CS330 Module Seven Reflection

The development choices for my 3D scene were based on the image I took that I wanted to replicate. The image was of my desk at work where I have a raised desk in the middle with a computer monitor, mouse, keyboard, pen, highlighter, and stapler. The objects I ended up replicating in my scene were the raised desk, computer monitor, keyboard, pen, and highlighter. I felt that these objects were a little more straight forward to shape with the selected shapes provided for this project. Each object I created did not require many shapes; the most were four shapes for the computer monitor. I was able to create objects like the computer monitor with two cylinders and two boxes. I scaled the length, width, and height along with positioning and calling the draw function for each shape to create what I wanted.

I added textures to all my objects as well to make the scene look more realistic. For example, I made the desk with a wood texture I found and altered the UV scaling so that the texture would repeat itself to create a tiled look with the wood. I struggled to find a texture for the keyboard to make it look like there were keyboard keys on it as I could not find many images that would work. So, I ended up using no texture for the base of the keyboard and added a black speckled texture to where the keys would be. Creating the textures was quite easy once I found an image that I wanted and worked with my scene though.

For lighting, I struggled the most with this milestone as I wanted my scene to look like an office where the light source is mainly coming from different areas of the ceiling so that there are little to no shadows and there is not really any color to it to get that LED office light look. I was able to figure out how to change the lighting to directional light to make a flooded light look using four light sources, but once I finally got my lighting to look how I wanted to I did not want to mess with it again and change one of my light sources to a point light. I made my fourth light source to be a little yellow so it can give a subtle glow to my scene. I enjoyed creating different materials as I made a matte plastic material and a reflective glass screen material. I used the matte plastic for every object except the computer screen as the scene was mainly made of plastic and did not need to be anything complex. For the computer screen I used the reflective glass material so that when you move around in the scene you can see those bright light sources shining off it and it makes it look more like a computer.

A user can navigate in my scene by moving up, down, left, right, forward, backward, and by moving the cursor they can look all around without physically moving. I added the feature where the user can use their mouse scroll to change the speed at which they move around the scene. The user can also change perspectives if they choose to view the scene in 2D or 3D by pressing a key. I was able to add all these functions by creating events where if a certain is pressed then that key is tied to a certain movement. For example, the key “Q” is tied to the up movement so every time the user presses or holds down on key “Q” the user will move up in the scene.

A custom function in my program I used to make my code more modular and organized is LoadSceneTextures. I felt that this function can be reusable in my future projects with computer graphics as it allows me to create textures from images and process them onto the objects I created. Another customer function is RenderScene. This is where all the objects are sized, positioned, and shaped. Learning how each variable affects each aspect of shape is one of the most important things I would take from this course as I have a better understanding of how to create anything from a simple shape to creating a complex object with multiple shapes. I think that this function did start to get long as I added more shapes and could have benefited from maybe having different functions implemented such as a function that calls creation of desk object and another for computer object. This would help separate each object into its own function if it has multiple shapes involved to help keep it more organized.