For my scene, I recreated a Rubik’s cube in a plastic case, a video game case, a plant, an apple remote, and a zippo lighter. I chose these objects because they reflect little things I enjoy doing throughout the day. I also chose these select few items because I thought it would be exciting to recreate these shapes as 3D objects. The first object I replicated was my Rubik’s cube which was a complex object. I used box mesh to first replicate the cube, then used box mesh sides to create the texture and color of each face of the cube. Afterwards, to recreate the plastic cover and base, I used a cylinder for each. For the case, instead of using a texture, I set my alpha value to 0.3 in the shader color to give transparency. For the base, I scaled the cylinder top appear flat and combined everything. For my plant, I used a cylinder mesh. To recreate the dirt on top of the plant I had to change the bool value of the cylinder mesh to access the top. In the dirt, I attached the plants which were replicated using a prism. I referred to the knife in the OpenGL sample to help with the scale values.

When I first proposed my project, one of the shapes I planned on using was a rectangular prism, but I realized that I had to create my own, so I opted for a box mesh instead and scaled it to match my objects to reflect that shape. My video game case, zippo lighter, and apple remote were the reflection of that discovery. I used a box mesh and scaled it to replicate my game case. I used the actual video game cover as the texture for the top of the case using box mesh side and the surrounding texture to give off a blue plastic visual. My zippo lighter was a combination of two box meshes. I rotated the lid at an angle and positioned it to show an opening and made it half of the lighter’s body size. For the texture, I created the color using the background of the

photo of the US Army logo, so the lighter could be the same color as the front of it. For the remote, I used another box and attached mini cylinders to replicate the controls of the remote.

To navigate my 3D program, I had to set up key functions to control the virtual camera. To enter a perspective display, you would use the key “p’ and for orthographic display you used “o”. While in orthographic “o” will provide a front view of the object, “2” will provide a side view, and “3” will provide a top view. The next set of functions can be used in both displays. “W” provides the function to zoom in, “S” to zoom out, “A” to pan left, “D” to pan right, “Q” to pan up, and “E” to pan down. The scroll wheel on the mouse can provide speed for the camera movement, slowing it down or speeding it up. The mouse wheel can be used to rotate around the scene. For custom functions, I broke each item down into its own class and provided names for easier classification. By doing that, it improved the readability and reduced redundancy. I also didn’t have to keep declaring the transformation values for each shape I used. Within the classes, some objects had more than one shape to combine, so I made sure to group them together after the main object was created, and if I used multiple of the same objects, I was able to copy and paste them and modify if needed.