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CS-330

Final project Reflection

Due to the nature of the assignment, I knew I would need to be able to create the scene by using primitive shapes. That was the basis of my decision regarding the items that were used. By using a cylinder and cube I was able to recreate a nail polish bottle. The speaker is a cylinder as well. The book is created from a cube and plane is one side of a cube made from two triangles. The mix container ended up being shaped from a pyramid. Each item with the correct texture and lighting could be made into a realistic object.

With OpenGL it was a challenging but still enjoyable assignment to figure out ho to program these objects. With the use of vertices to create the triangles you could draw every one of the primitives’ shapes with ease. Each shape itself is made up of triangles. After figuring out the vertices for the object, then you would be able to add in texture vertices, and normals for the lighting if you used the Phong Model. After that it is just a matter of calling upon the vertices, binding them and drawing them. All the code taken as one complete piece can be confusing for new programmers but if it is taken section by section, it quickly becomes more understandable.

This program is a basic 3D scene, so there will be limited movement for it, but that is all that will be needed to navigate the scene. Using the W and S keys will take you forward and backwards in the scene. The A and D keys will pan left and right respectively. The Q and E keys have been added in the let the user pan up and down. With these navigation keys you can get a basic view of the program, but we want to be able to see all the scene. With that in mind I added in using the movement of the mouse to help you pan around the scene. The mouse scroll wheel also lets you zoom in and out on the scene. With these keys there should not be any where in the scene that you cannot go to. As a bonus feature, I have included the use of keys to move the light that is above the scene. Y and H will make the light go up and down, G and J will have the light go left and right, and N and M will make the light go forward and back.

This assignment could be made with all the code in the source file, but that would not let the code be reusable. It would also become quite tedious trying to find a particular line of code when the lines start going into the thousands. By making use of header files, I was able to clean up the code and make it modular. The code for the camera, cylinder was placed in a header file and then it was called in the source file when it was needed. This also lets the header files be used in multiple assignments with ease. Listing all the vertices needed in a float allows me to keep the code clean. Then when I need to use the vertices to draw the object, I can tell the program to look in the float, start on this vertex and count this many.