Project Description

The name of my project is “One-Twelvsla”.

It is a car-driving game that has a top-down view. The player’s car is always at the center and the background mimics the real-world roads with obstacles that the car must not collide into, such as other cars, bicycles, etc.

The project will also contain an AI portion of the game, which drives without colluding with the randomly generated obstacles.

Competitive Analysis

There are numerous driving games that can be found online. The most popular game similar to mine is Mario Kart. The biggest difference is that my game mimics driving in the real world while Mario Kart is a more unrealistic racing environment. I will not have items that I can use or cliffs that I can fall into. Furthermore, my game will have a top-down view. The way the controllers work in Mario Kart mobile seem efficient and fun. However, since my game is not a mobile app, I will most likely also use left/right arrow keys to steer the wheel left or right. For the car to move forward, similar to Mario Kart, the player will hold down a button. The other players that are played by robot mode are similar to the AI portion of my project. However, I could not find how the algorithm works, and wasn’t able to find any other driving games that contain AI mode.

An app called ‘Top Down Car Driving’ developed by Brown Spider Games has many similarities to the game that I am creating. Unfortunately, I could not try the game since it is an app available for android. However, based on the pictures and description of the app, this game also provides two buttons for direction control and has a top-down view. The difference from my game is that it does not contain a feature to change the speed of the car.

Structural Plan

I will be using MVC (model, view, controller). My project will use the classes “Lane” and “Vehicle”, which will be used to create the individual lane and vehicle objects. I will keep all of my code in one main file. If the main file becomes too complicated and long as I work on the project, I might move the into different files.

Algorithmic Plan

The trickiest part of my project is designing the AI portion. The algorithm for AI mode will consider multiple factors such as the speed, size, position of the surround vehicles and people. Based on these inputs, the algorithm will automatically adjust the car’s speed and direction so that it does not collide with any surrounding obstacles. If there is a slow car in front of the driver, in order to reach the destination faster, the driver will examine the left and right lane and determine if it should change lanes. Based on the speed that the surrounding cars are moving, the driver will change lanes at the appropriate time and go at the fastest speed making sure it keeps a safe distance with the vehicle infront of it.

Timeline Plan

A timeline for when you intend to complete the major features of the project.

Nov 30 (TP1)

- complete 2d background design
- creating and drawing obstacles
- game over when collision
- scores

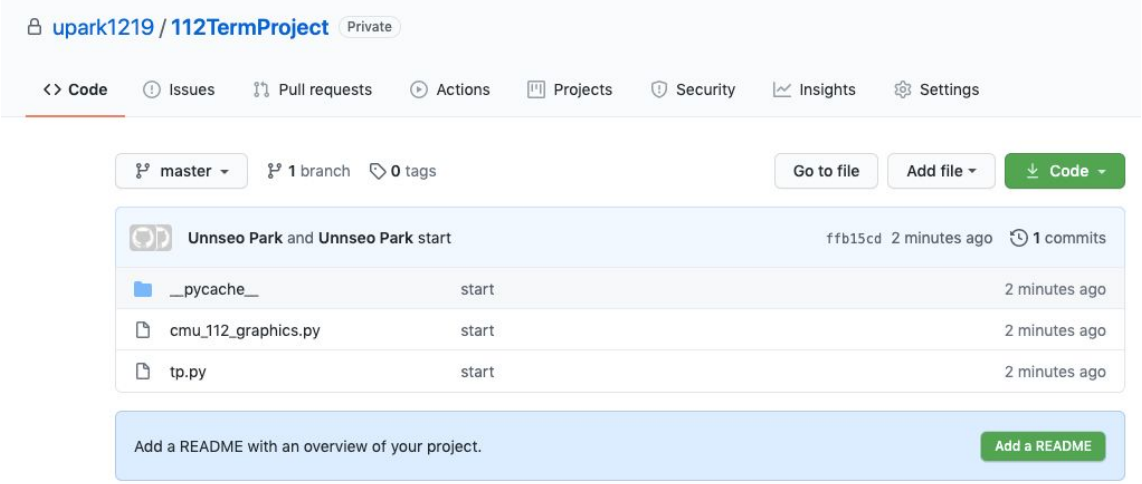
Dec 4 (TP2)

- Complete AI mode
- high scoreboard

Dec 9 (TP3)

- Additional features (map generation, 2.5D graphics, terrain generation)
- Better Design

Version Control Plan



I am using GitHub to backup my project in a repository called upark/112TermProject.

Module List

I am not planning to use any external modules.

TP2 Update

I have added a feature that generates random roads from the starting point to the destination. This causes each map to be unique and allows the maps to increase complexity as the level increases. The main view of the window shows a zoomed-in portion of the map.

TP3 Update

I deviated from my original plan of having lanes that contain the other vehicles. Instead, I updated my game to have a certain number of obstacles according to the level and have the

vehicles drive themselves in the same direction as the player. If the player collides with the obstacles, the player loses.