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# COSC300 Graphics Report

Semester 1 - 2020

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# List of Images

# 1 Introduction

In this document, you will find my findings and attempts at creating a completed game. The game I had chosen to make was that of the supplied mega racer code.

To create the graphics required for this project, I used Python 3.5 and OpenGL to create objects and renderables within the computer graphics scene. I also used GitHub to allow for version control between each implemented feature that I added.

The features that were made were:

- 1.1 - Scaling the Terrain
- 1.2 - Setting up the Camera
- 1.3 - Orientating and Placing the Racer Model
- 1.4 - Texturing the Terrain

In the following documentation. You will find screenshots and findings around each feature as well as how I went about approaching each feature within the project.

## 1.1 - Scaling the Terrain

Scaling terrain consisted of scaling the terrain according to the path image supplied.

```
# copy pixel 4 channels
     imagePixel = self.imageData[offset:offset+4];
     # Normalize the red channel from [0,255] to [0.0, 1.0]
     red = float(imagePixel[0]) / 255.0;

     xyPos = vec2(i, j) * self.xyScale + xyOffset;
# TODO 1.1: set the height
zPos = 0
```

Initially, the code supplied consisted of zPos = 0 and I was to change it. I thought long and hard about to change and looked at the hints supplied. In it, I was told to use self.heightScale and to somehow utilize it in order to get a consistent z position for each terrain created. I had a thought that multiplying the red value calculated would allow me to get a a consistent z position. This was because red represented a value from 0 to 255 and multiplying it with the height scale would allow for different Z positions to be generated.

```
# TODO 1.1: set the height
zPos = self.heightScale * red
```

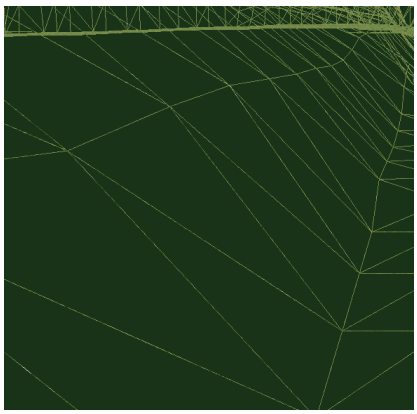

Figure 1: Scaled Terrain

This seemed to work as I was now able to see bumps and curves within the terrain which meant this feature was completed.

## 1.2 - Setting up the Camera

The next feature I was to implement was that of setting up the camera so that it viewed the racer at all times and was scaled to the supplied camera offset.

## 1.3 - Orientating and Placing the Racer Model

## 1.4 - Texturing the Terrain