CS376 Final Project
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Preproduction

Aesthetic Goals

1. Player should enter a sort of "flow-state" in which their actions feel almost autonomous
   a. Success is when the player feels almost zoned out, although unable to look away from the screen
   b. Failure is if the player is always hastily reacting. Sometimes is okay but there should be moments of both.
2. Player should control when they want to take a risk or play it safe
   a. Success is when the player is able to calculate the pros and cons of making a decision before making it.
   b. Failure is if the game is entirely reliant on reactions and the player never gets a moment of rest.

Core Loop

- Core mechanics
  - The player controls a car on an infinite road, they control the horizontal movement of the car and acceleration/deceleration (to a point, the car is constantly moving with the flow of traffic).
  - If time allows there will be boosts added.
  - Player has 1 life and a distance record to try and pass.
1. The player begins in a car in the right lane of the road behind another vehicle, with vehicles passing on the left side.
2. The player waits until it is clear to move into the left lane.
3. The player moves over and accelerates to pass the car still in the right lane
4. EITHER
   a. Player passes successfully, and can reenter the lane or continue past other cars, repeat from 2.
   b. Player collides with car (oncoming or sideswiping the car they were trying to pass) and game ends.

Dev Log

12/1/2025
- Ben: Created game repository
12/2/2025
- Ben: Imported external vehicle assets

- Ben: Set up core game world
- Ben: Made scripts for player and gamemanager
- Ben: Player now controls horizontal and forward/back movement of car
  - Had to change from translation-based movement to momentum based (transform.Translate() to Rigidbody.AddForce). This gave the car weight the player could "feel"
  - forward/back is actually a gameobject that parents all other vehicles, allowing the entire gamespace to remain in the center of the world, around 0, 0, 0.
  - This required some tricks and as a precaution against fp error the gameobject's coords are reset occasionally, while simultaneously shifting all of the vehicles the same distance in the opposite direction so the player doesn't notice
- Ben: Player can boost (multiplies force being applied to player in any direction)
- Ben: Player can brake
- Hongyuan: made vehicle script, made main menu script
- Hongyuan: main menu and instructions menus done
- Hongyuan: player can crash into other vehicles or stray too far off the main road to end the game

12/4/2025
- Ben: Adjusted how boosting, braking, and acceleration/deceleration interact to be a bit smoother
- Ben: Added a slight backward force to keep the player from just sitting behind a vehicle.
  - They can still just sit at the beginning or go backwards fast enough to get behind the oldest existing vehicle and coast there
- Ben: Improved controller support, particularly in menus
- Ben: Added a distinct score tied to cars passed
  - decrements if you go back behind a car you already passed, only increments by passing cars going in same direction
  - This complements the distance displayed very well. Having one gives the other better context. Just distance shows how long you've lasted without crashing, which can be easily increased by coasting and never passing anyone. Just the number passed cars lets you take your time with each car, since there is no reference for how long it took you to pass X amount of cars.
  - Having both shows how long the current run has lasted and how many successful risks have been taken
- Ben: Boosting now upshifts engine sound pitch
- Hongyuan: changed spacing for rear-facing vehicles to be coordinate-based instead of time-based to match forward-facing vehicles, helps avoid some easy-to-hit bugs and edge cases.
  - Increased the distance behind the player vehicles will despawn allowing for players to back up without noticing the vehicles missing further.
- Hongyuan: added pause menu
- Hongyuan: vehicles have slight offsets to their x coordinates when they spawn, so sometimes the player can even squeeze through on the shoulder if they're careful enough, or ride the dividing line between two cars.

- ○ Considering adding a "shoulder passes" counter, as those require some luck and skill to perform

12/5/2025
- Ben: Added save/load, saves current distance, score, and boost (and PlayerController.Status in the background in case boost is recovering) to PlayerPrefs.
  - ○ Not the best practice to use for savegames but it works for this application and its easier than serializing to a secure file. Saves with button and returning to menu, wipes current game stats when crashing, will have to change if high-scores added
- Ben: Braking downshifts the engine sound pitch, similar to how boost upshifts it
- Hongyuan: added honk/siren sounds to cars as you pass them, random chance to play as you pass (different probability for each vehicle type)