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CS 330 Final Project Reflection

When picking my real-life objects to capture for my scene, I wanted to pick a variety of shapes that would help me showcase my ability to manipulate objects in Open GL. While most of my objects were simple, a closed laptop, a glass sphere, a pencil holder, and a book, I made sure to have one complex object that would require me to use 3 different shapes to come together and that was my water bottle. It includes the main large cylinder, the bottle handle, and the straw coming out of the top that all had to be coded together to appear that they were one object. These objects were all situated on top of my desk so I knew I had to create a table object as a plane for them all to rest on, and I had to adjust the depth of the table a lot to get it to appear as a large enough surface and this was achieved by stretching the scaleXYZ glm::vec3(10.0f, 0.5f, 6.0f). I also gave the scene a new backdrop with a warmer lighting tone to match the ambient light in my office where I took the picture. This was the trickiest object to get correct in my scene and I tried many variations of sizing and lighting for my backdrop. I can see it clearly when I move the camera to the side, but not as much head on. I stretched the backdrop to cover the entire window with a x scale of 15.0f and brought it right behind the scene with a z position of -3.5f. I adjusted the shader color to be of a warm tone with scaleXYZ = glm::vec3(10.0f, 0.5f, 6.0f). My closed laptop, pencil holder, and book all use the box mesh object, and I wanted to showcase that I could manipulate the same mesh into different shapes by adjusting the scale and transformations. I also made sure in the code to comment on the position of each object relative to the laptop. With the water bottle having three components I had to adjust the position of the handle and straw so that they appeared connected to the main part of the bottle. I believe that I successfully made the scene cohesive with all of my objects and their design, I would like to fine tune the backdrop and desk objects to appear more lit up so that the scene looks more life like with more time.

My scene can be easily navigated with a keyboard and mouse using standard keyboard commands. I added a camera light to illuminate the scene directly from the viewer’s perspective and had the starting camera position be closer to the objects so that the detail is easier to see for the user. Once a user loads my scene, they can use W to zoom in and S to zoom out, A pans left and D pans right while Q and E move the scene up and down. While the user moves around the scene with these keys, they can look around by moving their mouse. If they wanted to shift to an orthographic projection view, they can use 1,2,3,4 to shift to different viewing angles. I added a function for mouse scroll so that the user could adjust the movement speed for the camera around the scene. This added an additional input device the user could control the scene with, and I could add even more input device controls for things like joysticks or controllers. I tried to make all my code in the scene manager very modular so that I could replace any object in the scene and create a new one if it was sitting on top of the desk plane. I ordered the rendering objects so that it would render the backdrop first, then the desk and then the other times so that nothing would overlap with each other. As mentioned before I tried to note each objects position relative to the computer so that if I wanted to update the scene with more detailed objects I could interchange them in the scene.