Anthony Vigil

**Assignment 7-1: Project Design Decisions**

CS-330: Comp Graphic and Visualization

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**Design Decisions: Reflection**

1. **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.

My scene is made up of a table, candle, watch box and two water bottles. I looked at the primitive shapes that it would require to create the scene and established that I will have to use a cylinder for the candle and a cube for the watch box. To conserve time, I decided to not implement the water bottles in the scene. I planned on using two cylinders on the candle and using one cube on the watch box but scaling it to size. It was trial and error with positioning and scaling on both the candle and the watch box. As I was limited on time due to errors and debugging, I was not able to implement the candle with two cylinders. The candle is taller than the watch box. The table is made up of a plane, where the objects are resting on. The lighting was a bit more natural and positioned towards the back left of the camera so adding two spot lights was ideal for me.

1. **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.

The user is able to navigate through the 3D created scene and observe my 3D objects by moving the camera with the mouse. I also added keyboard key functionality to move around the objects such as the letters A,S,D,E, and W. Clicking the keyboard letters will move the direction of the camera and move the scene towards a directions as well. The camera is great for getting a view of the rear side of the scene. At first, I had issues with the camera positioning and setting ortho but reading up the OpenGL website helped me understand it better.

1. **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?

In creating the code, I used the UDestroy function to de-allocate the sources. The resources include cubeVAO, and VBO. It is purposeful in cleaning up the space in the program. The code has indentations, comments, and labels on all the variables. The information is very clear on what the code is doing within the program. I did however have difficulty using more than one texture in creating the scene. All my header files are included in the beginning of the code, along with the title of the assignment. The function prototypes are placed after the header files and then the global variables. After, the window is created for the program which calls for the shader files, textures, vertices, and functions. However, I did have issues with the textures in importing multiple files. I contacted Brian Battersby and received guidance on how to proceed with multiple textures. I managed to update the code and sort out the issues with the errors and then adding the lighting to the scene. I believe the code is easy to understand due to its organization and comments on the lines. It allows for others to easily follow the functionality of the code. This project was difficult for me as it was time consuming and took me more time to understand the positionings, as well as sorting out errors and debugging. I thank Brian Battersby for being patient with me and providing guidance.