means two things: stiff competition and flourishing communities full of potential fans. In this chapter we'll explore the possibilities of said communities and other promotional tools you have at your disposal. We'll also be taking a look at the distribution side of things in the form of various online platforms available today.

Your Online Audience

The visual community is huge and ever-expanding. As a developer, you should get acquainted with the main forums of the scene, to observe, to participate, and especially to network in (see Table 8-1).

R. Ciesla, *Game Development with Ren'Py*, https://doi.org/10.1007/978-1-4842-4920-8_8

Table 8-1. *The main online communities for visual novels and interactive fiction (data for Q1 2019)*

Community	Members	Description
Visual Novels on Reddit www.reddit.com/r/visualnovels	55.6 k	Reddit offers this popular and welcoming community for fans of the visual novel genre and developers alike.
Lemmasoft Forums lemmasoft.renai.us/forums	38.6 k	Lemmasoft is a developer-focused and very active forum with Tom Rothamel, the creator of *Ren'Py*, as one of its administrators.
Visual Novel Database vndb.org	14.3 k	Focused on cataloguing the visual novel, VNDB features over 24,000 games in its database. It includes a fairly active forum, too.
Fuwanovel (Fuwa) forums.fuwanovel.net	10 k	With a tagline of "make visual novels popular in the west," Fuwanovel offers a busy forum with hundreds of thousands of posts and counting. Focused on the player experience, it also offers a discussion board for developers.
The Interactive Fiction Community Forum intfiction.org	7.4 k	Intfiction.org is a well-organized resource for those who prefer more old-school approaches to adventure game-making (e.g., Twine). Highly recommended for all enthusiasts and developers in the genre.
The Interactive Fiction Database ifdb.tads.org	7 k	Like its name states, IFDB is a database which also offers promotional opportunities for developers in the form of recommendations.

Online Distribution for Budding Visual Novelists

There are two universal basic types of products: commercial and free. As discussed previously in this chapter and this book, a visual novel released for free can do wonders for the developers. On the other hand, this beloved genre is no longer a rarity on big commercial platforms such as *Steam* or *Good Old Games* either. We will now explore the best venues for the online distribution of both free and commercial visual novels.

Releasing for Free

A simple file hosting service is basically all what a developer needs to distribute his or her visual novels; these are costless for all parties in general (see Table 8-2). Just drop a link of your games to your potential customers and you're good to go. It's not the most extravagant method of game delivery, but it works. You may not even opt for a custom domain (e.g., `www.mygame.com`), but that's not recommended: sometimes it's good to rein in the thriftiness. Always have your own web site.

Now, let's take a look at some of the best free distribution platforms.

Table 8-2. *Some online platforms for free distribution of visual novels (data for Q1 2019)*

Service	Represented Platforms	Description
Itch.io	Windows, Mac, Linux, Android, iOS	**Itch.io** provides free online distribution with an optional "name your price" model. The store has over 4000 visual novels in its virtual shelves as of Q1 2019. The Itch.io community is a thriving one and well worth leveraging for distribution, networking, and inspiration.

(*continued*)

Table 8-2. (*continued*)

Service	Represented Platforms	Description
Game Jolt	Windows, Mac, Linux, vintage computer ROMs	**Game Jolt** hosts all three major desktop platforms as well as the rather exotic format of ROMs, which refer to retro computer game files. Similar to Itch.io, Game Jolt offers a "name your price" option for your downloads, meaning you can distribute for free.
IndieDB	Windows, Mac, Linux, all major consoles	**IndieDB** is a well-established community and file hosting service geared toward indie game developers. Its main appeal is in the vibrant community.
CloudMe	No restrictions	**CloudMe** is a Swedish file hosting solution offering 3 gigabytes of free storage without traffic limitations. Your individual file size is however limited to 150 megabytes. CloudMe is still a great choice for smaller projects. **Download limit(s): none**
Google Drive	No restrictions	**Google Drive** requires a free Google account from the developer's part, but not from the downloader. You get a hefty 15 gigabytes of storage which is more than enough for a few visual novels. **Download limit(s): 750 MB per hour or 1250 MB per day**
Mega	No restrictions	Similar to Google Drive, you get 15 gigabytes of free storage with **Mega**. **Download limit(s): 10 GB per month**

Selling Your Visual Novels

Let's now explore the world of commercial software distribution platforms (Table 8-3). Although most of them don't require a submission fee, the process may not turn out the way you desire. As soon as money is involved, things get more complicated. Typically more mainstream games are accepted in the world of commercial game distribution. Exotic niche products don't fare as well.

When approaching commercial distributors, it's mandatory to have some high-quality marketing materials ready. These include at least five high-resolution screenshots and a video trailer, or two. Never email a distributor without links or attachments to these materials.

Table 8-3. *Some online platforms for commercial distribution of visual novels (data for Q1 2019)*

Service	Platforms	Description	Submission Process
Steam	Windows, Mac, Linux	Valve Software's giant platform offers its 150+ million users tens of thousands of games in every possible genre. As for visual novels, Steam hosts around 1.5K such titles as of Q1 2019. You keep 70% of revenue.	"Steam Direct": Pay a fee of $90 and wait 2–3 weeks for approval. Steam's "hands-off" approach implemented in 2018 guarantees only the most offensive titles are kept out of the store.
Epic Store	Windows, Mac	Although the focus is on showcasing the 3D prowess of Epic's Unreal Engine, the store claims to be "engine agnostic." There don't seem to be any objections to genres either. You keep 88% of revenue.	Fill in the store submission form online.

(*continued*)

Table 8-3. (*continued*)

Service	Platforms	Description	Submission Process
GOG	Windows, Mac, Linux	Formerly known as Good Old Games, GOG offers a solid store front for your visual novels with a good degree of awareness among gamers and developers alike. You either keep 70% of the revenue or sign up for an upfront payment, which will be paid back by GOG taking 40% of the sales. After the upfront payment has been accrued, GOG takes 30% of future sales as per usual.	Fill in the store submission form online.
Gamer's Gate	Windows, Mac, Linux, Android	Swedish distributor Gamer's Gate has a strong portfolio of some 250 publishers and over 6000 games on sale. You keep 70% of revenue.	Contact them via email with details of your title: publisher@gamersgate.com
Green Man Gaming	Windows, Mac, Nintendo Wii U & 3DS	UK-based Green Man Gaming represents 660 publishers and over 6600 titles including a considerable number of indie games. You keep 70% of revenue.	Contact them via email with details of your title: david.clark@greenmangaming.com

Essential Marketing Practices

Marketing a visual novel is pretty much the same as marketing any other type of video game. As of 2019 run-of-the-mill social media (e.g., *Facebook* and *Twitter*) is oversaturated and overrated for the indies; you may not want to bother with much of it early in your career. There are, however, several steps you can and need to take as an indie developer.

Forum Decorum

Whichever forums you decide to engage with, make sure you behave within certain parameters. When interacting with members on any forum, stay civil and succinct. Be open to accepting even unasked for criticism as long as it's constructive. Reach out freely to other enthusiasts, but don't bicker and try not to convince anyone of anything in particular.

Demo Games

The promotion of your visual novel doesn't need to only start after you and/or your team have completed work on it. You may want to invest your time in producing a, say, time-limited demo version of your game for your fans, your future fans, and potentially even journalists. Dedicated forums are a great way to distribute your demo games and build whatever amount of buzz you can for your products. Although your game doesn't have to be finished at the demo stage, it should be as polished as possible.

Note When presenting your visual novel demo to the world at large, it's usually a good idea to give them an estimate of the demo's playing time in minutes.

Penetrating the Market with Free Stuff

Besides creating polished products, one of the best ways of generating interest toward your visual novels is to release it for free. As mentioned earlier in this book, several games that ended up being downloaded in the millions were released free of charge. Examples of this marketing strategy include *Digital: A Love Story* by Christine Love and the phenomenon called *Doki Doki Literature Club!* by Team Salvato. The former launched Love's video game career, while the latter is earning its team income by selling downloadable content such as soundtracks.

Staying Serious About Platforms

The tools developers have these days for creating visual novels are, for the most part, designed to be multi-platform from the ground up. All developers should strive to release their games for as many platforms as their tools allow. However, there's debate among software publishers on the issue of simultaneous cross-platform release. A system-synchronized product launch reduces marketing overhead. A staggered launch, on the other hand, allows for things such as a potentially longer commercial lifespan for your game. Less established indie developers may benefit most from a simultaneous launch, as this gets the game out there as far as possible and lets the developers know whether or not said product has any hit potential.

The Power of Localization

If there's a genre of video games that benefits greatly from localization, it's the visual novel. The admittedly large English-speaking world aside, there are numerous potentially lucrative markets out there untapped by many developers. The main reason for this is obvious: a text-based product needs a high degree of language ability from the ones doing the localization. The average visual novelist may or may not be competent

in Simplified Chinese or the Korean standard language. Usually, extra personnel must be hired for these tasks.

The average translation rate per word can range anywhere between $0.02 and $0.07 for individual translators. The rate goes all the way up to around $0.10–$0.25 for professional translation agencies. These include businesses such as *MoGi Group* or *Level Up Translation*. Now, for a smallish game of, say, 40,000 words at $0.09 per word, you would pay $3,600. A 120,000-word beast of a game at a similar rate would cost you $10,800.

A usually expensive endeavor then, localization nonetheless provides opportunities to enter fresh markets with millions of potential new buyers. It's naturally best attempted when your product already has a proven track record for its original release. It's either that or you sign up for those hip language courses and master a brand new language yourself.

Web Site

Even with all the social media platforms of today, it still pays to have a custom web domain of your own. For maximum impact for a specific game, create your domain around its title (i.e., supergame.com). Don't bother with dedicated forums or other communal features; these will pretty much create themselves somewhere in social media if the demand exists.

Optimize your web site for mobile use and search engines. You may even want to invest time into making separate web sites for desktops and mobile devices. There are plenty of free templates for web sites online which serve as great starting points for your site(s).

Search engines love text; balance the visuals on your site with lots of original quality writing. Make sure your site is made with error-free HTML to further enhance its status among search engines and potential customers; the *W3C Markup Validation Service* is a great tool for this purpose.

There are many sites and free tools for developing and optimizing your web site, some of which are presented as follows:

- **W3C HTML5 Tutorial** (www.w3schools.com/html)
- **BlueGriffon HTML editor** free for Windows, Mac, and Linux (www.bluegriffon.org)
- **Free CSS Templates** (www.free-css.com)
- **W3C Markup Validation Service** (http://validator.w3.org)
- **Google Search Console** (http://search.google.com/search-console)
- **Google PageSpeed** (http://developers.google.com/speed/pagespeed/insights)
- **Bing Webmaster Tools** by Microsoft (www.bing.com/toolbox/webmaster)
- **Yandex Webmaster Tools** (http://webmaster.yandex.com/welcome)

Trailer Video

Even if your game is a bare-boned text-only adventure game, an audiovisually rich trailer can and should be made to present it in an engaging way. Build extra atmosphere by utilizing a quality soundtrack. Avoid cheap production values and built-in templates offered by pretty much all video editing software.

Keep your trailer under 2 minutes in length and use at least some footage from the game itself. Add a link to your online presence to the end. If at some point you receive any positive press, make a new trailer with these quotes included in it.

If you're not familiar with trailer creation, learn basics of the trade – or find someone who already knows what they're doing. Some good, free choices for editing software are listed next; find the program with the most comfortable user interface for you and master it.

- **Lightworks** for Windows, Mac, and Linux (www.lwks.com)
- **HitFilm** for Windows and Mac (http://hitfilm.com/express)
- **Shotcut** for Windows, Mac, and Linux (http://shotcut.org)
- **OpenShot** for Windows, Mac, and Linux (www.openshot.org)
- **Flowblade** for Linux (http://jliljebl.github.io/flowblade)

Blog

Keeping a regular blog signals you're active and thus serious about your project. Blogs are a great way of processing feedback and interacting with your potential supporters. Regular blogging is also a form of search engine optimization, giving them data to chew on and index. If you decide to open a game development blog, try to post on a weekly basis. Your topics might include general progress updates on your game, announcements on a demo version, or more technical posts aimed at your fellow developers.

You may even choose to center your entire online presence as a game developer around a free blog service, such as WordPress.org or Blogger.com. That is certainly a good approach when it comes to saving time; however, you should register your own web domain even when using this method. If you pick WordPress for your blog/web site, the cheapest option for its hosting with a custom domain (as of Q1 2019) is at Bluehost.com, costing you less than $3 per month.

Guest bloggers from the industry can also enhance your online presence through link sharing. Reach out to your fellow developers for this purpose in mind. Now, general-purpose blogging sites aside, there are some platforms dedicated to game development. These include *Gama Sutra* (http://gamasutra.com) and GameDev.net.

Visual Novel Databases

As a reminder, you should always submit data of your games into databases and keep it up to date. Your go-to listings should include at least *The Visual Novel Database* (www.vndb.org), *The Interactive Fiction Database* (http://ifdb.tads.org), and good old *Wikipedia*. The last one requires some form of "relevance" from your games (apparently tons of confirmed sales and/or positive press) or your titles will be wiped off its pages. Still, you should edit Wikipedia to your benefit at some point and hope it sticks.

- **Wikipedia listing for Ren'Py Games** (http://en.wikipedia.org/wiki/Category:Ren'Py_games_and_visual_novels)
- **List of games at the official Ren'Py web site** (http://games.renpy.org)
- **Itch.io's list of top visual novels made with TyranoBuilder** (http://itch.io/games/genre-visual-novel/made-with-tyranobuilder)
- **Steam discussions for TyranoBuilder** (http://steamcommunity.com/app/345370/discussions)
- **Wikipedia page for Twine** (http://en.wikipedia.org/wiki/Twine_(software))

In Closing

Finishing this chapter, you'll have learned about the following:

- The main free and commercial online distribution platforms for your visual novels
- The importance of demo games and the possibilities offered by localization
- Essential marketing practices, including custom web domains and blogging

And here we are at the end of the book. The author sincerely hopes you have gained some valuable information concerning the art of the visual novel. Whether you choose *Ren'Py, TyranoBuilder, Twine,* or some other amazing piece of software for game development, may you utterly succeed in your ventures. Hopefully, you'll become a celebrated part of the ever-expanding community of interactive fiction, exploring important themes and creating many entertaining products.

"Write a wise saying and your name will live forever."

—Author unknown

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