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Final Project Reflection

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The course of the project was challenging then and even now as there are still many kinks and bugs to work out which I have tackled and am still tackling. But I have found that using algorithms and multiple methods helps with modularity in OpenGL to help produce more projects in the feature and highlight simple shapes which can be made with recurring code. Having techniques and good lighting and textures really make your project pop out and become more alive as shown in many examples. For my project I tried to use more simple objects as I am still very novice at using OpenGL, but I can see how complex the coding can get. Complex scenes can be made with even more complex shapes using basic shapes together which I found very fascinating when going through the course. To maintain the required functionality, I used tutorials made by the class and online along with references from the sources to piece together how I wanted to continue developing my code weekly. Having each required function every week made my project come to life bit by bit. Starting with simple object creation, user input, camera input, texturing, and lighting one after another. I was able to incorporate each part of this with the code learned and see how it all connects to make the final 3D scene. For the navigation, there is standard WASD movement with the camera via keyboard input. There is also movement for up and down using Q and E and the mouse for orientation. Using the camera header these motions can be predefined to be used in many inputs and scenarios. While the user uses the keyboard inputs the values for the vectors are changed within the scene allowing the orientation to be changed in real time to navigate the scene. Within my project I used the method of shape building, these allows multiple shapes to be made more intuitively. This was a wonderful use of mathematic algorithms to get the vertices setup for each shape which saved space on a lot of code through my assignments. For more complex shapes such as cylinders and spheres, calculations were done using cosine and sine to determine the points to form the shapes in circular orientation. Hollowed shapes used multiple shapes put together to form a more wireframe, for example, the mug as a hollowed cylinder. This and many other applications in the course have all taught me how universal OpenGL can be. I had not known much about OpenGL or even the concept of 3D modeling using raw code to put it together. There were many challenges as I had mentioned before which will continue to be a learning process, but I was still intrigued the entire course at how little by little, pieces came together. This gave me a whole new perspective on how much effort and work can be put into 3D models in programs or software or media in general, which all stems from the foundation of the code to produce the 3D models and environments. I have a new appreciation in this field and am excited to learn more in my future career with Computer Science.