Southern New Hampshire University

CS 330: 7-1 Submit Your Project

My 3D Scene

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**Justify development choices for your 3D scene**. As you write, think about why you chose your selected objects. Also consider how you were able to program for the required functionality.

I wanted to ensure that I included at least four of the required shapes. Therefore, I made sure to choose a cube, a cylinder, a pyramid, and a plane. Two of the objects in my original scene had floral patterns which is why I chose the floral texture. I was able to program the scene with the required functionality by using the tutorials. I also used the learning OpenGL website contained in the resource’s sections of the modules.

I followed the initial setup of the key functions to add keys Q and E for upward and downward movement. I used glortho and glviewport to add code for the orthographic and perspective views. The light was added above the scene to match how it looked in the original scene. I mapped out the placement of the objects in relation to each other using a 3D plotting website called technology.cmp.org (CMP Educational Program, 2014).

**Explain how a user can navigate your 3D scene**. As you compose your thoughts, discuss how you set up to control the virtual camera for your 3D scene using different input devices.

A user can navigate my 3D scene using both the mouse and the keyboard. The mouse is used to look around the screen to change the orientation of the camera. It allows the user to look up and down or right and left. The mouse scroll can adjust the movement speed of the camera. The W key moves forward. The S key moves backward. The A key moves left and the D key moves right. The addition of the Q key moves downward and the E key moves upward. The implementation of both the mouse and keyboard allows for easy movement around the 3D scene.

**Explain the custom functions in your program that you are using to make your code more modular and organized**. Ask yourself, what does the function you developed do and how is it reusable?

I kept the functions in my program similar to the way the functions were setup in the tutorials and the learn OpenGL resources. I was able make the code more organized by keeping the formatting of the code the same throughout. For example, I added shapes in the URender function with the same setup as my original 3D shape. I used multiple functions for each aspect of the program to ensure that it stayed modularized. I made sure that every create function such as UCreateMesh and UCreateTexture had a destroy function as well. The assignments in this course were difficult but I was able to use debugging and trial and error to fix the issues that I ran into along the way. I am looking forward to learning more about OpenGL.

**References**

CMP Educational Program. (2014). *CMP 3D Plotter*. CPM 3D plotter. Retrieved October 18, 2021, from https://technology.cpm.org/general/3dgraph/.