For this project, I wanted to choose items in my home that were cherished. At first glance, I thought the scene I selected wasnt going to be difficult enough to meet the requirements for the project. Every shape that I had to create felt like it was going to be easy to recreate. While some of the objects I needed to create were simple, the folded chess board and the Bee box. The shapes were easily created with box shapes. The chessboard took a few extra shapes, a plane to create the chessboard texture, and two cylinders for hinges. The other two objects were a lot more difficult for me to wrap my head around. The Diffuser was the next object I finished. A sphere shape that was flat on top and bottom. The provided meshes did not have the exact shape I was looking for. To create the shape overlapped two Torus to create a sphere shape with a hole in the middle. I then used a cylinder shape and only drew the top part to create a flat top for the diffuser. The most difficult object I was trying to create was a glass jar. After hours and hours of googling, The amount of work that is needed to create semi-realistic glass was too daunting. I decided that it was beyond my knowledge to create a glass object. Then I had to create the object, It was a square jar with rounded corners that sloped into the neck and had an odd-shaped lid. I could not get the shape to look right so I ended up changing the shape to a cylinder-shaped jar. This made the jar more manageable to work with. I used a cylinder for the body, then a sphere to create the sloping of the neck. I then stack two torus to create the lid. I add a cylinder top to close the torus. After I finally complete the scene I ended up putting a lot more time into it than I first imagined.

After creating all the objects for the scene I had to find textures that were similar to the real objects. For some of the textures I just took pictures of the objects and used the photos to create png files. For some of the textures I couldn't get a decent photo so I used Google image search. The provided texter sampling handout helped me find textures that I could use. I did run into an issue trying to load and use all of the textures. After following the tutorial I felt like my scene was loading way too slowly. I ended up setting a meeting with the professor to see if he could help work the kinks out. He was a huge help and saw what was wrong immediately.

Now that I had all of the objects completed I had to add all the functionalities that were required. Camera movement, mouse and keyboard input recognition, projection, and orthographic views. Most of the functionalities were somewhat easy to implement. After going through all of the tutorials I added them one by one throughout the class. The most troublesome functionality to implement was the perspective view to orthographic view on a key press. I added a bool for an if-else loop. It worked but was unreliable, the GLFW\_PRESS continually registers while the key is down. So the camera view was changing over and over even if you pressed it and immediately let go. To bypass this issue I change from an if-else to two if statements and added separate keys for the views. This allowed seamless and reliable access to changing views.

From beginning to end, I learned more in this class than in most of the other programming classes I have taken. The amount of planning, changes, and material I had to read to make it through the project was difficult but rewarding. While I did not have to create and special function to make it through the project there was a lot of trial and error.