CS 330 Final Project

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I knew this course was tough, so for my project, I decided to use stuff from my house that's related to 3D printing – a cube and two spheres I'd printed before, and a 3D pen I use for printing. These items were already in the right shape for what I wanted to do. I put them on a table I made as a flat surface. Having these basic shapes helped me figure out exactly what I needed to make to finish my scene.

To make the 3D pen and cube do what I wanted, I reused shapes I'd already made in the class – a cube and a pyramid. For the 3D pen, I started with a cube and changed its dimensions to make it longer on one side but shorter on the other two. I used the same style for the pyramid as the cube because they should look the same in terms of lighting and texture. I found a white texture for the cube, made the cube smaller, and turned it around to show different sides.

For the spheres, I followed a guide from songho.ca that explained how to calculate the points and connections needed for different sphere designs. These calculations were easy to repeat, so I could make as many spheres as I wanted. For each sphere, I adjusted their sizes and found textures – a rainbow one for the small sphere and a blue one for the big sphere. The blue texture made the big sphere look rougher.

To keep my code organized and tidy, I divided it into different parts: the main stuff for my project, the part that takes care of how things look, and the part that actually creates the objects. For the shapes, I put all the code for different shapes together in a file called Shapes. This way, I could use the same code to create any shape without writing it all again.

To move around the scene, you can use the "W," "A," "S," and "D" keys along with the mouse. When you move the mouse, your view of the scene changes accordingly. By using both of these together, you can explore all angles of the scene.

Looking back, I realize there are things I'd change in my code to make it clearer and easier to reuse. Figuring out when to stop and make the code understandable for others can be hard in programming. I tried to add lots of comments to help me and anyone else reading the code understand what different parts do and why they're used in certain ways. Moving variables around in the code also helped me understand what values meant and why they're used where they are.

All in all, working on this project and taking this class was tough, but once I got the hang of OpenGL and organized my code to use it again, putting the final scene together was much easier. As I go further in my coding journey, I'll definitely remember this project and how writing neat and clear code makes a big difference.

References

Ahn, S. H. (n.d.). OpenGL Sphere. OpenGL sphere. http://www.songho.ca/opengl/gl\_sphere.html