7-1 Final Project

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While developing the objects for this project I made a focus on realism. To do this I decided to replicate some objects that could be found within a home just randomly grouped together on a table. These objects include a desk (represented by a plane), a cup, a picture frame with a picture, a lint roller, and a VR gaming controller. These objects were easily able to be broken down into basic 3D shape meshes making the project easily obtainable in the time allotted. To ensure the realistic setting I made sure to properly code the rendering functions to help give the correct scale for my objects to keep continuity between the items. With this I also applied specific material and textures to the shape meshes to help make the scene more visually appealing and realistic by applying proper reflections and shading. For example, I used textures for wood, plastic, glass, and straw to give each object its unique appearance and allowed light to affect each item individually giving the scene even more realism. The lights used for the scene include a warm yellowish spotlight above the scene acting like a typical dining room light and a diffused blueish white acting like daylight peering through a window in the background. The main spotlight acts as the main light for the scene creating the tone and casting the harshest shadows giving the scene its depth while the daylight picks up the scene slightly giving a bit more visual data into the shadows from the main light source.

The user will navigate the scene using both their mouse and keyboard input. The keyboard will be used to strictly control the camera’s movement forward, backwards, left, right, up, and down. While the mouse uses its scroll wheel to slow down or speed up the camera and then uses the movement of the mouse to gyroscopically move the angle of the camera which allows the user to look in any direction with the camera without necessarily moving it. Additionally, the keyboard has two additional inputs “o” and “p” these inputs fixate the camera to individual points in the scene giving both a 2D orthographic view with “o” and a 3D perspective view with “p”.   
 There are some specific functions that help keep the code modularized and organized. Some of these functions include SetTransformations, SetShaderMaterial, and SetShaderTexture. SetTransformations sets the scale, rotation, and position of each object in the scene. It allows for easy adjustment of object properties and ensures consistency in object positioning throughout the code. SetShaderMaterial sets the material properties for each object, such as ambient color, diffuse color, specular color, and shininess. This allows for the customization of material appearance and facilitates realistic shading. SetShaderTexture binds textures to objects in the scene, allowing for realistic surface appearances. It ensures that each object is properly textured according to its material properties. Each of these functions make the code more modular and organized by encapsulating specific functionalities making them reusable across different objects in the scene, allowing for easy customization and maintenance.