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CS 330 Graphics

Feb 24th 2024

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I started with the starting code that had the cube and floor. I choose to add a few more objects: sphere with a stand, torus with legs, and a couple of different sided pyramids. I choose these objects as they would fit the requirements of the class and give myself a challenge. The stand for the sphere uses the starting code of using a square and looping through a few positions/rotations to finish off the object. Then the sphere that sits on top of it as the light source uses a function with cos and sin as mentioned in the announcements. This function along with the torus function took the most amount of time to get correct. The pyramids reused the starting code that loops through a flat square to create them. I just turned the flat square into a flat triangle then adjusted the positions and rotations to create the three different types of pyramids in the three sided, four sided, and five sided pyramids.

To navigate the scene, use the default controls that came with the starting code. Holding the Alt key along with the left mouse button will allow the user to move their camera around the scene. Zooming in and out is also done using the mouse scroll wheel.

To make my code more modular and organized, I kept the same basic structure that came with the starting code. I only created two new functions at the top to generate the sphere and torus shapes. Beyond that, all the vertices and indices are grouped together. Then all the VBO, EBO, VAO declarations are grouped together further down. The drawings of the structures are grouped together after that. Then finally the controls at the bottom. I wanted to create separate

files for each so I would be easier to navigate but ran out of time. Then maybe a custom function for each shape that would take the necessary parameters to draw the shapes. The pyramids could benefit from being in a function that was passed in the number of sides along with random stuff like height, radius, and such to make the pyramids. I think a cylinder could be grouped in function that also creates the cubes. Just pass in the number of sides for any polygon. The top and bottom might be the troubling part of that function though.

This project was a lot of fun overall with some minor frustrations that naturally come with all programming. This was probably the most math and geometric intensive class I have ever taken, which was a relief. I am half tempted to go download Unreal Engine or Unity now to see how easy they make doing all the stuff we did in this course by hand with the help of OpenGL.