When I was looking at what to select what objects I would choose for my scene. I thought what I have and what can I use to make sure I fit into these simple shapes. I chose a D4 dice from DND because I love to play DND. I chose the box because it has a figurine from one of my favorite games. I got the cup from a renaissance fair, and I got bird seed from my pet birds. I feel like these objects represent a part of me and who I am in my life outside of school. The bird seed is also a cylinder. The cup is a cylinder with a torus for the handle and the rim of the cup. The D4 is a pyramid shape for some dice. Finally, the box is a cube shape that will be the final basic shape that is needed for the project. I was able to program for the required functionality by using meshes that were provided to me to form the shape of each of the objects. I was able to set up a location and a tilt of the objects. I was able to set up each of the positions to form into the desired arrangement. I was able to make the cameras move by setting the cameras to be controlled by keystrokes on the camera and I was able to allow it to be controlled by the movement of the mouse. This is done by using the wheel and movement of the mouse. This is set up in scroll mouse call back and the movement connections of the mouse. I was able to set up for the view changes by setting up two different render functions. This was done so that depending on the view it would switch views and switch render functions at the same time. I was able to bring in textures and then bind them to the shapes in the render function by using the glBindArray function. Finally, I set up lights so that they would hang above the table and cast light across the table.

As I was discussing in the last section there are quite a few ways that one can navigate around my scene. The first is by the mouse. I set up so that the mouse can control the movement and speed that the camera would move around. If the mouse is moved, then the camera is moved by a set speed. Though if the user uses the wheel on the middle of the mouse, then they can change the speed that the mouse moves. Then the user can also use keys to move around though with much less freedom. WSAD allows the camera to move side to side and allow the camera to zoom in and zoom out. This allows you to be able to get a better look at the objects. Then there is the buttons Q and E, these allow the camera to move up and down. These keys allow the camera to see up close on most any object. Then finally there is 4 cameras that have been set up and these are controlled by the numbers 1-4. These change the way you can see the objects from being above to beside the objects, and behind. This allows the user to see the objects from more than one angle.

I set up a function that is meant to be the counter for the switching between the views. When it is odd it would be one view and when it is even it would be the other one. I set it up so that it could be pressed several times. This could be reused since it starts as 0 and has no upper limit. It also will always restart at 0. I also have one set up that will flip the image around and that can be used across multiple programs and has been used in several projects across this class to make sure that an image comes out the way that you would want it to. Then each of the functions for different mouse movements and this can be reused across any number of programs that would allow for mouse movements. The meshes where set up to take points and to draw the shapes out of triangles and to determine points. These can be used repeatedly and for multiple different shapes. Since they are simple objects, and these simple objects can be made to make bigger objects than they can be used to make bigger objects in bigger projects.