Michael Divis

CS-330-T1030

24 October 2021

Week 7 Project Reflection

During this course I struggled a bit in the beginning and also a bit through the middle too. It took me a while to get a grasp on how the shaders and everything tied together to produce the images on the screen. The part I understood was the vertex arrangement and having to create things using triangle shapes all made sense to me right off the bat. Going into this course I thought I was going to have a much smoother and simpler time understanding how to build the scene because I had done a bit of programming before using directx11. This was not the case; I had a tough time since it had been so long that I had to create anything 3D like this course required. Creating my scene was a fun time though and I am glad I was able to finally get myself through it and create something that represents some hard work and effort over the past few weeks. Developing those skills will take some time but I am happy to have been able to get a slight grasp on it for the time being.

For my 3D scene I tried to make a little simple outdoor scene with a house in a field with a soccer ball and some wooden boxes laying around the area. This would kind of just represent a small house scene where the sun would be shining down from different angles and directions and light everything up. The functionality of the lighting and the camera was fairly easy once I got the hang of it, but texturing was still giving me issues for a while. I think I got it for the most part at the end, everything looked textured okay to me. Being able to create a 3D scene from nothing is a really fun experience and I really enjoyed going through the steps to bring everything together nicely.

With my 3D scene the user is able to do a few things to make it more interactive. First off it starts off in perspective mode and if you press P, it will change it to orthogonal viewing. This will allow for change of the projection matrix to see the rendered objects or shapes in a different output design. The next thing implemented is the mouse movement being able to tilt the camera up and down and left and right, rotating it around so you can look different directions not just forward. The next pieces are the key movements: Q, E, W, A, S, and D. These were using to move the camera up, down, forwards, left, backwards, and right respectively. This allowed for movement around the scene to be able to look at each piece from any angle or location. The last key functionality that was added to the scene was within the number keys 1 through 6; these keys were able to move the light object around the scene using the x, y, and z axis for the movement. this allowed for the user to move the light around while the scene was rendered to the screen in real time. All of this functionality was fun to learn and add to the scene. It helped to get objects placed in the right positions as well as setup normals and texture coordinates when mapping things together.

I was catching up a bit so there was not a ton of modular programming done to my project. There were some functions to load textures and some other ones to generate objects but with time being not on my side anymore I was creating a lot of functionality on the go. I understand a lot can be created modularly so that there isn’t a need to rewrite statements repetitively throughout the code. The few things I had implemented as functions that I removed were creating a sphere, a cube, and my pyramid. This functionality was changed because I was trying to understand the VAO and VBO aspects better and didn’t put them back in the right amount of time. In the future I plan to make more of my code able to be reused for multiple things like dynamic objects, pass a name and some sizes and create whatever needed with one call.

Coding in the 3D environment was a great experience and I really had a great time learning opengl and still clearly have a lot to learn and a lot to develop. Opengl is a good skill to have because it is dynamic for a lot of systems and can create visual graphics or games or whatever needed for multiple devices and not just limited to windows or something specific like that. Opengl can be used to create ISO, MAC, windows, Xbox, you name it, and it can most likely be used to generate ethe graphical aspect. I’m glad I got to learn this language in this course and can’t wait to get further into it in my own time and develop some even better 3D scenes and designs and maybe even games.