CS330 Project Write-Up

We often use or see the same objects within our daily routines, developing a familiarity with them. Translating that familiarity to digital 3D space can be challenging, but that’s what I set out to do for our client. They had wanted a small desk scene created with objects you would typically find there. This included some coffee, a pen, a piece of paper, and a stress ball for thought-provoking entertainment.

Utilizing several basic shapes, I was able to create more complex objects in the image of their real-life counterparts. The pen proved most challenging to recreate in 3D space given how I had to find a texture that wrapped around the exterior neatly and play well with the light. The plain paper is simply a flattened box shape given texture and nothing more. It was originally intended to be a notebook, but this would have required a texture map and given my timeline I wouldn’t have been able to complete it.

The stress ball is also a simple sphere with a shiny object material to emulate reflective foam and coloring. Lastly, the mug is comprised of two tori and two cylinders to present the illusion of liquid. The inner torus is shaded brown to give the sense that the creamer had just been added whereas the inner cylinder is lighter to reflect that. The mug itself is a textured cylinder with a torus stuck halfway into the cylinder. I had to appropriately scale this object to ensure that there was little to no clipping.

I have created and implemented camera controls that anyone can use to navigate the scene with ease. Directional control in the form of W, A, S, D will allow you to move forward, backward, left, and right accordingly. The keys Q and E also allow you to have vertical control of the scene if needed. The cursor, while locked to the window, can be used to rotate the scene for a more complete view. Additionally, there are orthographic and perspective viewpoints available by pressing O and P. Lastly, I have set the scroll wheel to function as a speed controller for the camera pan.

This was meant to showcase what a little artistry and willpower can do with an awesome tool such as OpenGL. Everything in this project was a product of reusable code that I modified to fit my needs. Every shape generated the same, every light fixture, texture, etcetera came from an understanding of the tool and toying with it until it worked in my favor. I had to get creative for some of my solutions to these real-world objects given what the tool was capable of and the time I had. The functions can be reused to the same effect for future projects that T&C Studios takes on, and with the commenting and documentation, should provide minimum difficulties.