A computer screen shot of a table

Description automatically generated

The 3D scene I developed is the desk I use to work at from home or do homework. I depicted my work computer and my laptop exactly how I typically set them up. The scene also includes my lamp that I will turn on if the room is too dark. The complex object is the lamp. It is made up of a cone, sphere, (tapered) cylinders, and a half sphere. I was unable to depict the lampshade in the shape of a cylinder to replicate the light that comes from it. The lampshade looks more like the light I have in my living room.

The scene shows the user the desk standing on the floor in the room and the objects on the desk. This is essentially two different bottom planes of the scene. The wall acts as the backplane of the scene as the desk is backed up against it. All the objects have a texture on top of them to replicate the objects' texture and original design. They have material to show how the light reflects from them. Then there are two light sources: the light bulb from the lamp and the natural light from the sun. I am not sure where the light under the desk is coming from – I was unable to determine this during the construction of the scene.

The user can move around the scene using the keys on their keyboard and their mouse. The WASD keys allow them to move forward, backward, left, and right. The QE keys allow them to move up and down. The P key changes the scene to a perspective or 3D view while the O key changes the scene to the orthographic (2D) view. The mouse will move the camera from side to side or up to down but can’t move the position of the camera. The scroll of the mouse changes the frequency of movement. This allows the user to decide how fast or slow they want to change from different positions. The user has full control over where they are in the scene with these controls. It allows a user to have a complete experience.

To organize the code in my program, the different functions are maintained as they were intended or expected to be. Some of the code of course was in place in the program for me. The code I added or improved is in the section for a student to edit. This way the Professor or a person viewing the code can expect to look there for any code that was updated. The code could be reused to create a different scene or a different variant of lighting.

Additionally, I did find this project somewhat difficult to develop. I think the hardest part for me was understanding how to change the color of an object or lighting. The scene is not what I would call perfect but depicts the objects and settings in which I sit to do work. It keeps me from falling asleep and allows me to focus on what I am currently doing. Overall, I did like this class. It was my first time creating a 3D scene and I find it interesting what other things could be developed this way.