

ANNAPURNA RACING

Game Developer:

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Course:

Senior Project

WHAT IS IT?

- A 3D racing game with:
 - *A Single Racing Track*
 - Annapurna Circuit
 - *3 Game Modes*
 - Default Race Mode
 - Score Mode
 - Time Mode
 - *3 Custom Cars*
 - 2 Default Unlocked
 - 1 Unlockable through cash earned after completing a race

TECHNOLOGIES/SOURCES USED

Development Platform: Unity Game Engine

Programming Language: C#

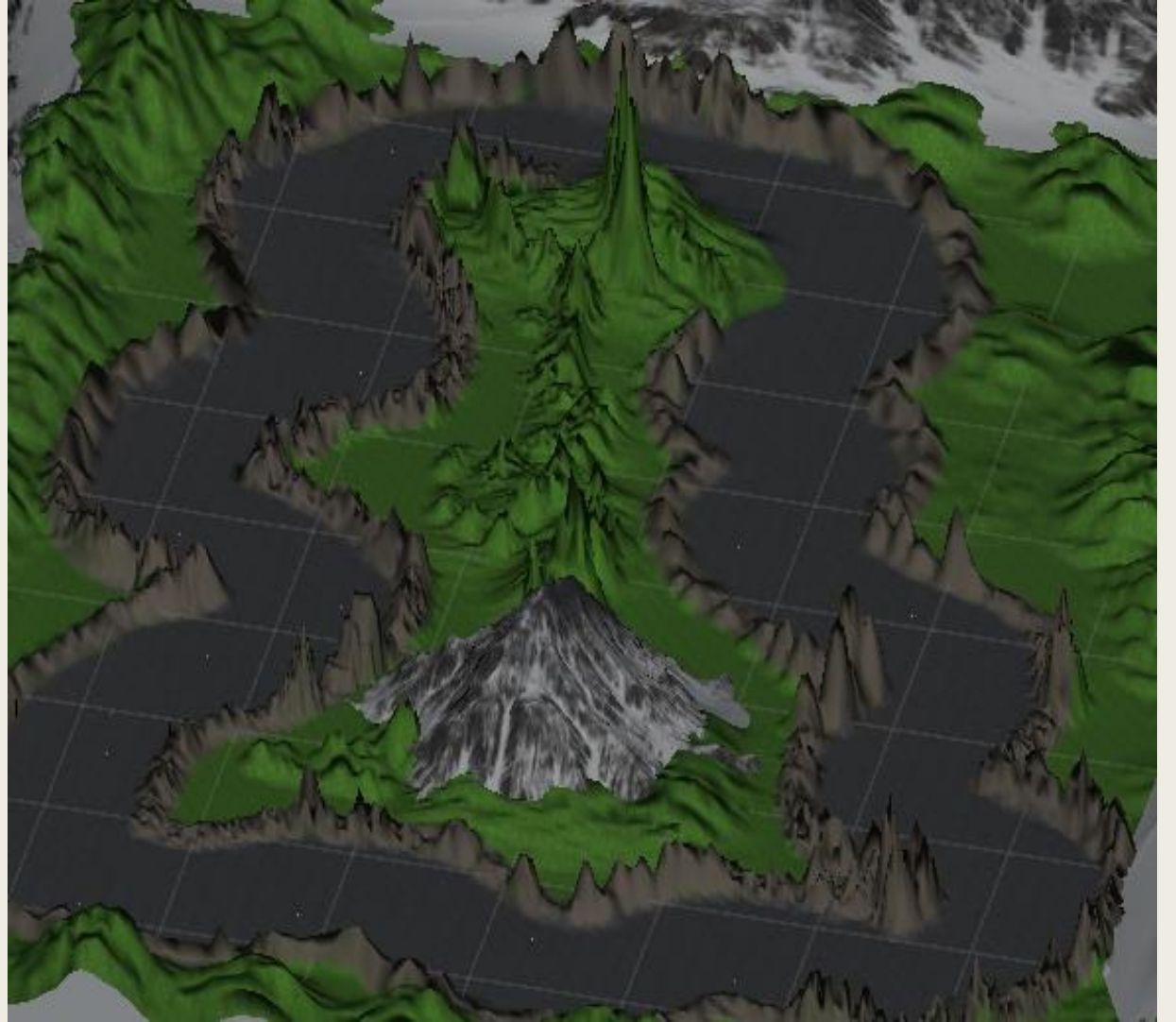
Car/Skybox/Mountains/Trees Assets: Unity Asset Store (All Free)

FX/Sound: Freesound.org

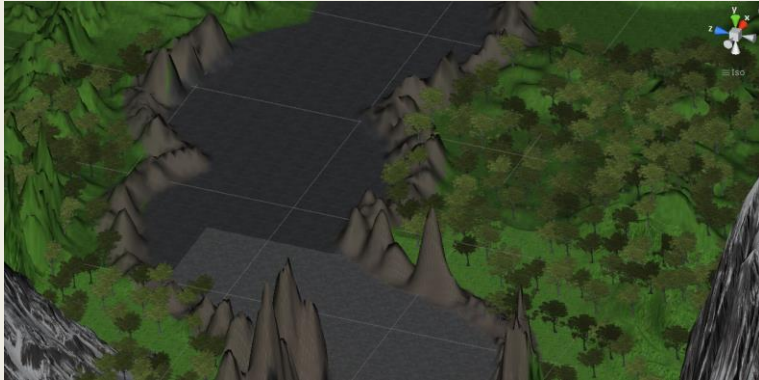
Graphics Improvement: Unity's Post-Processing Stack

ANNAPURNA CIRCUIT

- A plain levelled racing track with mountains in the background
- Roads are surrounded by small hills that stop race cars from moving across the terrain



TRACK DESIGN: HOW?



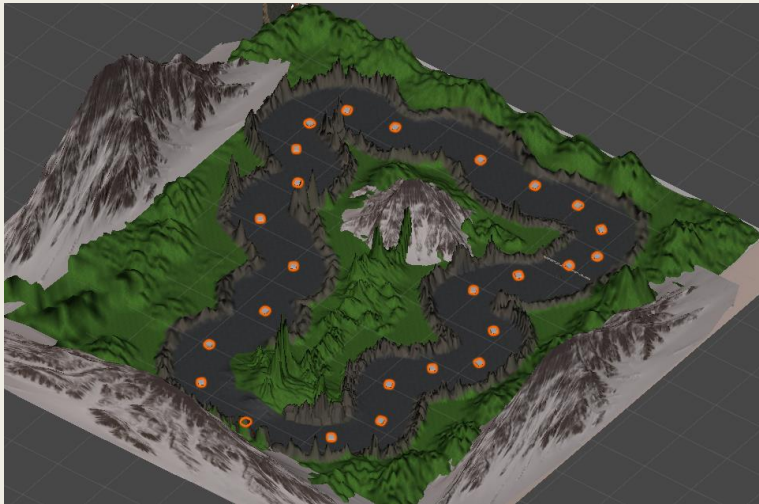
- Utilized the terrain system in Unity
 - *Used brushes to level or raise the ground in some places to look it like a hill*
 - *Added different varieties of trees in the hills to look it more natural*
 - *Used textures to draw the asphalt region*

TRACK DESIGN: BARRIERS

- Added many colliders around the road to act as barriers
- Colliders included cuboids and cylinders



AI CARS



- Used Unity's Standard Assets Car Pack that consisted of AI Control, Car Audio
- Added as many waypoints necessary and wrote script to make the AI Car follow them sequentially
- `void Update()`

```
{
```

```
    // move the AI car's position to the next waypoint in the track
```

```
    Tracker.transform.position =  
    AITracker[trackerNumber].transform.position;
```

```
}
```

CUSTOMIZATIONS



- Player has the option to choose from 3 different cars.
 - Red and Blue cars can be used from the start
 - Green needs to be unlocked
 - Can proceed to select game mode only after choosing a car
- 3 Race Modes
 - Choose from the race mode and then proceed to selecting the track
- Only 1 Track
 - Annapurna Circuit

GAME MODES



RACE MODE

Compete against an AI Car to complete two laps

Player will be awarded \$300 for completing the race

Money can be used to unlock cars and newer tracks



SCORE MODE

Collect different colored cubes scattered around the race track and increase your score

Green-> 25 points, Blue-> 50 points, Red-> 100 points



TIME MODE

Try beating the previous best lap record



DISCARDED IDEAS/STILL A WISH LIST?



Tracks consisting of real roads from Nepal

API to extract tracks from Google Maps API had been deprecated



Include different weather options



Multiplayer Racing Game

*Totally different mechanics and time consuming
Focused on getting the game playable*



Racers getting penalized for hitting pedestrians and vehicles

Racing Track's theme was not city focused. Hence, could not place any pedestrians.



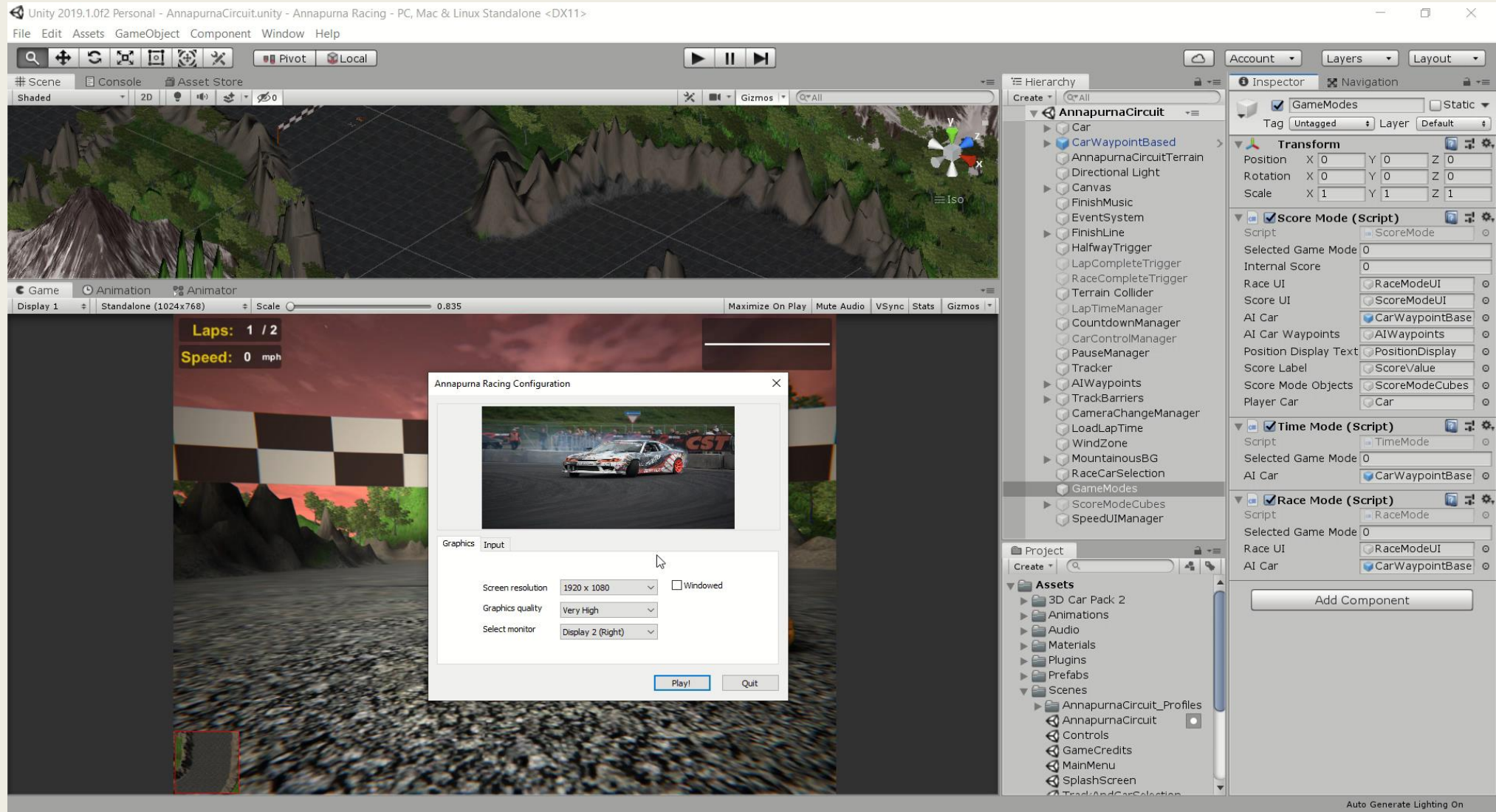
Tournaments

Too grand of a wish 😞



GAME OPTIONS AND CAMERA

RACE DEMO



LESSONS/ISSUES

- Level Design was the most time-consuming part of the project
 - *Includes designing the track and enriching the track environment with trees, mountains, wind and skybox*
- Determining the race position introduced too many bugs in the race
 - *Colliders in the racing cars were not big enough to determine if a car was ahead of the other*
 - *Had issues determining the distance of the car from the last one*



QUESTIONS?