# **Game Overview**

Alchemystic is an adventure game. The player is an alchemist and he have to fight against the enemy. Player has 3 types of potions to play with, which are fire potion, ice potion, and space potion. Each potion has its functionality and player has to defeat the enemy to fight the boss.

Fire potion is an attack potion. It will damage enemy whenever enemy is pass through. Besides, ice potion is a defend potion. It functions as blocking the enemy. On top of that, space potion is a teleportation potion. It will teleport the player to the ground where the potion land. The player has to both defeat the boss and seal the portal in order to win the game. There will be obstacle and hints that the player will be needed to explore the map themselves.

# **Target Platform**

Since the game involved in clicking and projectile shooting, the targeted platform must consist of cursor. Windows and Mac will be the best platform for Alchemystic as mouse can be used to shoot the potions.

# **Technical Specification**

The game is developed using Unity. Unity is a game engine that provide the ability to create game. Unity simplify the process of making a game with the features provided. Besides, the scripts will be edited through Visual Studio Code.

Besides, Alchemystic is a low-end game, which any PC will be able to play without any underperformance of computer.

# **Implementation of Game**

## **Game AI**

There is a triggered collider box on the enemy. The box will then detect whether the player or ice wall inside the box. If it is true, the enemy will start moving towards the target. The enemy will chase the nearest target.

## **Physics**

The enemy have collision detection to determine the damage mechanism. Once the enemy move across the fire, the collision box of the fire had collided with the enemy box collider, damage will be dealt. Besides, there is a collider for the player as well. Whenever the enemy attack the player, the player will lose his health and the player will die when the health is reduced to zero.

## **Setting up scene and objects**

### **Player**

The player will play around with 3 types of potion, which are fire, ice, and space. Each potion has its functionalities to help the character to fight against enemy. Besides, there will be cooldowns for each potion usage as well.

### **Enemy**

There are 2 types of enemy, servant and boss. Servant and boss will be pre-spawn in anywhere of the map. Servant has patrol mechanism that will run around anywhere of the map. One of the winning conditions of player is to defeat the boss.

### **Map design**

There will be some obstacle that player will never get pass via normal movement. The space potion will come into use to helps the player to overcome the obstacles. Besides, Breath of Lava is the primary obstacle that player needed to overcome. The player will never get pass through by jumping over. The player has to throw specific potion in order to stop the lava.

### **Camera**

The camera setup is using Cinemachine. Cinemachine provide 2D scrolling map features that simplify the process of scripting. It consists of death zone, it will ensure the player is inside a frame of the Cinemachine, and the camera move along with the player.

### **Audio**

The audio of potion is retrieved from Unity Assets Store, where it consists of potion collisions sound and it is implemented when the potion is hitting the ground. Besides, the background music is retrieved from “Eco Quest 2 - Lost Secret of The Rainforest”, name of the song is “Freeing the Black Jaguar”, and it is composed by Dan Kehler.

### **Input**

The primary input source of the game is keyboard and mouse. As there is a throwing mechanism involved in this game, the cursor is important as a fire action. On top of that, WASD and space from keyboard will be the player movement of the game. Besides, the player will choose the fire potions, ice potions, and space potions by using “1”, “2”, and “3” above the WASD respectively.

### **User Interface**

#### **Play Resolution**

The screen resolution is various as unity provide several choices of resolutions. The resolution will also determine the graphic of the game. There will be 3 major screen, Main Game, Pause Menu, Introduction Scene.

#### **Main Scene**

There is a health bar on the top left of the screen. 100 will be the starting health bar of player, 0 indicating the player is dead. Besides, underneath the health bar, there are 3 icons of the type of potions. Whenever a potion is used, the icon will be faded and had a timer going indicating the potion is on cooldown. The player can never use a cooldown-ed potion.

##### **Pause Menu**

Whenever player click escape key on keyboard while playing, the pause menu will show. There will be 2 buttons, Resume button and Exit button.

##### **Restart Menu**

Whenever player die, the restart menu will show. There will be 2 buttons, Restart button and Exit button.

#### **Story Scene**

This scene will show the background story of Alchemystic. The player needed to click any key to start the game.

# **Engine and architecture used**

The game engine for Alchemystic is Unity game engine. The library used for Alchemystic is Cinemachine. Player controller and audio manager controller are using singleton architecture. Singleton will restrict the instantiation of a class into single instance.

Coding convention

The coding convention format that we used is CamalCase and pascalCase. CamalCase is…. pascalCase is…..

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