Hardware

Laptop with Windows 10 (At least some charge)

Software

Visual Studio Code

Python – 3

Pygame

Tkinter

MySQL

MySQL-Python Connector

Summary

The menu has 4 options:

1. Start Game

2. Rules

3. Leader board

4. End Game

When ‘Start Game’ is selected, the user is asked to enter their name. After that, the game loop begins.

The aim of the game is to kill the enemies without being shot at. There are 8 enemies in total. 3 enemies start on the screen. Every 5 seconds, a new enemy is displayed on screen. The enemy moves along a fixed path set by the game developers. If the player controlled by user lies in the shooting range, the enemy shoots bullets directed at the player. The enemy can shoot a bullet once every second. If the bullet hits the player, the bullet disappears and decreases the player’s health by 20. Else, if it misses the player, it travels to the edge of the screen and disappears.

The player moves using arrow keys or AWSD. When not pressed, the player stays in place. The player must avoid the enemy shooting and kill the enemy. To kill the enemy, the player must overlap with the enemy and press space. The player has 100 health at the start of the game and must play carefully till they win.

When the player dies, their score is recorded and is compared with the scores of previous rounds. If the score is a new high score, it gets registered in the leader board. If there is a tie, time will be taken into account. The user can view the leader board by selecting the option ‘Leader board’ from the menu. The leader board displays the rank, the user’s name, the score, the time taken (in seconds). There is a back button which takes you back to the menu.

When ‘Rules’ is selected, the rules of the game are displayed. There is a back button which takes you back to the menu.

When ‘End Game’ is selected, there is a popup which asks the user, if they are sure of their choice. If ‘No’ is selected, it takes you back to the menu. If ‘Yes’ is selected, the menu closes.

Bibliography

1. Tech with Tim

2. Coding with Russ

3. Stack Overflow

4. Geeks for Geeks

5. Python Tutor

Rules

1. Use AWSD or arrow keys to move.

2. To kill the enemy, overlap with the enemy and press space.

3. The player has 100 health. Every bullet does 20 damage.

4. The enemy will shoot at the player if the player comes within 200 pixels radius and lies in a 120˚ arc.

5. The game starts with you and 3 enemies on the screen. Every 5 seconds a new enemy enters. Kill them all to win!

Scope for Improvement

1. More levels can be added.

2. The players and enemies can have new skins.

3. There can be new maps to play on.

4. Graphics can be improved.

5. Make gameplay smoother – PyGame blits all characters on screen every second. This is why all characters keep appearing and disappearing.