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CS 330

December 15, 2024

**Design Decisions**

The original image that I chose included several objects that were cut off, as I didn’t realize it was a requirement that they were whole objects, and I was instead thinking about the way it looked. I used the feedback from that original submission to choose another photo. The second photo that I chose I also took myself, but I just placed the objects on a white shelf against a white wall to make it as simple as possible, which allowed me to focus on the objects themselves. I chose a photo containing a glass vase, a spice jar, a lamp, a spool of thread, and a jar of honey. I chose 5 objects in case one of them didn’t work, so I would have at least 4, which was a good choice because I realized that the jar of honey had a 3D shape that was not in the approved list of shapes to use, so I left that one out and moved forward with just the vase, jar, lamp and spool. I tried to use objects that would show a variety of the shapes we were allowed to use. In the beginning milestones, I learned how to change the colors of object in the photo using a scale of 0.0 to 1.0 across 4 items in a matrix. Changing the ones and zeros order altered the colors of the object.

For the camera portion of the project, I added functionality to the code for panning left, right, up, down, and cursor movement. I struggled with the scroll functionality. This code was added in the view manager class, in the process keyboard events method, which is where I added the WSAD and QE keyboard commands. When a user presses the letter w, the camera zooms in, S, the camera zooms out, A, the camera shifts the objects to the right, D, the camera shifts the objects to the left. Pressing the letter Q allows the user to view the scene from above, and E allows the user to view the scene from below. Finally, the mouse allows the user to move around the scene to view the objects from different angles.

After each of the milestones were completed, I was able to go back quickly and re-use parts of the code to set up the rest of the objects and alter each one to match the specifications of the specific object I was working on. In the prepare and render scene methods of the scene manager class, I labeled each object, and sub-labeled each part of larger objects that required the use of more than 1 3D shape. For example, to build the whole lamp, I had to use a cone, a cylinder, and a tapered cylinder, which were labeled lamp: cone, lamp: cylinder, and lamp: tapered cylinder so that they were easy to locate. I used scale to adjust some of the objects to better match the image, and I rotated some objects like the cone for the lamp to be upside down to better create the idea of the taper of the lamp. Each section of code in the render scene method represents a 3D object as part of a whole object from my scene, and lays out the scale, color, rotation, lighting, position, and texture. That is how I was able to re-use the initial shapes to create the rest of the scene.