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CS 330 | SNHU

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Final Project Reflection

Over the course of this class, I have learned much about 3D environments, lighting, camera controls, movement, and shapes. I chose to recreate a 3D, low-poly version of my own desktop setup as it is something that I see every day, and yet recreating it proved to be quite challenging, as it forced me to look at everything from a simplified perspective. Every angle, color, texture, and material that I see every day now had to be recreated in a 3D environment with fewer edges, more simple shapes, materials that may not match the exact materials the objects are made of, and textures that did not match.

I chose a complex set of objects, despite many of them being made of just one or two different shapes. The headset that I created was composed of 5 different objects consisting of one half-torus, two half spheres, and two full tori. Maneuvering them around the 3D environment proved more challenging than I originally thought it would be. I had to use many of the meshes available in the shape meshes file to achieve my goal.

The lighting was particularly difficult to perfect, and I am still not sure if I am happy with the outcome. The ambient lighting was not strong enough to capture every shape, and the specular and diffuse lighting often proved too strong. In the end, I had to settle for what I could accomplish.

Allowing the camera to move about the scene was easy, but getting the orthographic mode to work as intended took longer than it should have. You can use the WASD keys to move the camera Forward, Left, Back, and Right, as well as the Q and E keys to move the camera up and down. The scroll wheel allows the camera to move slower when scrolled forward or faster when you scroll backward. The O key, when pressed before moving, allows the user to enter the orthographic view, while P allows the user to return to perspective view. You can use mouse to rotate the camera by moving it in any direction.

To allow for most of the camera movement, I had to set up several functions which would allow the mouse to access rotation of the camera, and the mouse wheel to change the speed of the camera. By making the lighting, material, and texture functions modular, I can use them as many times as I need to and may create up to four lights to ensure the scene is as visible, as necessary. I can make infinite materials and textures if I want to and apply them to any shapes I want if I load the meshes for those shapes. Because ShapeMeshes.cpp, Camera.h, ShaerManager.cpp, ViewManager.cpp, and the MainCode.cpp are all separate files, I can ensure that the changes I need to make to certain aspects of my code remain with relevant functions. This means I do not have to spend hours coming through code to find what might need changed.

This project was enjoyable and informative, and I am sure that it will help me in my prospective career, regardless of the route I take.