**Module 7: Final Project**

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The scene I had chosen to recreate was a plate that with divided sections, with different food types. The food types are waffles, bananas, and blueberries. To make the plate, I used a sphere that was flat, this allowed me to have a circular base. I then used a torus to create the outside rim of the plate. Next, I used boxes to create the divided sections. These combinations allowed me to create the plate. For the food, I used sphere to represent the blueberries, boxes to represent the waffles, and a combination of cylinders and tapered cylinders to create the bananas. Since this is a 3D project, I was able to use all three dimensions to create these objects.

Traversing the 3D space should be simple for a user, while the arrow keys are more easily identifiable as to what direction you are going to move, the mouse is also on the right side of the keyboard. Therefore, I had chosen to use a WASD setup to traverse space, as well as Q and E to move up and down. I also implemented buttons O for a quick snap to the orthographic view, from the front perspective and L for and orthographic view of a top-down perspective. Next, we need to be able to switch into perspective mode, I used P to allow the user to get back to this mode. The final button I implemented was the escape key, this just closes the program, since the mouse is unable to leave the scene. Lastly, I had called GLFW\_CURSOR\_DISABLED, this allowed the user to continuously scroll around the scene without leaving the application.

Creating functions allowed me to save a lot of time by reducing the need to type the same code over and over and instead just pass in certain variables. This is used heavily thought the project, I will point out some of the most used functions. Inside Render Scene, this is where we are creating the 3D world, which requires many meshes to be loaded, and sized, positioned, shaded, and lighted. After entering the variables for each object, I would call the

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SetTransformations functions. This allowed me to change the size, the rotation on each of the three axes (plural of axis), and the position of the object I was creating. Now that the object has that information, I use the SetShaderTexture to apply a texture to an object, this makes the object look more realistic. Next, was to set the ShaderMaterial, this is what gives the material the knowledge in how to act when it comes in contact with a light source. Whether an object would be reflective, or non-reflective, shiny or dull. Lastly, I had to draw the mesh which was done by calling the appropriate draw mesh function. All these functions are just a small portion of the program, many more functions are used to control the camera view, the scene lighting, the buttons for moving around the 3D space.

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References