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Final Project - Reflection

I chose eight objects to create in my 3D scene. The objects are a computer monitor, computer desktop, computer mouse, computer keyboard, iPhone 12, a glass desktop, energy drink and a sphere to represent my light source. The objects resemble my workstation set up where I do all my schoolwork and other projects. The reason that I chose my daily workstation as a scene to recreate, is because the scene has multiple primitive shapes that I could use to recreate the scene. The primitive shapes that are used to recreate my 3D scene are many shapes and sizes of cubes, one plane, three cylinders and two spheres.

The object in my scene that is made with more than one primitive shape is my iPhone. The iPhone box is a simple cube shape that is stretched into more of a rectangular shape. I used two cylinders to represent the camera lenses on the back of the phone. I used a transparent white glass to imitate the color of my phone without the phone case on and the color and transparency of the actual glass on the back of my phone as well. Instead of just adding a texture to the back of my phone that could imitate the presence of camera lenses, I thought that adding two separate objects of cylinders for camera lenses would give the phone more of a 3D look.

I was able to use the same phone cube shape and its vertices to create all my other cube like objects. Using the same object as the phone to create all the other cube like objects was convenient because all that I had to do was scale the vertices of the phone box to get the next shape that I desired. This method could not work if I needed to texture any of my other objects differently and especially wouldn’t have worked if I needed to use different normal’s for lighting purposes on each of the objects as well. During my process I had an idea about how maybe I could have just copied and pasted the phone box’s vertex’s and then just used different normal’s and texture coordinates for each shape. Although, I have a feeling that there could be an easier way to do that. So, I just focused on creating the objects and texturing was easy because for each object, I basically only needed to texture one side of the cube!

My other objects were less complicated to make because I just used the already coded shape templates that were provided in our files. All that I had to do was read the files, understand the parameters, and then edit the shape to how I want and position them correctly in my 3D scene.

The controls to navigate through my 3D scene are ‘W’ for forward, ‘A’ for left, ‘S’ for backwards, ‘D’ for right, ‘Q’ for up and ‘E’ for down. The ‘P’ key toggles between orthogonal view and perspective view. To move around simply just move the mouse cursor around and the camera will follow in the direction that it is moved. The scroll button the mouse controls the speed at which the camera moves through the world. Scrolling the mouse down slows down the camera’s speed and scrolling the mouse up increases the camera’s speed.

Some of the features that I feel really made my 3D scene stand out, is the choice of my textures for my objects. I used actual photos of the objects on my computer desk to represent the objects in my 3D scene and it make my scene really look like the one in real life!

1. **Explain how a user can navigate your 3D scene**. As you compose your thoughts, discuss how you set up to control the virtual camera for your 3D scene using different input devices.
2. **Explain the custom functions in your program that you are using to make your code more modular and organized**. Ask yourself, what does the function you developed do and how is it reusable?