**7-1 Project**

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A picture containing text

Description automatically generated

The objects I chose to complete this scene were based on the reference photo. The surface these objects are sitting on is a plane; On the left is a jellybean box consisting of a tall rectangular prism and a pyramid. To make this, I focused on keeping them the same size for the width and depth, then positioned the pyramid on top where the height coordinates end for the rectangular prism. They were translated to the leftmost side of the screen to fit with where the object was in the photo I referenced. Next was the Rubik’s cube; although the shape was not difficult to make, I found creating the faces a little more challenging. I assigned one texture to this object with the six different faces of a Rubik’s cube and adjusted the texture coordinates to display the correct face for each side. My last object was the stick of deodorant that was a cylinder, but for simplicity of rendering, I made it a rectangular prism. The object has an off-white texture to reflect the real object.

A user can navigate the scene by keyboard and mouse using keys for navigation control while looking around with the mouse. When setting up the camera functionality in this project, I focused on some of the primary goals for movement. The different input devices used for navigating the scene are keyboard keys and the mouse. The application needed to move with the WASD keys to navigate the scene forward, backward, left, and right. The mouse can also look around the scene while the Q and E keys move the camera up and down. To accomplish this, I first had to set it up to detect input from these devices. Then I used mouse callback functions for the position of the mouse and detecting scroll; mouse click detection was also included, although they do not serve a valuable purpose yet. The process input function is where movement from keys is checked for and given the appropriate action.

The strategy I used to add more objects to my scene quickly was by utilizing the #pragma region for the binding and creating the mesh. The code has separate sections for the required functionality, which can be easily modified, or additional sections added to increase the objects within the scene. I feel this approach made it modular and reusable by simplifying the locations of important information related to creating new objects that each have their independent variations. As I worked on this code throughout other weeks and came to the point where I would need to add more objects, I found it easier to add more objects to the scene from how I set up the code by duplicating the regions for bindings and mesh creation then adding different textures for individual objects.