Seeing as this was my first time ever developing a 3D scene, most of my choices were made with the idea of “make it work”. There were a myriad of things that I could have done better, specifically in the realm of modularization. The optimal way to handle this kind of task would have been to develop all the primitives as their own independent .cpp files and then include those files in the source. From here the primitives could be resized, rotated, moved, and textured while keeping the main part of the code clean and free of clutter. But again, my focus was squarely on making the 3D scene simply work at all. Additionally, the use of 3D shapes could have been refined even further. By using more triangles per primitive, and more primitives per object, the scene could have been further refined to look more appealing and accurate to the reference photographs.

With a mouse and keyboard, any user could navigate my scene. With the WASD keys the user can move; forward, left, right, and backwards, respectively. Furthermore, with the Q and E keys, users can move upwards, and downwards, in the scene. Using the P key users can switch between an orthogonal and a perspective view of the scene. With the mouse the user has standard 3D camera movement. Unfortunately, there isn’t any option to invert those controls for users who use inverted camera movement.

While I didn’t make any custom functions (beyond the scope of what was given in the tutorials at least), I recognized that there were some areas where I could have done this. Specifically with the generation of cylinders and circles. If I made the process of doing this in two functions that took arguments for, number of segments, radius, and height, I could have skipped over having to rewrite the code in those areas to make unique cylinders and circles. This could probably also apply to the triangle generation for the other primitives. Different functions could have been made for cubes, pyramids and so on, making it significantly easier to streamline and clean up the process of making unique vertices for each object in the scene.

Overall, the experience was very engaging and occasionally frustrating. It didn’t help that I gave myself a massive scare by deleting my source.cpp at the very end of the project (literally about 10 minutes ago). But overall, it was rewarding to go through the process and complete all the different steps to arrive at the final rendered image.