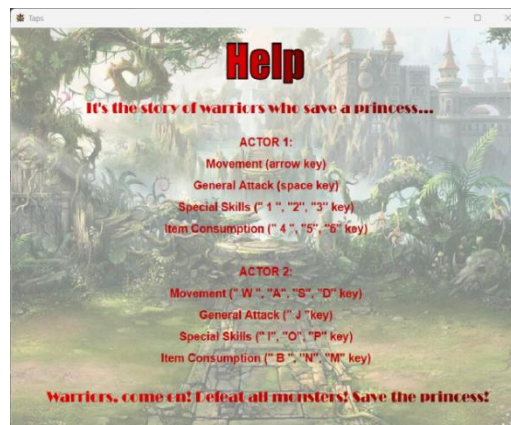# 159.261 Assigment2

Group12

1. Features of The Game

1.1 Start Menu

Run the program and the Start menu appears. Users click "Start" to enter the Select Mode panel; Click "Help" to see the rules of the game; Click "EXIT" to exit the game.

1.2 Help

Help screen, describes how to control the movement of warriors.

1.3 Select Mode

The user presses the arrow button in the upper left corner to return to the Start menu. Select mode interface, we have designed a total of three modes, respectively: Easy Single, Hard Single and Double. Below, Mode 2 is used as an example to illustrate the entire game process.

1.3.1 Single Hard

Click "HARD SINGLE", and the user will enter the following interface.

The top left is the blood bar: HP and MP.

HP: Every time a warrior takes an enemy hit, his HP decreases, and different kinds of enemies cause different degrees of reduction. When HP reaches 0, the warrior dies.

MP: The use of special abilities decreases the MP value, and when the MP value is 0, the warrior can only attack the enemy with normal weapons. But Warriors can kill enemies to gain MP power packs.

In the lower left corner is the energy pack the warrior gets after killing an enemy, including bread (press "4" to use), HP energy bottle (press "5" to use), and MP energy bottle (press "6" to use). If the user uses bread, the MP value and HP value can be increased by 5; If the HP energy bottle is used, the HP value is increased by 5; If the MP energy bottle is used, the MP value is added by 5.

In the lower right corner are the Warriors special abilities: Fire Bullet (press "1" to use), Ice Bullet (press "2" to use), and Vine Bullet (press "3" to use). In addition, users can launch attacks with regular bullets by pressing the space bar.


As shown, each time a warrior kills an enemy, bread, HP and MP energy bottles are randomly dropped.

We set up a no-go zone. After the warrior kills all enemies in the current area, the key will appear. After the warrior obtains the key, the restricted area is lifted and the warrior can move on to the next area.

In each mode we had multiple levels (multiple forbidden areas), and after the last key, the warrior would go into dark mode and the big boss would appear. After the warrior defeats all enemies (including the big boss), the princess appears and the warrior successfully rescues the princess. The game is over and the player wins.
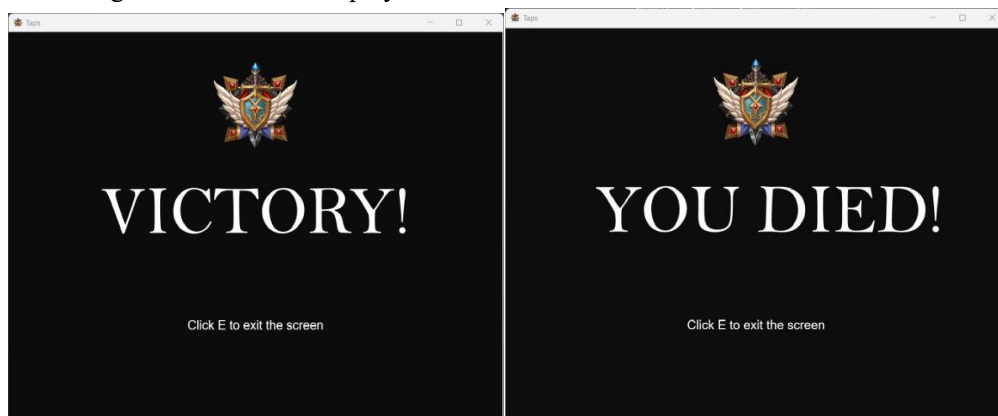
If the warrior's HP drops to zero midway through the rescue of the princess, the warrior dies, the game ends, and the player loses.Users can exit the game by pressing "E".

1.3.2 Single Easy

The Single Easy Mode is roughly the same as the Single Hard Mode. The differences are: the last restricted zone of the Single Easy Mode does not have a dark mode or a big boss; There is only one type of enemy in the Single Easy Mode, and the enemies are less dense.

1.3.3 Double

The Double Mode is very similar to the Single Hard Mode, the only difference is that there are two warriors working together to save the princess. The player controls Warrior 1 with the arrow keys and Warrior 2 with the "WASD" keys. If one of the warriors dies, the warrior disappears and the game continues. If both warriors die, the game ends.

2. Design Decisions

● **Start Menu**
● **Diversified Modes**

In this game, we provide three modes, and the relationships and differences between them are shown in the table below.

Easy Single	Hard Single	Double
Only **one warrior**	Only **one warrior**	Two warriors -- cooperation
Only one kind of enemy -- **Monsters**	Two kinds of enemies -- **Monsters and Zombies**	Two kinds of enemies -- **Monsters and Zombies**
Enemies appear in **fewer** numbers	Enemies are **numerous** and the **attack power is high**	Enemies are **numerous** and the **attack power is high**
	Big boss	**Big boss**
	Dark mode	**Dark mode**

● **Game Engine**

We utilize game engine to improve the reuse rate of code and make the code writing faster and more reliable.

● **Scoring System**

For enemy:

Each time an enemy is attacked by a warrior, the health bar decreases to half. Enemies die when it reaches 0.

For warrior:

Every time a warrior takes an enemy hit, his HP decreases by 15. When HP reaches 0, the warrior dies and the game ends.

● **Sprites and Animation**

In this game, we used a lot of Sprite art and animation to make it more interactive and engaging.

- **Sound Effects**

We used background music and click sounds for the start menu, victory sounds and defeat sounds for the end of the game. Users can also stop and play music by clicking a button.

- **Collision Detection**

Between the **Warrior** and the **Monster**   Between the **Warrior** and the **wall**

Between the **Actors (Warriors and Monsters)** and the **bullet**   Between the **bullet** and the **wall**

We introduce txt file, through the recognition of 0 and 1 drawing square, to achieve the generation of obstacles(the wall). For each character or bullet, we detect collisions by drawing squares.

- **The Rolling of the Map**

As the characters move, the map rolls. The map screen the player sees is constantly changing.

3. Contributions

- **Ge Tang   21012756**

Responsible for making the presentation PPT, writing the document, determining the coordinates of the cutting Sprite diagram and writing the code of the bullet pool class.

- **Ruitong Liu   21012762**

Responsible for the collection of pictures, music and other materials, and the compilation of collision detection code.

- **Zhaoyu Wu   21012775**

Responsible for map import and layer division, and write the code of map scroll.

- **Shuo Wang   22000164**

Responsible for completing the code part of the game's start menu,   the code of drawing and moving monsters, players, bullets and firing the bullets respectively; Record a game demo video.