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I decided to choose objects that would best represent objects from my reference photo. By doing this I could recreate a fairly accurate 3D scene. My scene was a fireplace with a mantle as well as some decorative objects on it. I used a plane to represent the fireplace which was placed against a wall in my photo. I then used a cube to represent the mantle, elongating it into more of a rectangular shape. On the mantle was a lantern, it was rectangular with a pointed top. To make this I used a cube and a pyramid. I placed it on the mantle making sure to make its size relative, so it looked similar to the photo. On the right side was a candle holder represented by a cylinder.

I decided to create my shapes used vertices rather than indices. This allowed me to create many shapes and have them work correctly in the scene. When I originally attempted to create a plane and build upon it the shapes became connected and did not appear correctly. By coding them as vertices the issue was solved. By adding textures, I was able to make the scene look realistic. Rather than just having objects of a solid color I was able to create ones with patterns. This helped make my scene look more professional as well.

Users can navigate through the scene by using both their mouse and the keyboard. The keyboard allows users to zoom in and out as well as move left, right, up, and down. By using the mouse users can look around the scene. This makes is so users can see the scene from various angles rather than just from one. This also helps the scene seem more realistic. It also allows users to see various parts of the scene that may not be visible from all angles. The mouse can also adjust the speed of movement allowing a more customized experience. By pressing a button on the keyboard, the perspective can also be changed. This also helps make the viewing experience more customized as users can decide what view they would like to have while looking at the scene.

The program has many customized functions that more the code more modular and organized. For instance, there are functions for creating and destroying textures, the shader program, the mesh, as well as rendering the window. Each of these functions is editable making the program more customizable. There are also functions for scrolling with the mouse, and processing input. These can be edited the make different things happen. For instance, if I would rather use the mouse scroller for zooming in and out I can go into the scrolling function and change the code there to do this. The functions make the code more organized because the code is organized by what each one does. This makes it so if I know I want to change something I know exactly where in the code it is. Even though my program has almost 1,000 lines of code I know the general location of every function. This makes the program much more manageable and less overwhelming to work with.