**CS-330: 7-1 Project: Reflection**

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* **Justify development choices for your 3D scene.**

In module two, I chose the scene that I did because it spoke to me as a fan of dungeons & dragons and RPG settings. The idea of rendering a dungeon altar was exciting. I immediately set out to make the altar using two cubes. One on top of the other and the bottom one is larger on the X and Z axis while much smaller on the Y, to create a base for it. After this, I continued to use cubes to generate the altars simply by scaling them dramatically on the Y axis. This allowed me to recreate the scene building up to the altar with the columns quite nicely. After this, planes were used to make a floor and ceiling to give it that interior feel.

The stone texture seemed fitting for all my objects and thus I made certain to include accurate normal and texture coordinates for every mesh for the texture to be applied to. From here, creating an ambient light coming from the camera’s position gives the illusion of light coming from the previous room while 3 diffuse lights, 2 orange ones and 1 blue one, were created to replicate the lights in the reference scene.

* **Explain how a user can navigate your 3D scene.**

The user can navigate my scene using W, A, S, & D much like a first-person video game. Also like a video game, the mouse cursor position is tracked to orbit the camera simulating the movement of one’s head. In addition, Q and E are used to allow vertical movement giving angles that would normally be impossible. There is also a toggle between the orthographic and perspective cameras allowing one to view the world more naturally through the perspective lens or in a more 2-dimensional manner using the orthographic lens, where depth is not perceived. The columns are a notable example of this.

* **Explain the custom functions in your program that you are using to make your code more modular and organized.**

I put many things into functions. A function to create a cube was used to make most of the objects except for the floor and ceiling which were both made with a plane function. A separate function was used to load the texture, flip the texture, destroy meshes, destroy textures, destroy shaders, etc. I tried to use functions where applicable.