Assignment 4 Report

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Game Engine Concepts

RACING CONTROLS:

- WASD/Arrow Keys: accelerate, brake, and steer
- Left Shift: Activate handbrake
- C: Toggle camera positions
- R: Reset at last checkpoint

Although I did not add many things that were unique from the tutorial, my project focused on solid, extensible scripting and a well-oiled playing experience. The biggest divergence I made from the tutorial was scripting both the player vehicle controls and the AI completely from scratch. The only assets taken from the asset store were meshes, materials, and other media files. I used wheel colliders when designing the player car to give an experience that is unique from other driving games and even somewhat realistic. The tires create smoke and skid marks when sliding and the front wheels turn when steering! I scripted the opponent AI using a checkpoint system like the tutorial, but using simple nav meshes and navmesh agent components instead of a prefab. The checkpoints across the courses are also respawn points that the player can utilize if they accidentally crash their car. The course controller script in charge of handling the logic of the race itself can accept an arbitrary number of checkpoints, which are triggers with the checkpoint script attached, making the checkpoint system extensible and modular. Both the player vehicle and opponent vehicles also have custom scripting to give realistic engine noises.

The two courses I made are far larger and more detailed than Jimmy's and each took many hours to design and tweak. I took time to make sure the landscape and textures for both courses were visually appealing and engaging. Both races feel unique and have their own hazards and quirks. As for other visual aesthetics, I increased the appeal of menus by incorporating real screenshots from the game. The secret unlockable car is also visually striking!

Overall, I would have loved to do a lot more with this project to make it stand out, but I ran out of time because of mounting finals. Some things I wish I'd implemented are more courses, the ability to control how many opponents you are racing against, and some more work on the menus and UI. Regardless, I hope the large amount of quality, scale, and detail I poured into this very fun project make up for the lack of antics that I incorporated in my previous projects. I learned so much from this project because of the huge amount of new topics, ideas, and problems I had to learn and solve to produce a quality product.