

Design Document for:

Curiosity Killed the Cat

The Cutest 2D Platformer

"If I die, I still have eight more lives."

Website Link: https://dragonflystudiosck.wixsite.com/mysite

Video Link: https://www.youtube.com/watch?v=wfx3Yt6sxAQ&feature=youtu.be

Game Download: https://drive.google.com/file/d/1xkeWkSvvoYCU_yclVIovuW4GeHUMaQ7m/view

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Group Members: Lucie Wagner, Karen Thu Vu, Sehwan Hong, Pejal Rath, Ana Ruiz Gonzalez

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Design History

In this section, we will describe the timeline of the creation of this document. There were several versions of this document as it was edited several times before it became this final version. In our first brainstorming session, this document established sections for the core characters, genre, theme, and served as a basic skeleton of the game concept. Version 1.1 incorporated central game idea changes, Version 2.0 changed major game world aspects, and Version 2.1 added appendices to this document.

Version 1.1

Version 1.1 entails some fundamental alterations to this document that our group made as we discussed more ideas for the game. Most changes were made in the Game Overview, Feature Set, and Character Sections.

- 1. We slightly tweaked the points in the Game Philosophy.
- 2. Game Character designs were added and details about existing characters were changed.
- 3. The Feature Set was altered to accommodate new ideas.
- 4. A basic version of the game story was set.

Version 2.0

In Version 2.00, many large-scale details for this document were changed. After several hours of developing the game itself, we modified several important aspects in World Features, World Layout, Victory Conditions, and changed the art to pixel art to make development easier.

Included in the changes are:

- 1. World Features were modified and written in more detail.
- 2. World Layout details were changed to reflect each of the four floors in our game.
- 3. Victory Conditions were adjusted to accommodate new level designs.
- 4. Pixel art was established as the art style for character rendering, backgrounds, and objects.
- 5. Camera details and lighting were rewritten.

Version 2.1

Version 2.10 entails minor adjustments for this document. Most changes took place in character specs and the addition new Appendices to this document.

Included in the changes are:

- 1. Adjusted the damage dealt by certain enemies.
- 2. Added "Object Appendixes".

- 3. Added "Projectile Appendix".
- 4. Added "References" section to credit authors for musical scores and sprites.

Game Overview

Philosophy

There's No Place Like Home.

Curiosity Killed the Cat seeks to show players the value of a comfortable home. In this game, players control Elvira, a declawed black cat who left her room in search of adventure. It is only after she leaves the safety of her home that she recognizes its value, and for the entirety of the game, Elvira's goal is to get back to her owner Alice's room at the top of the tower.

Along this journey, Elvira will learn to value all she had before and begin to question why she left and if it was all worth it. This philosophical point is vital to the game, since Elvira left her house believing that the outside world would be a lot better in contrast to her safe haven at the witch's tower. However, in reality, soon after her departure, Elvira covets her haven in the tower and yearns to be back at Alice's side, illustrating that there is no place like home, especially when it is taken for granted.

You Don't Have to be Strong to be a Main Character.

Although Elvira is just a small cat, she has the power to evade attacks from all kinds of menacing monsters ranging from club-swinging goblins to humongous, venomous spiders. In the final level of the game, she even faces off against a cat's worst nightmare, Cerberus the multi-headed dog. In contrast to the stereotypical hero protagonist that typically possesses or gains immense strength, Elvira stars as the game's main character and she cannot attack or use any abilities to fend off enemies. Relying on her swiftness rather than her strength, Elvira dodges countless enemies in order to return home, showing players that even if you aren't super strong, you can use your other talents to help you achieve your goals as the main character of your own life.

Common Questions

What is the game?

Curiosity Killed the Cat is a 2D platformer game about Elvira, a black cat that lives with her owner, the witch Alice, in her tower. Alice leaves the tower every night to have fun and cause mischief, and returns to the tower in the early morning brimming with grand stories of her journeys. However, Alice never brings Elvira with her, leaving Elvira extremely curious about the world outside of Alice's room. One night, the black cat decides to leave Alice's room at the very top of the tower via the window in order to explore the outside. After reaching the nearby town and being shunned by villagers that believe black cats to be bad luck, Elvira steels herself to return to her spot on Alice's bed by re-entering the tower. However, she soon discovers that the entrance to the tower is guarded by an intricate security system that Alice created to defend against potential intruders, and must fight her way to the top floor where Alice's room is located.

Why create this game?

As students that grew up playing many games, we wanted to take aspects from some of our favorite games such as Mario, Contra Rambo, and Hollow Knight, and incorporate them into our own game to contribute to the gaming culture we enjoy. We choose to design a 2D platformer game because we love the simple yet entertaining mechanics provided by 2D side-scrollers. For the visuals of this game, we choose pixel art for a retro aesthetic to invoke our feelings of nostalgia. Furthermore, building upon the growing market on retro style games, we saw this as a good opportunity to create a game with a similar style. We also pulled ideas from other games we enjoyed to design some of our enemies like the ghost which chases after Elvira similarly to how the ghost "Boo" chases Mario. All in all, however, we wanted to design a game that was simple to learn and fun to play, and a 2D platformer with only controls to move, dash, and jump, are almost as simple as it gets.

Where does the game take place?

The setting of Curiosity Kills the Cat is a medieval fantasy world where witches fly through the air and towns have little to no technology or even electricity. Gameplay itself will take place in a lonely old brick tower known as the Witch's Tower that lies just outside a small town where players will control Elvira the cat as she journeys through multiple levels of the tower. Each level of the Witch's Tower is themed with darker backgrounds and colors to create an ominous and spooky atmosphere. The Witch's Tower tower has four floors and each floor is crawling with monsters like goblins and obstacles such as lava that inhibit potential intruders from proceeding further into the tower.

What do I control?

Players control Elvira, a declawed black cat, who they must skillfully guide past spiders, goblins, spikes and more to beat each level and progress through the Witch's Tower. Elvira only has nine hearts of health for every level, and she cannot attack enemies because she has no claws.

How many characters do I control?

A player can only control Elvira the cat, all the other characters such as the enemies in this game are set to move and interact with Elvira on their own. Players can control Elvira using the arrow keys or the WAD keys alongside shift and space.

What is the main focus?

The main focus of this game is to help Elvira return back to her home, Alice's room, which is located at the top floor of the Witch's Tower.

What's different?

Some unique features of this game are that it relies heavily on skill, players cannot kill enemies, and a human is not the main character. Curiosity Killed the Cat's levels requires a decent amount of skill to beat because there are numerous enemies where some deal more than one health of damage, lava that causes an instant game over, and there aren't any healing items. In addition, enemies cannot be defeated because Elvira cannot attack, so once an enemy is on the screen, they will continue to be moving hazardous objects that can damage Elvira multiple times until the player proceeds further through the level. Players also control a cat throughout the entirety of the game instead of a human, and the only human in the game is Alice the Witch.

Feature Set

General Features

- Side-Scroller Platformer
- RPG
- 2D Graphics
- Pixel Art
- 32-bit Color

Gameplay

Our gameplay includes the following:

- Jumping
- Dodging
- Sprinting
- Walking
- Discovering new enemies
- Recognizing enemy attack patterns
- Managing current health
- Timing jumps

The Game World

Overview

As mentioned earlier, the game is set in a medieval fantasy world where most of the game play is set in a tower. In this fantasy world there is magic and mythical creatures such as goblins and enchanted armor. Elvira the cat will face all of these creatures on her way back up the tower. The tower itself is a tall brick tower with little to no windows to see the outside world. This design doesn't allow Elvira to gain much insight to what the outside world is like, further feeding into her curiosity.

The outside world is not as amazing as the witch tells. It is dark and grim towards anything that may seem supernatural. This game is set in the time period of England 1540s ideology; it is during this period in history where anyone suspected of taking part in witchcraft was punished by public execution. This time period aligns with the overall story we want to tell. The world outside the tower is cruel, dirty, and primitive but the tower and the witch's stories mask that grim reality for Elvira.

Bushnell's Law

The game was designed with the idea that it should be easy to learn and hard to master. There are only four short levels, but each level will have a variety of monsters that have different difficulties depending on which level Elvira is in. There will also be platforms that can injure Elvira, such as spikes and lava pits. The game mechanics are very simple to learn, since it only consists of jumping, running, and walking. However, the actual gameplay is relatively challenging for all players because players spend the entire game jumping and dodging between enemies since they cannot be killed. This in turn, makes any platform with enemies around it even harder to land on, making the game more difficult, but also more rewarding when players use their skill to master the game.

Nine Lives

Another feature to this platforming game is that there are no health regeneration items, but players control a cat with only nine lives. Since some enemies can deal more than one damage and they all use different attacks, giving players only nine lives requires them to learn about the enemies they encounter, or else they will suffer an early death. This makes for a game experience where players must strategize how to dodge enemies rather than kill them which requires careful observation of enemies before players can move Elvira without losing lots of health. This action of observing an enemy before making a move is similar to how a cat acts by observing prey before it strikes, meaning that players must not only control a cat but also act like one, and the lack of healing provides a welcome challenge for people that already have decent gaming experience.

The Physical World

Overview

The physical world of this game takes place in a four story tower. The tower is crawling with enemy monsters and littered with traps, and its tall brick walls have little to no windows that shield its contents from the

outside world.

Key Locations

The main locations in this game are the Witch's Tower, the outside world, and Alice's room. The outside world is unknown to Elvira, all she knows about it comes from the stories that the witch Alice tells her. Elvira thinks the world is kind and fun but in reality it's cruel and harmful to anyone who is associated with magic. The witch's room is where Elvira has lived all her life, and it's her home that she has never left. Elvira has anything she could ever need or want, and all her favorite food and toys are provided to her by Alice. The Witch's Tower is where all of the gameplay takes place, it is four floors tall, and the fourth floor is where the Alice's room is. Below is a breakdown of each of the floors.

- Floor 1: This is the first floor that Elvira needs to go bypass. Floor 1 has the most lax security because only goblins, bats and spiders guard the floor. At the end of the level, there is a door to Floor 2.
- Floor 2: The security of this floor is much tighter than Floor 1, because spiders, bats, goblins, armor, and ghosts guard the floor. Hence, it's even more challenging for Elvira reach the door that leads to the third floor
- Floor 3: This floor has very tight security, because skeletons, spiders, bats, goblins, armor, and ghosts guard the floor. Not only are there more types of monsters guarding the floor, they are also great in numbers.
- Floor 4: This is the floor where Alice's room is located. However, Cerberus, a three headed dog, also lives on this floor and guards the door to Alice's room.

Travel

Players control Elvira using these keys:

- Horizontal movement (WAD and arrow keys)
 - o Press "W" or "Space Bar" or the Up arrow to jump
 - o Press "A" or the left arrow to move left
 - o Press "D" or the right arrow to move right
- Dash by using a direction key and holding the shift key

Scale

The scale of the game world is measured by the pixel units. For example, Elvira is 128x128 pixels. For more on the specific sizes of the individual characters, please refer to the "Game Characters".

Objects

Characters:

Elvira, Cerberus, bat, ghost, goblin, skeleton, enchanted armor, spider

Platform-related objects:

Lava, floating platforms

Projectiles:

Arrows, fireballs, ice balls, bark text

See the "Objects Appendix" for a list and description of all the objects found in the world and the "Game Characters" section for the description of the characters.

Day and Night

This game is set during the night but since the player is in the tower for the entirety of the game, there is no clear indication of it.

Time

The goal of the game is for the cat to make it back to the witch's room before morning. This is because the witch leaves the tower at night and comes back home every morning. As for the gameplay, it doesn't matter how long it takes the player in real time to pass all the levels, as long as they survive all the way to the end of the game, the player will be back before the sunrise. This time setting is only for story purposes.

Rendering System

Overview

To render the characters for this game we used Piskel and Autodesk SketchBook. For the game itself, we used Unity to create the in-game environments and embed all objects into the game.

2D Rendering

Piskel was used to create the 2D pixel character sprites. For more information on the character rendering, please reference the "Character" section of this document.

Camera

Overview

The camera follows the cat throughout the game. The cat is situated on the left side of the screen, and the camera will shift accordingly.

Camera Detail #1

The camera follows the cat as it moves through the level. The camera will not move if the cat is on the left $\frac{1}{3}$ of the screen.

Camera Detail #2

At the end of the level, once the cat passes the middle of the screen, the camera will shift one block.

Game Engine

Overview

Unity is a cross platform game engine. It can be used to create 3D and 2D, virtual reality and augmented reality games, and simulation game experience.

Game Engine Detail #1

The game engine will keep track of:

- Cat's movement
- Enemy movements and attacks
- Cat's health

Collision Detection

When hit by an enemy attack, lose health equal to the enemy's set amount of damage.

• The cat flashes once hit and the heart breaks if they lost one life.

Lighting Models

Overview

There are no shadows in this game. The characters do have some pixel art shading for more design detail on their looks, but overall there isn't a lighting model we follow.

The World Layout

Overview

The world is displayed as a 2D side-scrolling platformer. We have 4 different levels that increase in difficulty as Elvira progresses. Each level displays different monsters varying in type as well as quantity. The final level features the boss, Cerberus, who will be guarding the witch's bedroom. In all levels, Elvira will be able to jump, run, and dodges enemies.

Floor 1

- Enemies: Spiders, bats, goblins
- Traps: Spikes, flat random lava pits
- Floating platforms

Floor 2

- Enemies: Spiders, bats, armor, ghosts
- Traps: Spikes, more lava pits
- Floating platforms

Floor 3

- Enemies: Skeletons, spiders, bats, armor, ghosts
- Traps: Even more lava
- Floating platforms

Floor 4

- Enemy: Cerberus
- Lava floor with floating platforms
- Witch's room at the end.

Game Characters

Overview

We have a total of 9 characters in this game:

- The Witch Alice
 - The master of the tower, and owner of Elvira and Cerberus.
- Elvira the Cat
 - Alice's declawed cat that the player controls, Elvira cannot attack enemies.
- Spider
 - A large spider that has made itself home in the tower, he crawls across the floors.
- Bat
- A resident of the tower that patrols the air.
- Ghost
 - Previous intruders that died when trying to raid the tower, now shy spirits that attack any who enter.
- Goblin
 - Summoned by Alice to guard and patrol the halls of the tower.
- Skeleton
 - A skeleton archer that shoots multiple arrows from above.
- Enchanted armor
 - Alice cast a spell on some armor and they line the tower.
- Cerberus
 - Alice's three headed dog that is a fusion of a Chihuahua, Husky, and Doberman. He guards the entrance to Alice's room.

Creating a Character

Players are not able to personalize their character. They get to play as the pre-rendered cat sprite, Elvira, when starting the game.

Enemies and Monsters

Living Enemies:

- Bat
- o Damage: 1 heart
- Movement: flies in pattern
- o Size: 128 x 128 pixels
- o Floor Appearance: 1st, 2nd, 3rd
- Goblin
 - o Damage: 1 heart
 - o Movement: Paces back and forth
 - o Size: 128 x 172 pixels

o Floor Appearance: 1st, 2nd, 3rd

Spider

o Damage: 1 heart

o Movement: Paces back and forth

o Size: 128 x 128 pixels

o Floor Appearance: 1st, 2nd, 3rd

Ghost:

o Damage: N/A

• Effect: switches the player's controls

Movement: chases Elvira
 Size: 128 x 128 pixels
 Floor Appearance: 2nd, 3rd

• Cerberus:

Projectile

■ Fire:

Damage: 2 hearts

■ Ice:

• Damage: 2 hearts

Bark:

• Effect: pushes the player back in the opposite direction

Movement: Static. His heads move to shoot fireballs, ice balls, and a bark projectile.

Size: 300 x 350 pixelsFloor Appearance: 4th

Non-living Enemies:

• Enchanted Armor:

Damage: 1 heart

o Movement: Static. He stands against the background and shoots lightning when his eyes flash.

• Some of the armor sprites won't move and are just for decoration.

o Eyes flash before an attack, giving the player 1 second to react

Size: 256 x 384 pixelsFloor Appearance: 2nd, 3rd

Skeletons

o Damage: 1 heart

o Movement: Static. He sits on a pillar in the background and shoots arrows from above.

Size: 128 x 264 pixels
Floor Appearance: 3rd

User Interface

Overview

The game will have a simple start menu consisting of Start, Options, and Quit. The player can control Elvira's movements, and can open the menu to pause and exit the game.

Elvira Movements

- WAD/arrow key movements.
- W/space is jump.
- Shift is dash.

Menu/Pause screen

To go back to the menu, players can click on the "Menu" button to access the pause/menu

Weapons

Overview

Elvira doesn't have any weapons as she is declawed, but the enemies have a range of weapons.

Weapons Details #1: Hand-held Weapons

- Sword
 - The Enchanted Armor's attack is that lightning will strike the ground when his eyes glow.
- Bow and arrow
 - Skeletons shoot arrows with a bow.

Weapons Details #2: Enemy Abilities

Cerberus

- For every attack, the dog who is attacking currently will have glowing eyes.
- The chihuahua's attack is a bark projectile that moves the player in the opposite direction.
- The doberman's attack are fireball projectiles that damage the cat.
- The husky's attack are ice ball projectiles that damage the cat.

Ghost

- Reverse controls:
 - Swap A and D (horizontal direction).
 - Swap W and S (vertical direction).
 - The escape option remains the same.

Musical Scores and Sound Effects

Overview

For the music in this game, we borrowed from free libraries online that we believe suit our game the best.

Sound Design

Each character in that Elvira encounters during gameplay will have a sound to warn the user of their approach.

Each enemy has a unique noise when it appears on screen:

- The ghost will have eerie music.
- Enchanted armor will have the sound of metal tinkling.
- The goblin will grunt.
- Cerberus will bark.
- Skeleton will have the sound of bones rattling.
- The bat noise will be a screech.
- The spider will have a scuttling noise.
- The spikes will have a "shing" sound.
- Lava will do bubbling burning noise.
- Elvira will have two meows, a sad one for injury and a normal tone meow.
 - o Elvira will have a small bell chime because her collar has a bell.

Musical Score

The game menu will have its own song alongside the credits and the fourth level. The first three levels will share the same score to give the final fourth level a more unique feel.

Single-Player Game

Overview

You play as the cat Elvira on your way back to the witch's room. You have to evade enemy attacks and traps as you make your way back home.

Dodging Only

Players will have to dodge enemy attacks, as mentioned before they are not able to fight back so they must be skilled to pass every level.

Instant Death

While dodging enemy attacks, the player has to maneuver through platforms in order to make it all the way to the end of the level. If a player falls in lava, they will instantly die.

Story

Elvira is a black cat that lives with Alice the witch in her tower. Alice leaves everyday for her daily tasks and returns to the tower with grand stories of her journeys. The issue is that she never brings Elvira with her, thus leaving Elvira extremely curious as to what goes on outside in the cities. One night, the black cat decides to leave her owner's tower through the window sill at the very top of the tower in order to explore the outside. After her long outing, she decides to return to her owner's bed through a secret entrance that she found in the tower. However, she soon discovers that the entrance is a trap door and actually leads her through the tower's intricate obstacles that the witch put up to defend against potential intruders.

Gameplay Length

For this game, we expect it to take 20 minutes to complete, since there are only 4 levels including the boss level. However, this also depends on the skill of the player as the mechanics are easy to learn, but there are a lot of obstacles.

Victory Conditions

The player wins by passing all the levels and reaching the witch's bedroom. To do that, they need to survive long enough to show their collar to Cerberus in the boss level.

Character Rendering

Overview

There is one software application that we used for our character's rendering. The software application is piskelapp.com. It is a web-application that allows users to create pixel art. The reason we chose this software application is because it provides the basic features that our game required. In addition, it is free to use.

Pixel Art

All of the characters in the game, such as Elvira and the monsters, were created as 16-bit pixel arts. Our team focused on using the pixel art style, because we wanted to provide a nostalgic experience of retro games for the player.

To view each character's rendering details, please go to "Character Rendering and Animation Appendix."

Object Appendix

The object appendix is a list of all the objects in the game and a general description of it.

Platform-related objects:

- Lava area: If Elvira falls into any lava pits, she will die instantly.
- Floating platforms: These platforms are above the ground. Elvira can jump on these platforms, and there may be monsters already existing on a floating platform.
- Spikes: Elvira will be damaged if she touches the spikes

Projectiles

Iceball



Fireball



Bark

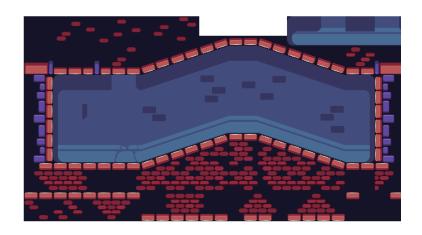


Arrow



Map and Platform-related Objects

Example of Game Scene Rendering



Door



Tile



Spikes

الفالفالفال معمعمه

Lava



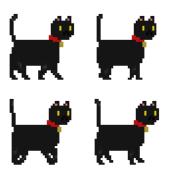
Heart



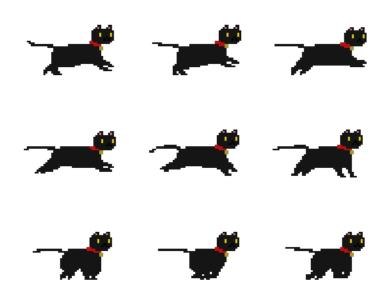
Character Rendering and Animation Appendix

Elvira

Walking



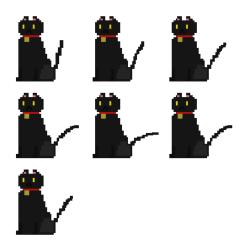
Running



Jumping



Idle

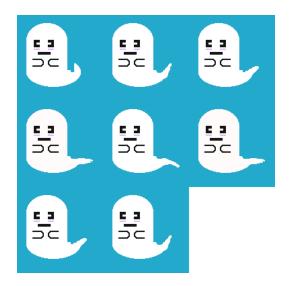


Enemies

Skeleton



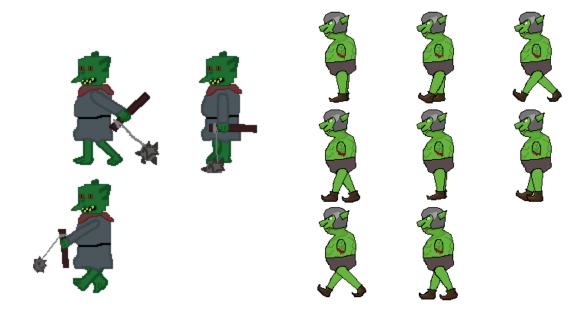
Ghost



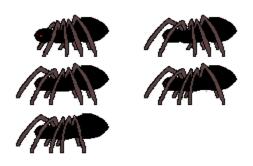




Goblin



Spider



Cerberus



Enchanted armor



References

- Elvira The cat was animated using modified sprites of https://image.freepik.com/free-vector/pixel-black-cat 41992-184.jpg.
- Ghost- Our game's ghost sprite is a modified version from https://www.trzcacak.rs/imgb/ihximxi/
- Skeleton Our game's skeleton sprite is a modified version of Jesse M's (Twitter- @Jsf23Art) sprite.
- Chiptunes music The music for our gameplay trailer is taken from https://degitx.bandcamp.com/track/pixel-rain.
- Alice the Witch The witch's sprite is a modified version of https://friendlystock.com/product/chibi-kawaii-witch/.
- Heart The heart sprite was taken from https://pixabay.com/illustrations/pixel-heart-heart-pixel-symbol-red-2779422/.
- Enchanted armor The armor knight was taken from https://www.istockphoto.com/vector/vector-pixel-art-isolated-cartoon-gm912069542-251098390
- Lava gif The lava gif seen in the gameplay trailer was taken from https://pirczajkowski.wixsite.com/.

Brochure

