The project this semester was to recreate a 3D scene from a picture using OpenGL in Microsoft Visual Studio. The objects that I selected were a book, a wallet, a pencil, and a Nintendo Switch gaming console. All the objects were created with at least two objects. I also created a plane that represents the desk from the photo I used as a reference.

In order to recreate the scene, I used a similar setup to Victor Gordan’s tutorial videos on Youtube for OpenGL. The setup consists of a source file holding the main function, class files for objects such as a cube or the camera object, and text files for the shader information. The object files such as the plane or the cube had default constructors as well as the ability to manipulate the vertex vector to change the color or position. I chose this setup in order to keep things organized for such a big project. (Gordan, V.)

There is built-in functionality for maneuvering the camera object around the scene. The functionality for the camera object is set up using a camera class and its functions can be used within the main function during the render loop to keep things organized. The basic directions for maneuvering the 3D scene is as follows:

* Q: Press to move camera in a up direction.
* E: Press to move camera in a down direction.
* W: Press to move camera in a forward direction.
* A: Press to move camera in a left direction.
* S: Press to move camera in a backward direction.
* D: Press to move camera in a right direction.
* Mouse Functionality
  + Scroll Wheel Up: Increase camera movement speed.
  + Scroll Wheel Down: Decrease camera movement speed.
  + Mouse Movement: Adjust camera angle.

As mentioned above every object has both a header file with the class and a source code file where the function definitions are held within. I did this for organization purposes and as an example I would like to write about the shaderClass files. The shaderClass is an object where shaders can be defined using a constructor and linking shader source code files. They can then be activated using functions defined by the shaderClass.cpp file. This allows for different shaders to be used while rendering different objects within the main function in a neat and timely manner.

This project really challenged me and helped me to grow as a programmer. There are many different aspects to build separately and come together within the OpenGL format. I am grateful for the opportunity to be a part of this class.

**References**

Gordan, V. (2021, August 22). *OpenGL Tutorials* [Video Files]. Retrieved from https://www.youtube.com/watch?v=ZbszezwNSZU&list=PLPaoO-vpZnumdcb4tZc4x5Q-v7CkrQ6M-&index=10.