When developing my project there were many choices to be made regarding my 3D scene starting from the very beginning. My initial scene choice was mainly influenced by my desire to choose a scene that appealed to me on a creative level instead of just choosing some random objects that I could find. I had decided on a scene with some Halloween/magic-based objects due to my love for Halloween and the fantasy and horror genres. After deciding on the theme for my 3D scene I had to take a reference photo using objects I had around the house. It was important that the objects I selected complied with the project requirements and were also not too difficult to create so I selected objects that I thought were easily created from primitive shapes that I could recreated in OpenGL.

I had a lot more issues with creating the objects for my scene than I expected looking at the primitive objects. I didn’t know that creating curved objects would require a lot of math that I still don’t fully understand to create the cylinders and spheres in my scene. I also had was not able to figure out how to apply a texture correctly to these rounded objects as texture mapping without a program to help you is extremely difficult and takes a lot of practice. I also chose to omit some of the objects that were in my reference photo for my final 3D scene as I deemed them too complicated to try and create. The main object that was cut out was the bowl on the table as I did not have time to figure out how to make it concave.

The 3D scene can be navigated by using the keyboard and mouse to control the camera and change the perspective that the scene is rendered in. The WASD keys move the camera’s view around on the XZ plane relative to the cameras view while the QE keys move the camera up and down on the Y axis relative to the camera. Pressing the P key will toggle the view between orthographic and perspective. The mouse can be used to change the direction the camera view is facing while the scroll wheel will control the speed at which the camera moves using the keyboard.

There were many functions I implemented to make my code more modular and organized in the project. Many of these functions include the functions to create the mesh objects, load in the texture, process user input, initialize the program for rendering, and calculating each of the face normals for the objects. These are all reusable in future projects as they perform a single specific function that can be easily transplanted and implemented with no change necessary. My code remained organized by ensuring the use of comments throughout as well as making use of white space to clearly define the areas of my code that had different functionality.