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Project Reflection

The objects I chose for my scene were a candle, a cardboard box, a cat desk squish light, and an easter egg. I chose objects based upon three criteria: each object could easily be broken down into component/primitive shapes, each object was not overly complex (simple objects only), and I had an interest in re-creating each object for my project, because as suggested, the project should be easy, simple, and fun. I took photos from various angles as well as a photo of the background of the image to reference as I worked on my project. I used a plane to represent the surface of the dresser, upon which the objects of the scene sit. The cardboard box was created using a cube that was then textured as cardboard. The candle was created with a cylinder and is by far the most complex object in my scene. The Easter egg was created with a low poly sphere that was scaled (elongated) to resemble an egg. The cat desk squish light was also created using a sphere. I used blender to get the rough shape for reference, then plotted points and adjusted them to best fit my scene.

My scene can be navigated using WASD, QE, and PO. WASD moves you forward, left, back, and right respectively. Q and E will move you up and down. P and O will change the projection to orthogonal (O) or perspective (P). The mouse can be used to change the camera view. Mouse scroll can be used to change the speed of movement, with 0 (not moving) being the lowest possible speed. It is possible to customize these input devices as necessary or add additional input devices as desired.

Initially, I generated shapes using one very big array list that held the coordinates for every shape in the scene. This was an issue for multiple reasons and resulted in code that was difficult to add to and unorganized. It also meant that an issue with one object could affect every other object in the scene. I worked to create objects separately and comment on my code heavily so that anyone could read through and generally understand what sections correspond to each object. Specifically, I used separate VAOs and VBOs for each object, then created them individually in the rendering function. Additionally, when creating the cylinder object, I created a function that takes the desired number of triangles as an input and uses math to calculate the points on the top and bottom circle, then connect each point to create a cylinder. This was one of the most difficult aspects of this project, but it is also the thing I am proudest of. The function allows for the cylinder to be adjusted in its radius, height, and the number of triangles used.