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**Design Decisions**

When deciding on the objects for my scene I thought about how easily they could be rendered in a 3D digital world. I am a beginner in this practice, so I knew that choosing overly complex objects would lead to my imitation being so far removed that it would be difficult to tell what the original object was. For example, a complicated human figurine would be extremely difficult to reproduce without creating a custom mesh. This means that my objects had to be simple enough to be easily recreated from the provided meshes. Therefore, I chose objects that resembled boxes, cylinders, pyramids, and spheres. This made it far easier for me to recreate these objects in a fashion that would be easy to discern. Another consideration that I made was how the textures for these objects would be recreated. I decided that picking objects that would require complex texture mapping would be a big mistake, so I chose mostly objects that would only require a few textures. I also noted that my texture limit is 16 slots, so I made sure that I would not have to exceed this in order to reproduce my objects. I also avoided crowding objects because I wanted to avoid making the transformation requirements overly complex. I chose to place some objects at more difficult angles to increase the complexity of the scene. This took more time to determine transformations, but it also increased the complexity of the scene. I also increased the complexity of the scene as a whole by increasing the number of objects. My new reference photo is shown here:

A table with objects on it

Description automatically generated

Users can navigate my scene with the “wasd” keys which traverse forward, left, back, and right. The “q” and “e” keys traverse up and down respectively. The mouse controls the angle of the camera, which has 360-degree rotation. The user can also opt for perspective projection with the “p” key and orthographic projection with the “o” key.

I was able to increase the modular organization of my code by creating separate methods for each of my objects. This means that they can be easily moved and manipulated without affecting other parts of the code. I also created reusable textures and materials with easy-to-understand naming that reflects the intended purpose of the corresponding tag. I also added ambient lighting as an option for my code because I find that is one of the easiest ways to increase the visibility of my scene without having to position lighting as strictly. My lighting has separately assigned values which each have a corresponding Boolean to turn the light off or on in the scene. This allows me to precisely determine which light serves its corresponding purpose in the scene. This allowed me to easily create the spotlight effect that mimicked the ceiling fan above my table without having to worry about the scene being overly dark outside of the spotlight halo.

Thank you for reviewing my project,

Adrienne