**Evaluation**

My first objective was to present the user with a navigable user interface for the main menu, settings menu, level selection menu and the pause menu. I have achieved this by creating a full GUI in Pygame with animated buttons for when the user hovers over them and clicks them which makes the user interface very easy for the user to understand and navigate.

The settings menu also provides an easy way for the user to change their controls. This is done by the user selecting the action they would like to change and then pressing the new key that that action will be assigned to. I have also prevented the user from binding multiple actions to the same key.

The settings menu also allows the user to change the volume of both the in-game music and in-game sound effects individually.

The settings menu gives the user maximum control over the game in order to accommodate as many different users as possible.

My second objective was to make implement realistic movement. I have achieved this by using an algorithm that uses the difference in the player’s current speed and their target speed in order to calculate the force necessary to apply to the player. The pseudo-code for this algorithm can be seen in the design section of the project.

I have also created a jump which provides one method of vertical movement for the player. To improve the quality of the jump I have also implemented both Coyote time and jump buffering in order to improve the user’s experience. Coyote time allows the user to jump slightly after leaving the ground. Jump buffering provides a small window where the user can press the jump button before touching the ground and then jump the frame the player touches the ground.

I have also implemented a dash and a wall jump for the player to execute. The dash provides a sudden burst of speed in one direction and the wall jump provides another way for the player to travel vertically. Both of these features allow for complex level design to provide a high level of difficulty. This can be done by increasing the length of the level to make it more punishing if the user fails or by increasing the control and precision the user must have over the player.

This leads into my next objective where the levels should increase in difficulty. To increase the difficulty of the levels I have increased the length of the levels as well as making the movement to get to the end of the level more difficult. This is done by making the user execute more difficult movement repeatedly, such as wall jumping and dashing or by making the user have to be more precise with the player. I believe I have successfully met this objective as from my testing video the number of deaths per level increased. Furthermore, this increase in difficulty can also be seen from my user testing where they mentioned that there was a clear increase in difficulty of the levels.

My final objective is ensuring that the user’s progress in the game is saved. This objective has been met successfully as the data is saved locally onto the user’s machine. This means that the user can unlock a new level and even if the game has been closed and re-opened the user still has that level unlocked. The user’s progress is also saved even if the user powers off their machine and then re-opens the game.

The main part of my program that can be improved is the programming for the GUI. This is because it can be slightly difficult to understand. However it is very easy to add new components to the GUI (even ones that have not already been implemented, such as radio buttons). This is because I have used an OOP approach which makes the GUI modular.

My target audience was very impressed with the solution that I have provided. This is because it was very easy for each member of my audience to start playing the game as it is an EXE file rather than being run from the command line with a Python interpreter. The design for the GUI was also very well received due to it fitting with the art style of the game. The GUI was also very easy for the users to navigate due to the quality of life features that I have implemented with animated buttons for when the mouse hovers over the button but also when the button is clicked. Matthew was also impressed with the ability to customise the controls. He was able to change this in the settings menu and then see the changes he had made when playing the levels. My target audience also felt the level of difficulty was suitable for its purpose. This was demonstrated from my target audience as all were struggling to complete the third level and they tried to develop and devise strategies in order to complete it.

Overall, my solution was effective for the purpose set out from my objectives. My solution was well received by my target audience.