**Testing and Debugging**

Use the testing table on the next pages to test your program works as expected.

Here are some examples of what you should test for. To get into the higher grades you must *thoroughly* test your program, and in a logical way.

* Inputs that you would expect the user to insert
* Inputs that you wouldn’t expect the user to insert
* Alternatives for the same input, eg 2, two, TWO

Play your game and think of all the ways it could be checked, then test for valid, invalid and boundary checks.

**Testing Table**

Complete this testing table, showing your expected, boundary and invalid results.

To get into the higher grades you must fully test and debug it and do so in an organised way, ie testing and debugging one section at a time.

Use one section for each part that you test and test it in as many ways as you can. Clearly state what you are testing for.

(Delete the parts of the table that you didn’t use. You are welcome to add extra sections)

Project repository,

<https://github.com/HelpMehhhh/Python-Racing-game/commits/main>

| What are you testing for: Page buttons | | | |
| --- | --- | --- | --- |
| What did you input/look for? | What do you expect the output to be? | Did it work as expected? | Notes – how did you fix it if you needed to, any other information you want to note? |
| Main menu - Play button | When clicked, it will change scenes to the game and the game will begin | Yes |  |
| Main Menu - Settings button | When clicked, it will change scenes to the settings screen | Yes |  |
| Settings screen - Menu button | When clicked, it will go back to the main menu | Yes |  |
| Main menu - Quit button | When clicked, the program exits | Yes |  |
| Game Over - Menu button | When clicked, brings the player to the main menu and updates the highscore. | Yes |  |
| Game Over- play again button | When clicked, the player starts a new game with the timer reset and score reset, aswell as car positions | Yes |  |
|  | | | |
| What are you testing for: Information displays | | | |
| What did you input/look for? | What do you expect the output to be? | Did it work as expected? | Notes – how did you fix it if you needed to, any other information you want to note? |
| Time is correctly displayed, and game ends when it reaches zero. | The time is in M:SS format and th game ends when it reaches zero | Yes |  |
| Speedometer is im km/h and is correctly displayed | A integer number, displayed with no formatting with “KMH” next to it | Yes |  |
| Score is correctly displayed | A integer number displayed at the top | Yes |  |
| Main menu highscore | Simple white text with the current high score | Yes |  |
| Game over screen correctly shows the players final score | A integer number displayed showing the score the player achieved | Yes |  |
|  | | | |
| What are you testing for: Adjustable settings | | | |
| What did you input/look for? | What do you expect the output to be? | Did it work as expected? | Notes – how did you fix it if you needed to, any other information you want to note? |
| Hitboxes toggle in settings menu | Hitboxes would toggle between off and on when the button is clicked | Yes |  |
| Ai count button in settings menu | The ai count scrolls looks like: 1<= count>=16 and counts upwards, goes to one when clicked on 16 | Yes |  |
| Reset highscore button settings menu | Correctly resets the highscore to 0 | Yes |  |
| Screen resize (drag sides of window) | All graphics elements should scale to match aspect ratio | Yes |  |
| Screen fullscreen (press f11) | The screen is resized to fullscreen, and all graphics elements are resized as well to match. | Yes |  |
|  | | | |
| What are you testing for: Player movement keys | | | |
| What did you input/look for? | What do you expect the output to be? | Did it work as expected? | Notes – how did you fix it if you needed to, any other information you want to note? |
| Steer left (a key) | The car will begin to turn left based on turning angle change function | Yes |  |
| Steer right (d key) | The car will begin to turn right based on turning angle change function | Yes |  |
| Accelerate (upwards arrow key) | The car will begin to accelerate based on acceleration values. | Yes |  |
| Deccelerate (downwards arrow key) | The car will begin to decelerate based on deceleration values. However the car will not be able to reverse. | Yes |  |
| Zoom in and out (left and right arrow keys) | The scene including all objects become smaller or bigger depending on key presses | Yes |  |

| What are you testing for: Graphical elements of game scene | | | |
| --- | --- | --- | --- |
| What did you input/look for? | What do you expect the output to be? | Did it work as expected? | Notes – how did you fix it if you needed to, any other information you want to note? |
| Track being correctly drawn smoothly | On any game, the track is uniform color and has a center line, it is smooth on the edges, but the centerline is slightly jagged | Yes |  |
| Warning text | Red warning text correctly shows up in the center of the screen when the player skips the track. | Yes |  |
| Warning line | Red warning line pointing to the skipped segment | Yes |  |
| Player car | Player car is directly in the center of the screen at all times unless it dosent have focus. | Yes |  |
| Ai car | Ai car rotate and move just like the track when the player shifts position or rotates, making the desired affect of a camera locked to the player car. | Yes |  |
|  | | | |
| What are you testing for: Passing mechanic | | | |
| What did you input/look for? | What do you expect the output to be? | Did it work as expected? | Notes – how did you fix it if you needed to, any other information you want to note? |
| Passing a car right way along the track | Awards 1 score | Yes |  |
| Passing a car wrong way along the track/ ai car passes player | Takes away previously earned point | Yes |  |
| Passing a car when off the track | Doesn't give any point and tells the player to loop back to continue | Yes |  |
|  | | | |

| What are you testing for: Collision mechanic | | | |
| --- | --- | --- | --- |
| What did you input/look for? | What do you expect the output to be? | Did it work as expected? | Notes – how did you fix it if you needed to, any other information you want to note? |
| Player overlaps with ai from back | Collision detected | Yes |  |
| Ai overlaps with player from back | Collision detected | Yes |  |
| Hitboxes | Correctly show the collision box throughout rotation and translation. When they over lap, collision is detected. | Yes |  |
| Ai overlaps with ai | No collision, they pass over/under eachother | Yes |  |
|  | | | |
| What are you testing for:Ai mechanics | | | |
| What did you input/look for? | What do you expect the output to be? | Did it work as expected? | Notes – how did you fix it if you needed to, any other information you want to note? |
| Ai driving around track | It will stay on track, correctly slowing down at curves to stay on track. | Yes |  |
| Ai spawn on game beggining | When the game starts, the ai will correctly spawn in random locations along the starting straight in front of the player. | Yes |  |
| Correct amount of ai | The ai spawns in the correct amount decided by the counter in the settings menu | Yes |  |
| Ai colors | They are random, picked from a set of: green, blue, orange, purple, cyan | Yes |  |