**Design Document for:**

**Unicorn of Love**

**The aMAZEing Maze Game.**

“Read the rules before you choose a team name that has nothing to do with your game!”™

**Design History**

This is a brief explanation of the history of this document.

In this paragraph describe to the reader what you are trying to achieve with the design history. It is possible that they don’t know what this is for and you need to explain it to them.

**Version 1.00**

Version 1.10 includes some tuning and tweaking that I did after making my initial pass at the design. Here is what I changed.

* The maze Generated randomly but only in a set space
* A simple player that can only move.
* There is no way to finish this game.

**Version 2.00**

Version 2.00 is the first version of the design where a major revision has been made now that much more is known about the game. After many hours of design, many decisions have been made. Most of these large design decisions are now reflected in this document.

Included in the changes are:

* Made Enemies that attack player.
* Made player in blender with animations added to game.
* Changed maze code so that the maze can change and be resized.

**Version 3.00**

Version 2.10 has several small changes over that of version 2.00. The key areas are in many of the appendixes.

Included in the changes are:

* Changed how maze is generated to use a flood algorithm by using a stack so that a prefab can be placed inside of maze.
* Enemies now spawn along with maze instead of being placed by hand.
* Level system and items that can be picked up added.
* Blender Used to make models for all of the maze instead of using unity primitives.

**Game Overview**

**Philosophy**

**Philosophical point #1**

This game is mainly being used as a learning experience and is both of our first experience coding a game with c#. We are not trying to make a unique experience, to be honest I would consider a finished game a victory.

**Philosophical point #2**

The game we envision is a rogue-like third person action-rpg where each level is a maze that is randomly generated.

**Common Questions**

**What is the game?**

A rogue-like third person action-rpg where each level is randomly generated.

**Why create this game?**

We are creating this game as our introduction to c# coding, we are also using this as part of our communications module where we will be basing a presentation on our experience. We decided on the style of game as we both like to play similar games.

**Where does the game take place?**

The game takes place in a medieval fantasy world.

**What do I control?**

The player controls the badass knight with two swords.

**How many characters do I control?**

You control 1 character.

**What is the main focus?**

The main focus of this game is to survive as long as possible as each level increases in difficulty and size.

**What’s different?**

Tell them what is different from the games that are attempting this in the market right now. This question comes up a lot.

**Feature Set**

**General Features**

Randomly generated maze.

RPG elements.

3D graphics

Enemies

**Gameplay**

Solving a randomly generated maze while surviving battles against the monsters that live in the maze.

**The Game World**

**Overview**

The game takes place in a medieval fantasy maze infested with monsters.

**Random Generation**

The maze uses a flood fill algorithm by using a stack to generate a random maze, so that each level provides a unique experience to the player.

**Item Drops**

Enemies drop items and chests can be found scattered around the maze which give a bounty of loot.

**The Physical World**

**Overview**

A randomly generated medieval fantasy stone maze.

The following describes the key components of the physical world.

**Key Locations**

Chest Tile -

* Chests throughout the maze to provide some resources to the player

Portal Room -

* behind a locked door that needs a key, the player will enter this portal to get to a new maze.

Skeleton King’s Room -

* behind a locked door that needs a key, the powerful skeleton king is inside this room along with a bunch of treasure chests

**Travel**

The player travels by foot through the maze.

**Scale**

The scale starts small but increases with each level.

**Objects**

Health Potion-

* Regain Health

Stamina Potion-

* Regain Stamina

Key-

* Use to open door

Red Gem-

* Gain xp

Blue Gem-

* Gain xp

Green Gem-

* Gain xp

**Rendering System**

**Overview**

The game is made using the unity3d 2017 engine.

**2D/3D Rendering**

The game is using 3d graphics made in blender that are imported into the Unity3d Engine.

**Camera**

**Overview**

The camera will follow the player, you will also allow the player to control the character with the mouse.

**Camera Detail #1**

There is a clamp angle on the camera which only allows the player to look up or down till a certain degree to prevent the players from cheating the maze.

**Camera Detail #2**

If the player is too close to a wall the camera wont go behind the wall but will just zoom closer to the player.

**Game Engine**

**Overview**

The Game engine is Unity 2017

**Game Engine Detail #1**

Everything in the world can be kept track of in the hierarchy window.

**Collision Detection**

Our game will use unity’s box colliders to handle collision detection. Using the onTriggerEnter method.

**Lighting Models**

**Overview**

We are going to use a basic white point light but we will also have torches in the game which will give out red light to give the game a more spooky dungeon feel.

**Lighting Model Detail #1**

WE are using a point light to light up the maze.

**Lighting Model Detail #2**

We are going to use torches with a different light color to give the game a different feel.

**The World Layout**

**Overview**

The world layout is a rectangular maze.

**World Layout Detail #1**

The layout of each level is randomly generated with a flood fill algorithm.

**World Layout Detail #2**

As the size of the maze increases a prefab room is placed within the maze.

**Game Characters**

**Overview**

There are several enemies and the player character.

**Creating a Character**

The character was modelled and animated using blender 2.8.

**Enemies and Monsters**

Slime-

* A green slime who attacks the player with a hidden spike.

Skeleton with sword-

* A skeleton who attacks the player with a sword.

Skeleton bone thrower-

* A skeleton that throws his own bones as projectiles.

Fairy-

* A small flying monster that fires fireball projectiles at the player.

Skeleton King-

* The skeleton king is a large skeleton wearing a crown who protects the treasure room.

**User Interface**

**Overview**

The UI will be simple and give the game a more of a slick and modern look.

**User Interface Detail #1**

There is a health bar, a stamina bar and an xp bar. Health will decrease on being damaged. Stamina will be drained by using a strong attack and sprinting. The xp bar will fill up as you kill enemies and pickup items.

**User Interface Detail #2**

Graphics are used to represent items such as potions in the UI. The image will be in black and white if the player has none of said item.

**Weapons**

**Overview**

The player has a small sword and a big sword.

**Weapons Details #1**

The small sword is faster but deals less damage, the big sword is slower but deals more damage.

**Weapons Details #2**

The bigger sword will also consume stamina on attack to prevent spamming.

**Musical Scores and Sound Effects**

**Overview**

The game will have background music and some basic sound effects such as footsteps and attacking.

**3D Sound**

At the moment the game does not have any 3D sounds except the footsteps

**Sound Design**

The game will use basic sounds which were created at home using various items such as shoes for the walking sound and two knifes for the attack sound. The background music will be made using some sort of a musical program.

**Single-Player Game**

**Overview**

The player will traverse the maze while fighting enemies and searching for the exit.

Here is a breakdown of the key components of the single player game.

**Single Player Game Detail #1**

Each maze is randomly generated so that the experience will never be exactly the same.

**Single Player Game Detail #2**

The game includes rpg elements such as leveling up, fighting enemies, picking up loot and using potions.

**Hours of Gameplay**

The single player game is designed to last between 10 and 15 minutes as the games difficulty increases as you play.

**Character Rendering**

**Overview**

The characters are modelled and animated using blender 2.8, then the character model is imported to unity.

**Character Rendering Detail #1**

The character will be animated with a couple of basic animations suhc as idle, running, strinting and attacking.

**Character Rendering Detail #2**

The character textures will be done in blender 2.8 and will be exported with the character to unity.

**Extra Miscellaneous Stuff**

**Overview**

We'd like to implement an attribute system and inventory system.

**Junk I am working on…**

Attribute system would be used to increase the characters stats such as health which will of course increase the characters health or strenght whihc will increase the characters damage.

The inventory system would be used to store new equipment and other items.

**“XYZ Appendix”**

Appendix of Game Objects and Animations

**“Objects Appendix”**

Health Potion

Stamina Potion

Key

Red Gem

Blue Gem

Green Gem

**“User Interface Appendix”**

Health Bar

Stamina Bar

XP bar

Health Potion Graphic

Stamina Potion Graphic

Key Graphic

Splash Screen

**“Character Rendering and Animation Appendix”**

|  |  |
| --- | --- |
| Main Character-  Modeled and animated in blender 2.8 and imported to unity. | Idle Animation  Walking Animation  Attack Animation 1  Attack Animation 2  Run Animation  Roll Animation |

|  |  |
| --- | --- |
| Slime-  Modeled and animated in blender 2.8 and imported to unity. | Idle Animation  Walking Animation  Attack Animation |

|  |  |
| --- | --- |
| Skeleton with sword-  Modeled and animated in blender 2.8 and imported to unity. | Idle Animation  Walking Animation  Attack Animation |

|  |  |
| --- | --- |
| Skeleton bone thrower-  Modeled and animated in blender 2.8 and imported to unity. | Idle Animation  Walking Animation  Attack Animation |

|  |  |
| --- | --- |
| Fairy-  Modeled and animated in blender 2.8 and imported to unity. | Idle Animation  Walking Animation  Attack Animation |

|  |  |
| --- | --- |
| Skeleton King-  Modeled and animated in blender 2.8 and imported to unity. | Idle Animation  Walking Animation  Attack Animation |

|  |  |
| --- | --- |
| Chest-  Modeled and animated in blender 2.8 and imported to unity. | Open Animation |

|  |  |
| --- | --- |
| Door-  Modeled and animated in blender 2.8 and imported to unity. | Open Animation |