Department of Computer and Software Engineering – ITU
MD442: Mobile Application and Development

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Assignment #7: Car Racing Game & URP

Name	Roll number	Obtained Marks/35

Checked on: _____

Signature: _____

Car Racing Game & URP

1. Universal Render Pipeline.

2. SpeedX Racing Game:

Objective

In this lab, you will implement a Racing Game using Realistic Car Controller (RCC) in Unity. You'll learn to set up the player-controlled car, configure AI opponents, and build the racing game mechanics including lap counting, win conditions, and UI.

Tasks Overview:

Task 1: How to Use Car Controller

- Import the Environment

- In Lab12 assert we have an environment, player and enemies cars fbx.

Set Up the RCC Car for Player Control

- import RCC (Realistic Car Controller) from the given package into your project.

- Set Up the Player Car:

- Setup the RCC_CarController prefab into your scene (e.g., RCC_CarControllerV3).

Make sure the car has:

- Rigidbody component (for physics).

- Wheel Colliders (for correct wheel simulation).

- RCC_CarControllerV3 script (handles car behavior).

Player Controls:

- By default, RCC supports WASD and Arrow keys for car movement.

- Customize the input settings in RCC_Settings if needed.

- The car will accelerate, brake, and steer based on keyboard input.

Camera Setup:

- Drag the RCC_Camera prefab into the scene.

- The camera will follow the car automatically. You can set the camera's Follow Target to the car.

- Optional: Allow players to switch between camera views (e.g., chase cam, first-person) using the C key.

Adjusting Car Physics:

- Tune engine power, brake force, steering angle, and other values to match your desired gameplay experience.

- Modify traction control and stability to help with car handling.

Audio:

- RCC includes engine sound and tire skids. Attach Audio Sources for these effects.

- Optional: Add background music by attaching another Audio Source to the scene.

Task 2:

Winning Condition:

- When the player completes the win condition by completing lap/around.

- Show the total time taken and allow the player to restart the race or go back to the main menu.

- Save Best Time:

- Use PlayerPrefs to save the best lap time, and load it for display in the race finish screen

Assessment Rubric

Performance metric	CLO	Able to complete the task over 80% (4-5)	Able to complete the task 50-80% (2-3)	Able to complete the task below 50% (0-1)	Marks
1. Realization of experiment	3	Executes without errors excellent user prompts, good use of symbols, spacing in output. The testing has been completed.	Executes without errors, user prompts are understandable, minimum use of symbols or spacing in output. Some testing has been completed.	Does not execute due to syntax errors, runtime errors, user prompts are misleading or non-existent. No testing has been completed.	
2. Conducting experiment	2	Able to make changes and answer all questions.	Partially able to make changes and few incorrect answers.	Unable to make changes and answer all questions.	
3. Computer use	4	Document submission timely.	Document submission late.	Document submission not done.	
4. Teamwork	4	Actively engages and cooperates with other group member(s) in an effective manner.	Cooperates with other group member(s) in a reasonable manner but conduct can be improved.	Distracts or discourages other group members from conducting the experiment	
5. Laboratory safety and disciplinary rules	2	Code comments are added and do help the reader to understand the code.	Code comments are added and do not help the reader to understand the code.	Code comments are not added.	
6. Data collection	2	Excellent use of white space, creatively organized work, excellent use of variables and constants, correct identifiers for constants, No line-wrap.	Includes name, and assignment, white space makes the program fairly easy to read. Title, organized work, good use of variables.	Poor use of white space (indentation, blank lines) making code hard to read, disorganized and messy.	
7. Data analysis	3	Solution is efficient, easy to understand, and maintain.	A logical solution that is easy to follow but it is not the most efficient.	A difficult and inefficient solution.	
Total (out of 35):					