**Delyar Tabatabai**

**Shaders Final Project Proposal - Car beam lights (multiple light sources with reflection on the ground)**

I aim to create a realistic 3D scene of a car driving at night. The scene will be rendered using OpenGL shaders with the implementation of cube mapping and car object rendering. The main features of this project are the use of 6 images for cube mapping to create a dark night atmosphere, rendering a car obj file, and displaying the car's front beam lights and their reflection on the road.

The project will be implemented using C++ programming language with OpenGL and GLSL shader programming. The first step is to create a 3D cube and map 6 images to the cube using cube mapping. The images will represent the surroundings of the car and will be chosen to create a dark night atmosphere. A quad will be added to the bottom of the cube to create a road texture. Then, the car obj file will be loaded into the scene and positioned on the road. To display the car's front beam lights, two light sources will be added to the location of the car object's beam lights. The lights will be turned on and will show a reflection on the road.

The expected outcomes of this project are a realistic 3D scene of a car driving at night with cube mapping, car object rendering, and front beam lights. The final output will be a video that shows the car driving on the road and the lights reflecting on the surface. The project will demonstrate the use of OpenGL shaders and the implementation of cube mapping and object rendering techniques.

This project will be a challenging and exciting opportunity to showcase the implementation of OpenGL shaders with cube mapping and car object rendering. The use of these techniques will create a realistic 3D scene of a car driving at night, with the front beam lights reflecting on the road surface. The project will be a great learning experience for the course and will provide me with valuable experience in the field of computer graphics as I have never worked with creating two spheres which are light sources themself.