Sarah Prince  
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Final Project Reflection CS-330

For this project, a lot of thought and consideration went into my decisions. I took a photograph of my record player (which has become a table overtime) and it had my two plants and a juice box on top. I chose these objects because I believe they showcase 3D shapes very well. My four shapes that I chose to incorporate into my project are cylinder, torus, pyramid, and cube. Both of my plants are bamboo plants and the vases are different shapes; one I combined a pyramid and a torus to create, the other is a simple cylinder. I created another cylinder to go on top of the cube to depict a straw coming out of a juice box. My fourth object in the image is the plane that all other objects stand on. I textured two of my objects by mapping my code to JPEGs to show the bamboo texture and the “Juicey Juice” box. I did struggle with the juice box, as my texture goes in a different direction than the cube does. I could not figure out how to stretch or manipulate the texture to properly show the box in that way. This project was a lot of trial and error getting everything to fit within the world as I wanted it to.

My project allows the user to navigate through the world using the keyboard and mouse. If a user wants the world to go up, they can hit the “W” key. The “A”, “S”, and “D” keys also allow the user to move the camera. I utilized GLUT which I found easier to maneuver around. I found the code that incorporated GLUT allowed my project to be more modularized. Along with the WASD keys, movement of the mouse is also possible if the user wants to rotate around the objects. For example, if the user wants to spin the image, they just move the mouse in a circular motion. If the user toggles the mouse, it will allow for zooming in and out of the world. Doing this will show a change in the light sources I implemented as well. There are two light sources, one is brown, which can be seen on the plane, and one is white, which can be seen on the objects. The brown light is showing a reflection from the sun on the plane, while the white light shows glares on the objects. My record player is directly next to a window, so I thought doing the light code the way I did would mirror that pretty well.

As stated above, I utilized GLUT, which helped keep everything organized and legible. GLUT has built in shapes which help not have so many lines of code. Using the “include math” header, a lot of the math that is involved with the shapes is already accounted for. For example, my cube did not need as much code if I were to program without GLUT. There were several header files I had created as well. Instead of having all of my code in one place, I would call upon those header files to save space within my workspace. I had shader header files and texture header files, for example, which helped compartmentalize my code. These header files can be reused in other projects if I make sure to call upon them and link the libraries. This will save me time in the future with any projects that need light, texture, shading, etc.

This project, and course overall, was definitely a learning experience. I had moments where I had no idea how to proceed. YouTube, LearnOpenGL and other resources helped me out a ton. Practice and repetition helped me understand certain functions and characteristics of the code. My biggest obstacle and adversity was learning what different error codes within Microsoft Studio were. Once I figured out the error codes, it was easier to fix when they would pop up again, as things got more involved and tedious. Applying texture was also a hurdle because I could not get my code and computer libraries to link properly. Overall, the stress was worth it and I am excited to take what I have learned and apply it to future courses and careers.