Game design report

Game name:

The light in the dark forest

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Contents

1. game overview

1.1 game concept

This game is a Horizontal version action adventure game. Players can move up, down, left and right. The enemy will appear in a fixed range and attack the player. As the game goes on, players can collect props to restore life and magic, increase the maximum life value and magic value, and acquire new skills. When the game enters a specific level, the player needs to escape from the level kill mechanism. Players can gain experience by killing monsters or acquiring ability value props. When the experience reaches a certain amount, they can obtain skill points. Players can purchase skills through skill points.

1.2 genre

The type of this game will be Horizontal version action adventure game. Players will watch the game horizontally from top to bottom and scroll horizontally.

1.3 Target Audience

My target audience will be people born after 2000. It mainly refers to players who can accept cartoon style and want to exercise their reaction ability and decryption ability. Targeting the market for high school students and college students

1.4 Game Flow Summary

The game will load the main menu, where players can select new games, options, or archives. In the game itself, players need to find the task target in the map, reach the designated place or explore the map, and escape danger in each level.

Players need to escape to the designated place within a limited time before entering the next level.

1.5 Look and Feel

I want the game to look and feel like a cartoon fantasy game. Horizontal version action adventure game. Similar to Ori and the Blind Forest (2015). Here are some relevant games pictures:
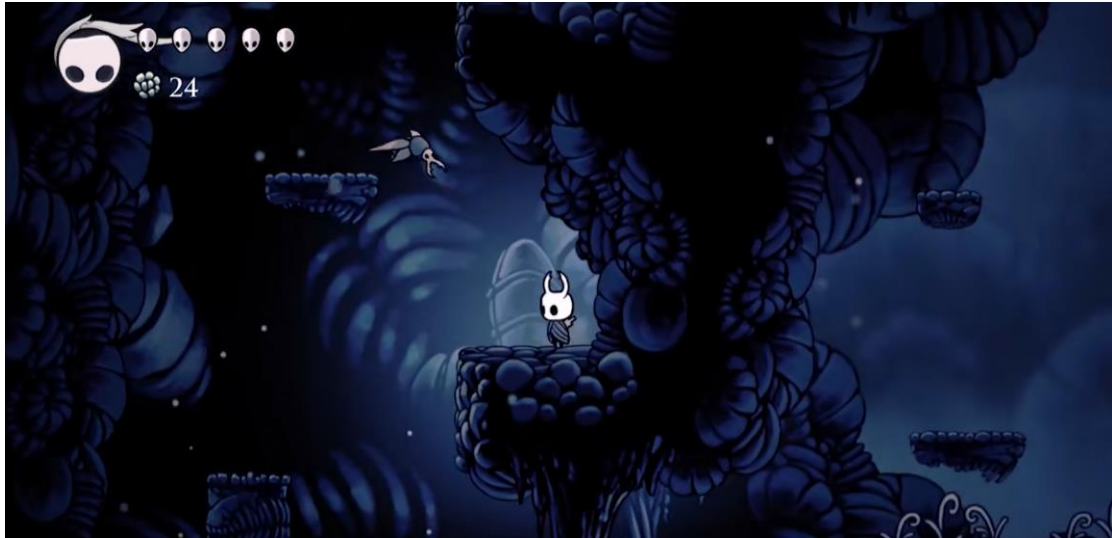
1.6 Project Scope

1.6.1. Number of levels

There will be two levels, it will be decided based on the player's choices before they start the game.

1.6.2. Number of Enemies

There will be three different enemies

- Jumping monkeys
- Inverted Spiders
- Fishes in water

Each will make different appearances throughout levels.

1.6.3. Types of Power ups

Total number of power ups in the game will be three

- Max HP
- Maximum Magic Value
- Aggressivity

2. Gameplay and Mechanics

2.1 Gameplay

2.1.1 Game Progression/Mission/challenge Structure

Players first acquire the basic skills needed to pass the level in the map according to the guidance, and then explore the map to reach the boss level according to the guidance.

The difficulty of the enemy depends on the level. As the level increases, the attack frequency will be higher and the HP will increase.

There are also props that can help players improve their attributes and skills on the way to the boss level.

In simple mode, players can choose random gain effect after reaching boss level,

In the difficult mode, players will be given random negative effects or clearance requirements after reaching the boss level.

When the player gets the clearance items and reaches the entrance of the boss pass, he will enter the boss pass, and the map will switch to the boss pass and start the task. Players need to escape boss level within a limited time.

2.1.2 Objectives

Kill the monsters on the big map, enter the boss level, escape the boss level, and complete the game task.

2.2 Mechanics

2.2.1 Physics

Physics in the game will monitor collision detection. Collision detection will be used to monitor game objects touching each other. For example, fireballs can shoot enemies or players collide with enemies.

2.2.2. Movement

Players use the w,a,s,d of the keyboard to move, use the space to control jumping, and the left mouse button to control attacks.

The enemy's actions will be programmed in code. The perspective will always be centered on the character controlled by the player, allowing the map to move left and right. The enemy will appear in a fixed location. The boss appears in full screen after the specified time and defeats the player.

2.2.3 Picking Up Objects

Players will be able to collect items freely on the map. These categories have additional health, skill points and additional magic points. There are two ways to collect items at a fixed place and kill dropped items by monsters; The items collected at a fixed place are items that can increase the upper limit of attributes, and the items obtained from monster killing are recovery items. Each time you gain additional HP or magic value, the upper attribute limit will be increased; Restore the fixed value when obtaining recovery items; When you get a certain number of skill points, you will get the opportunity to upgrade skills, and then the skill points will return to zero. Players can interact at fixed locations on the map to acquire basic skills, such as wall climbing, double jump, attack, etc. The implementation method needs to be supplemented.

2.2.4 Actions

2.2.4.1 Aiming and Shooting

The player can use their mouse to aim when using the skills and release the right mouse

button to use it. The Normal Attack is auto aim.

2.2.4.2 Talking

Players can press the "E" key to talk with NPC, and the dialog box will be displayed on the top of the screen


2.2.5 Combat

- Jumping monkeys-- After the player enters the attack range, the enemy will track the player within a fixed range, jump up after a certain interval, and fall down to attack the player. After leaving the alert range, enter the standby mode.
- Inverted Spiders-- After entering the attack range, spider enemies can fire bullets. The bullets of the enemies are red, and the bullets of the players can be blue. The enemy will not move in a fixed position.
- Fishes in water-- The enemy will move within a fixed range. After encountering the player, he will quickly attack the player for 2 seconds to damage him, and then he will enter the slow state again.

The ground or wall on the map will stop all attacks.

2.2.6 Economy

Players can gain light points from killing enemies or from the corners of the map. They can redeem or upgrade skills in the store with light points. Killing enemies will drop 3 light points. You can get 100 light points by picking up large light points in the map, but the number of large light points is limited. The price of products in the store will be fixed.

2.3 Screen Flow
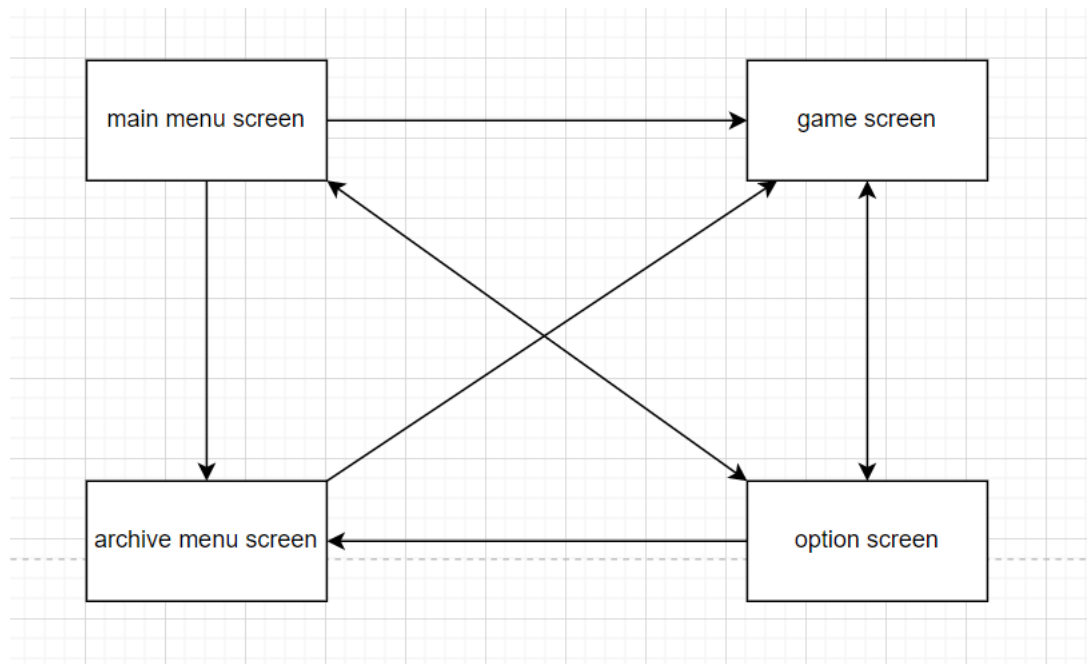
2.3.1. Main Menu Screen

The main menu will contain a background, game title, and three buttons for "New Game", "Options", "continue" and "exit".
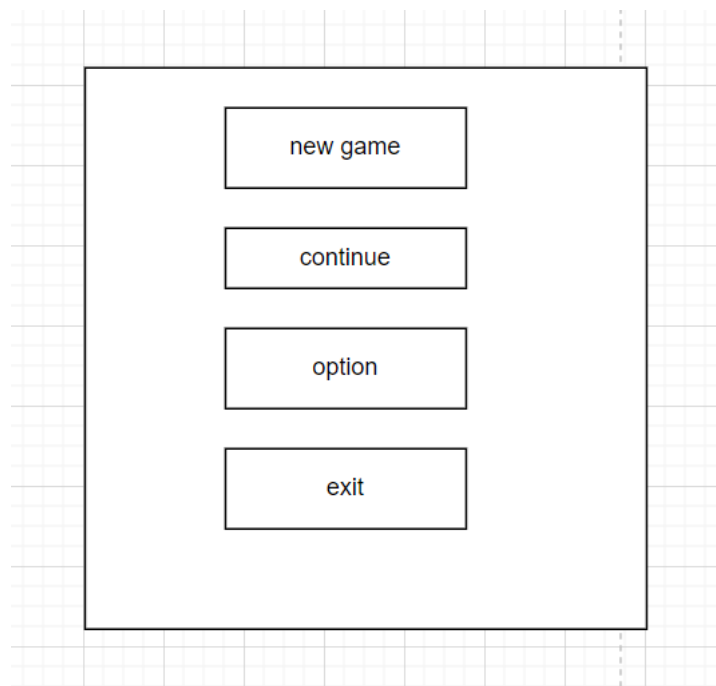
2.3.2. Options Screen

The options screen will allow the player to change the volume, language and brightness.

2.3.3 Archive Menu

The menu shows the game archive and game information saved by the player before. The player can choose to archive and start the game

2.3.4 game screen

On the game screen, players will see the game in progress. At the bottom of the screen, some basic attributes of the player will be displayed, such as life points and magic points.

2.4. Game Options

Game options will allow players to change difficulty, sound and music volume, or turn them on and off. The difficulty options will be Normal and Difficult. If "Hard" is selected, the enemy's attack frequency and damage will increase.

Resolution: players can adjust the resolution of the game window

Screen mode: players can select window, full screen or borderless mode

Image quality: players can adjust the game quality according to the performance of their computer hardware

Language: The native language of the game is English, and other languages may be added in the future

2.5. Replaying and Saving

Players can select the saving progress by themselves. Each save will overwrite the previous save. The replaying of monsters and mechanisms is fixed.

3. Story, Setting and Character

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3.1 Back story

In the vibrant forest, there are a group of elves who maintain the environment in the forest. They have their own unique abilities. But after a disaster, the forest lost its light and the elves disappeared. The forest has lost its protection, the river no longer flows and becomes turbid, the mountains are burned by the sun, and the dark creatures become aggressive. Players must experience an adventure to revive the forest.

3.2 Game Progression

In this game, players need to explore the forest, find mission props and then reach the center of the forest to restore the life of the giant tree and escape from the rushing water inside the tree. When they successfully restored the giant tree, the game was cleared. When a player loses all HP in the map outside the giant tree, he or she will automatically revive from the place that the player actively saved last time; When players lose all HP when escaping from the tree, they will automatically revive at the bottom of the tree and continue to escape the level.

3.3. Game world

This is an overhead fantasy world. The forest guards the creatures and environment through giant trees. There are two kinds of creatures: light creatures that rely on light and black creatures that like darkness, but they do not divide good and evil by species

3.3.1 Area #1 – Forest corner

3.3.1.1 General Description

In the corner of the dark forest, the player's starting place.

3.3.1.2 Physical Characteristics

None special characteristics

3.3.1.3 Levels that use area

Level 1: It is used by players at the beginning of the game for novice guidance

3.3.1.4 Connections to other areas

To Night Elf Tribe

3.3.2 Area #2 – Night Elf Tribe

3.3.2.1 General Description

A shelter for forest creatures, where players can recover, take quests and exchange skills

3.3.1.2 Physical Characteristics

None special characteristics

3.3.2.3 Levels that use area

Level 2: Persistent location

3.3.2.4 Connections to other areas

In the middle of the whole map, connected to all other areas

3.3.3 Area #3 – fountainhead

3.3.3.1 General Description

Once a clear forest water source, it has been polluted.

3.3.3.2 Physical Characteristics

The polluted water source will allow players to accumulate pollution levels continuously. When the pollution level is full, players will lose HP continuously. Players need to find clean spring water in the map to remove the pollution.

3.3.3.3 Levels that use area

Level 3: Players need to find the spring pearl in the deep of this place.

3.3.3.4 Connections to other areas

You can walk to the top left through the Area #6.

3.3.4 Area #4 – Sun Mountain Range

3.3.4.1 General Description

Once the sun crystal on the top of the mountain scattered the sun's light and sent warm energy to the giant trees. Now the crystal is pushed down and cannot reflect the light. The top of the mountain has also turned into hot scorched soil.

3.3.4.2 Physical Characteristics

There are special laser rays on the mountain, which are emitted by lava crystals suspended in the air. After a short period of power accumulation, they continue to fire and track players, and cease fire after a period of time.

3.3.4.3 Levels that use area

Level 3: Players need to rearrange the sun crystals on the mountain top.

3.3.4.4 Connections to other areas

You can walk to the top right through the Area #7.

3.3.5 Area #5 – Inside the giant tree

3.3.5.1 General Description

Due to the loss of water and light, the interior of the giant tree is full of vines, broken wood and stones. The branches of giant trees are covered with mud everywhere.

3.3.5.2 Physical Characteristics

Players need to break through the mud at four locations and return to the root to place spring beads to save the giant tree. Then the turbulent water will gradually fill the tree trunks, and players need to escape up before being submerged by the water.

3.3.5.3 Levels that use area

Level 4: Final level.

3.3.5.4 Connections to other areas

You can walk right up through the night elf tribe

3.3.6 Area #6 – swamp

3.3.6.1 General Description

The marsh around the source blocks the flow of water and is full of thorns and monsters

3.3.6.2 Physical Characteristics

More thorns will appear on the walls and ground

3.3.6.3 Levels that use area

Level 3: In the primary area, players need to master skills: double jump, gliding, bouncing jump, magic burst.

3.3.6.4 Connections to other areas

You can walk left up through the night elf tribe，Go to area #3 through here
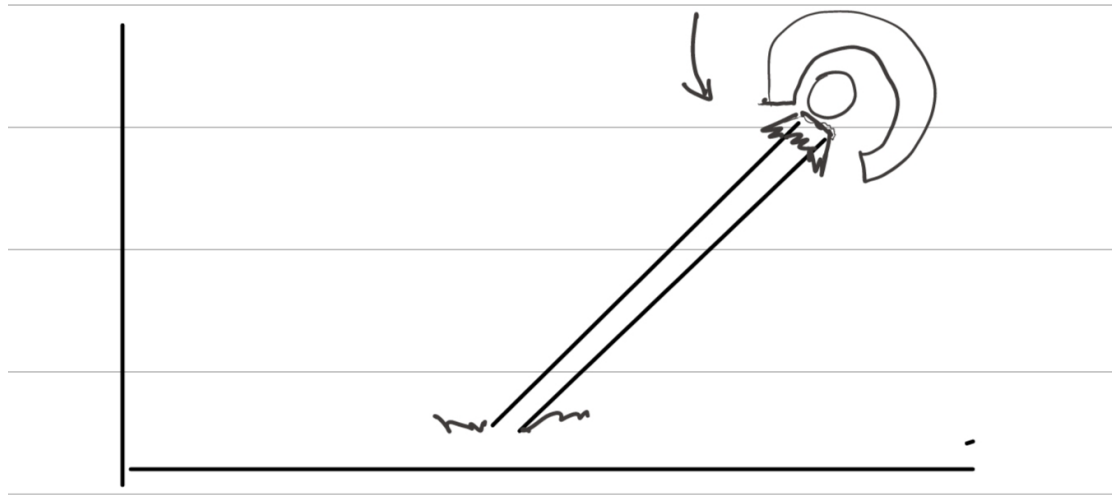
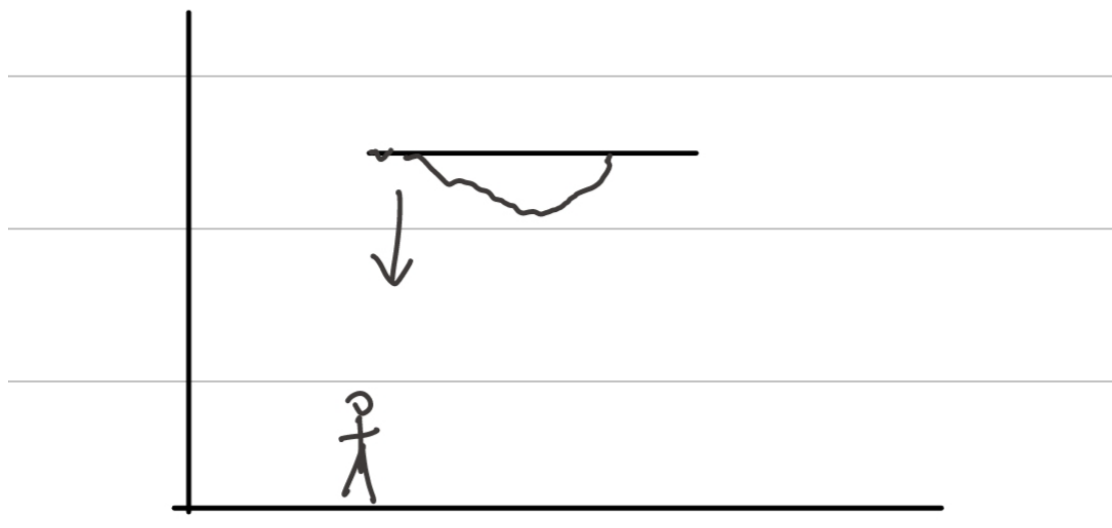### 3.3.7 Area #7 – Scorched soil

3.3.7.1 General Description

The land after the mountain fire is full of lava and fire monsters

3.3.7.2 Physical Characteristics

Lava appears on the ground. Players will burn and lose HP after contacting it for a period of time. Self exploding monsters and sunlight rays will appear

Laser emitting mechanism

Players will fall down and explode after entering

3.3.7.3 Levels that use area

Level 3: In the primary area, players need to master the following skills: double jump, gliding, bouncing jump, trampling, charging jump.

3.3.7.4 Connections to other areas

You can walk right up through the night elf tribe，Go to the Sun Mountains through here

3.4. Characters

3.4.1 Character #1 – Light sprite

3.4.1.1. Back story

The character controlled by the player is a light spirit, which is itself a leaf of a giant tree

3.4.1.2. Personality

Kind, brave, curious, love freedom

3.4.1.3. Look

The appearance is white, the ears are a little like rabbits, and the legs are flexible and look very bouncy

3.4.1.3 Animations

Play the bending running animation when moving, and shake slightly when stationary. When launching skills, the animation is bound to the skill type.

3.4.1.4. Special Abilities

Learn the ability of other light elves.

- Treading: After rolling in the air for a short time, it will accelerate downward to cause damage in the range, which can break the obstacles around.
- Bounce and jump: When the enemy or attacking bullet approaches, the player presses the right mouse button to pause, and the player selects the angle with the mouse. After releasing the right button, the player jumps in the selected direction to pop the enemy or bullet in the opposite direction.
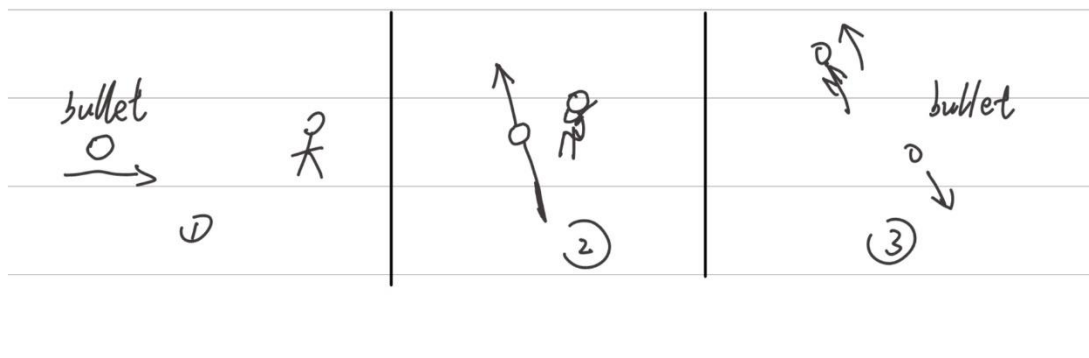
<div align="center">Bounce and jump</div>

- Magic explosion: consume magic value and explode damage around after accumulating power
- Gliding: press and hold the shift to glide in the air
- Charging jump: press and hold the w key on the ground to accumulate force, and the next jump can jump higher and destroy obstacles.
- Triple jump: ability to jump twice in the air

3.4.1.5. Relevance to game story

He is the main character in the story

3.4.1.6. Relationship to other characters

And other kind creatures in the forest

4. Levels

Each level is very similar in the distribution of enemies and mechanisms. Each level has different monster attack power and speed

5. Interface

5.1. Visual System

5.1.1. Heads Up Display (HUD)

At the top of the screen, the right side will display the number of decryption props obtained by players. At the bottom of the screen, the progress bar in the middle shows the progress of the skill point. On the left is a row of blue small circles, representing magic value; On the right is a row of green small circles, representing HP.

5.1.2. Menus

The main menu will provide players with three options.

- Start the game
- Continue the game
- Option
- Exit

In game menu, players can pause the screen or access audio options or return to the main menu.

5.2. Music

Each level will play its own music. When the player enters the timed escape level, the system will switch to another music.

5.3. Sound effect

There will be sound effects below.

- Magic attack
- Jumping
- Accumulated jumping

- Skill point acquisition
- Gain new skills
- Player injured
- Player died
- Consume Magic Save Progress
- Monster Death
- Bowling Bash
- Mechanism Trigger

6. Artificial intelligence

The mechanism is triggered after a fixed time interval.

Monkey monsters will track players in a fixed area to attack after jumping

Spider monsters appear at fixed locations and launch ball attacks that can track players

The fish patrols randomly in the fixed water area to attack players with accumulated power.

The difficulty level determines the enemy's attack power and attack frequency

7. Technical

7.1. Target Hardware

The game will run on the computer, and support Windows 10 at least. The lower version will be unstable. Will try to log in to Apple computers and mobile phones in the future

7.2. Development hardware and software

7.2.1. Hardware

Legion Y9000P IAH7H, 12th Gen Intel i7-12700H, 16GB DDR5 **1.5TB, NVIDIA GeForce RTX 3060 6G,** Video memory capacity: 6GB, Video memory type: GDDR6

7.2.2. Software

Windows 11

Unity

7.3 Game Engine

Real-time 3D interactive content creation and management is made possible with Unity. Unity is a tool used by all creators those who make games. The Unity platform offers a comprehensive selection of software tools that may be used to design, manage, and implement any type of real-time interactive 2D and 3D content. Mobile devices, tablets, computers, gaming consoles, augmented reality and virtual reality headsets are among the platforms that are supported.

The Unity engine's flexibility lets developers to produce content that is optimized for more than 20 platforms, such as iOS, Android, Windows, Mac OS, Sony PS4, Nintendo Switch, Microsoft Xbox One, Google Stadia, Google AR Core, Apple AR Kit, and others.

Along with authoring tools, Unity also offers operational services to support developers. Unity Ads advertising service, Unity Gaming Cloud one-stop online game service, Vivox game voice service, Multiply overseas server hosting service, Unity Content Distribution Platform (UDP), Unity Asset Store resource store, and Unity Cloud construction are some of the options available.

7.4 Network

This project does not require networking to play games. The project will be launched in steam, and its achievements and ranking list will be displayed on steam website.

7.5. Scripting Language

The Unity engine mainly supports C #. At present, the tutorials and examples on the official website are basically about JavaScript and C # language. C # language conforms to the principle of Unity 3D engine in programming concept. The focus of documents, examples and community support will be on C #. C # documents will be the most complete, C # code instances will be the most detailed, and the community will have the largest number of C # discussions.

8.1. Test Plan

I will test the game on my computer. As for the feedback on my game, I don't plan to publish my game to the game store, so I will also let people test the game on my device. My friends also have computers. I will share my completed files with them and let them test on their devices.