Final Project Reflection

I developed this scene based on select fruit from a fruit platter image, submitted in the original proposal. I selected five object groups to model: a table, a plate, pineapple, grapes, and a strawberry. The table I modelled as a base to support the rest of the scene. It provides context for the plate and fruit to appear supported in the scene, as opposed to floating in space. Originally, I tried modelling the table with a plane, but ended up opting for an x-z axis elongated box. This additional depth makes the scene look more realistic as camera angles change, since tables are three dimensional surfaces. I selected the plate to model for a similar reason: since the remaining objects in the scene are food, I wanted to provide more context and support for the fruit in the scene. The plate guides the viewers’ gaze to a focal point. The plate was modelled with cylinders stacked on top of each other (one as the base of the plate and one as the surface for holding food). To imitate the rim of the plate, I used a torus. The result was not a perfect replication of the plate, but since the model was limited to basic shapes, the cylinder-torus combination is the best option. I selected the strawberry because although it was the biggest challenge in the scene, it has interesting shapes and textures that increase the complexity of the scene. Despite being a complex shape, it was easily broken down into basic shapes: a tapered cylinder bookended with spheres to make the body of the strawberry, and a small plane and cylinder for its stem and leaves. The grapes, I chose because they interact with the lights in the scene in a fun, interesting way. They are formed very simply, with elongated spheres, and they also serve the purpose of supporting the strawberry. The pineapple was selected because of its simplicity (stacked boxes) and its cheerful color, which brings brightness to the scene. I added three pieces of pineapple because it creates the greatest height at the center of the scene, which provides some sense of symmetry. I found this symmetry to provide cohesiveness to the scene. Additionally, the boxy shape of the pineapple is the perfect, simple canvas for an applied texture.

To navigate the scene, there are both keyboard and mouse tools that can be used. On a keyboard, W, S, A, and D can be used to navigate forward, backward, left, and right, respectively. Q can be selected to move the camera up and E can be used to move it down. Selecting O will put the camera in a straight-on orthographic position, while P will put it into and angled, perspective view. While navigating, scrolling up with a mouse scroll wheel will increase the camera velocity, while scrolling down will reduce the velocity. Moving the mouse from left to right will change the angle of the camera view.

The program is modularized to break down each main object into a different function used to render the scene. This was done for several reasons. First for reusability. When each object is rendered with a different method, if I wanted to create multiples of that object or add that object in another program, I could easily re-use that method elsewhere. Next, when the code is more modular, it is easier to read and understand. Instead of having a giant function that pieces many basic shapes together to form multiple objects, there are multiple smaller functions that piece together basic shapes for each object. This can make it easier to understand which basic shapes are used for each complex object. Next, when the scene render is broken down into separate methods, it can be useful to hide one or more of the objects when a nearby object is being built (to improve visibility). If all objects were rendered within a single method, large blocks of code would need to be deleted or commented out to do this. Separating into different rendering methods and only rendering the objects you want to view is a much easier, cleaner way to build the scene. Additionally, the textures, lighting, and materials were separated into different methods as well. This allows for materials and textures to be built in a single location and reused for multiple objects.

Appendix: the rendered scene

