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Final Project: Reflection

The final project was to create a 3D scene by using what we learned in the previous milestones to make the objects as realistic as possible. Since I am a fan, the objects I chose were memorabilia from the “Indiana Jones” movie series. By choosing these items, I was able to become more interested in completing the project and making them match how they are portrayed in the movies.

The items look basic, but each of them use many different shapes. I was able to use three cylinders of different sizes to make the cup, a cylinder and sphere to make the stone, four different boxes to make the journal, and two cylinders and a torus to make the hat. The cup and the journal had textures added to them to include another realism factor. In the journal, I even was able to make the pages look realistic. I originally used two planes, one for the table and one for the background. I ended up turning the table into a box so I could make it thicker, as if it was a table. I also added texture to the background and a table texture to help the items “pop out”.

I was able to create the items in “Scene Manager” by first calling out the shapes. I then was able to manipulate the scale, rotation, position, and color using x, y, and z coordinates. The shape was then called to be drawn into the program. The textures were found online and were created and called in the object creation functions. Finally, the multiple light sources were made choosing the position, ambient color, diffuse color, specular color, strength, and intensity.

The virtual camera was setup in “View Manager”. The callback functions were not only to be setup in this file, but also to be called in the header file to be originally created. The camera keys were setup by the “glfwGetKey” command, so the user can move around the scene, as well as up and down. Orthographic and perspective displays also used the keys to set a predetermined location of the camera. The mouse movement used x and y coordinates to find where the mouse was and how it could interact with the scene. The mouse scroller used a y coordinate to change the speed of the camera moving around the scene.

All of the objects I created fell into the same class. In that class, there are headers that stuck out so it is easier to find. The code can be copied or rewritten for each item. The coordinates for scale, rotation, position, and color can then be changed to make the item that is needed. Throughout the project, I made sure to keep the code neat and readable so it was easy to move back and forth. Many times, while making projects like these, you will need to go back and move other items or light sources around so the scene fits better together.

Overall, I learn quite a bit and how to take C++ to the next level. Even though it was a very basic 3D program, it was neat to learn how the objects are made and how one small change can manipulate the whole scene.