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Final Project Reflection

This project has caused many trying times during the process of implementing each new feature. The scene I chose was a simply shaped wooden desk in a room with a lamp and a pen cup on top of the desk and a cylindrical stool in front of the desk. I started by creating the walls and floor in the room using basic planes so that I had boundaries as size references for everything else in the room. I left the room open on two sides for viewing purposes. I then created the desk using several rectangular shapes. This was a simple object once I decided on the correct dimensions. I chose to add an additional object in the scene that was not in my original reference photo for more variety and to satisfy requirements for the project. I chose to add a pyramid shaped paper weight on top of the desk. I created the stool and duplicated and scaled the same object to use as the pen cup on top of the desk as well. This allowed me to do a little less work since I already had the object set up to work for the scene. I then created a classic writers desk lamp shape using elongated triangles and a rectangular base. I colored it so that the bottom reflected as white so it looked like a light. In my reference photo, it contained a few simple textures as the desk and floor were both wooden, and the stool was a white fuzzy texture. I struggled with adding texture to a third item and have not been able to implement it properly so only the desk and floor remain textured. I did choose to leave out specific things from my reference photo that I anticipated being too difficult to recreate, such as the plants and baskets full of stuff. All design decisions were carefully considered to meet required funcitonality and make the scene as realistic as possible.

To intuitively navigate throughout the scene, the user can utilize their mouse to change what direction they are looking in and the scroll wheel on their mouse to zoom in and out. This movement in the scene is very intuitive as it is a very common way to navigate in games and other programs. I also used W, A, S, and D to move the camera around the scene as forward, left, back, and right, respectively. These are also very common controls used within games to navigate. I also used P to change the view between orthographic and perspective views. This allows the user to look at the scene in both a 2 dimensional and 3 dimensional perspective to fully understand the size and shape of each object. The other navigation keys used were Q and E to move the camera up and down, respectively. Using the combination of keyboard and mouse inputs creates a very intuitive experience for the user to engage with the environment I created. The only issue that remained after setting up each different piece of the navigation is the scroll wheel zoom feature only works when the cursor is on the screen, which may cause difficulty with viewing if the cursor needs to be elsewhere to look at the objects.

I ended up organizing my code much differently than the source code was organized. I separated the functional pieces of the program into different cpp and header files to ensure that the code was clear and concise. The reason I chose to organize my code this way was because I found the source code hard to follow when it was all in one file and repeated the same gl functions multiple times to complete the same tasks. This did help several parts of the code be more reusable and scalable so that the gl function calls would be repeated less and make the code more readable. For example, I used the same code multiple times to draw objects. To do this, I called other functions in the application.cpp file as the main organization for the application. This allowed the project overall to be more organized and improve functionality for me as the person working and anybody reviewing the code.