Project 9: Advanced Shaders 1

CST-310

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**Background: Main Idea and Implementation**

The main idea of this project is to display the skills learned in this class by utilizing shaders in a three-dimensional environment. The best way to implement this system is through the creation of separate objects. The different objects include a checkerboard, cylinder, cube, and a sphere. A unique attribute included in this project is variable angles of the camera. In the camera class, different angles are created to simulate a three-dimensional environment. Many claimed variables including the radius, colors, coordinates, etc. are utilized to create this cohesive experience. There are multiple headers for this assignment: camera, ball, cube, checkboard, and cylinder. Each are referenced in the source code. Each header aligns with the main code to create multiple objects in the scene.

**Mathematical Functions and Models Used**

In this project, there aren’t many mathematical functions used other than the function for theta, which determines the X and Z axes for the placement of objects. Other than this function, there is a function that helps the camera class rotate around the Y axis of the scene. The camera function includes the GetX, GetY, and GetZ functions to determine the placement of the camera. This is important because if the camera cannot determine it’s positon, there would be no movement.

**Scene Layout**

In the scene layout, there is a checkerboard as the base of the program. On the base, there are three objects. These objects are a cube, cylinder, and sphere. Each receives data from the light to create a cohesive concept.

**Shaders and Methods for Effects**

For this project, there are no shaders implemented. The next project, project 10, will include the necessary shaders. The next project will include shaders to increase the detail of the project.

**Screenshots Showing Execution**

**A picture containing graphical user interface

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**A picture containing shape

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**Short Video Showing Navigation**

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