CS 330 Final Project Reflection

The scene that I created was one of an office desk with several items. I chose this scene because of the objects needed to create it and the different textures that I could apply. The shapes that I used in my scene included planes, boxes, cylinders, tapered cylinder, cone, and torus. These shapes were used together to create complex objects. For example, my coffee up used a cylinder for the body of the cup, the torus for the handle of the cup, and a very thin cylinder for the coffee inside of the cup. Another complex object was the lamp; I used a box for the base of the lamp, a cylinder for the stand, and a cone for the lamp shade. The laptop was created using a box for the base, a box for the keyboard, and a plane for the screen. The book was created using two boxes to create the cover and the pages. The pen was created using a thin cylinder for the body and a tapered cylinder for the tip.

I used several different textures to make the scene more realistic. Two different gold textures were used in my scene: one to create the lamp base/stand and the other for the pen body. Another metal texture was used to simulate the tip of the pen. A leather texture was used to create the book to simulate a leather-bound notebook. A canvas texture was used to simulate a lamp shade. The laptop was created by using a login screen texture for the screen, a keyboard texture for the keyboard, and a gold metal texture for the base.

To navigate my scene, I set up functions for both a keyboard and a mouse. The function Mouse\_Position\_Callback was used to allow the mouse to rotate the camera. The Mouse\_Scroll\_Callback was used to allow for the used to adjust the zoom level by using the scroll wheel. The keyboard controls were implemented by the function ProcessKeyboardEvents. The keys W/S allow for the camera to move forward and backward. The keys A/D allow the camera to move left and right. The keys Q/E allow the camera to move up and down. The keys P/O allow for the toggle between perspective and orthographic vies. The ESC key is used to close the window.

For this program I tried to use well-structured modular functions that would allow for easy expansion and modification. The method for creating meshes of each shape was able to be reused for each shape that I needed to create. When preparing the scene, the code to load a shape could be used again and modified to a different shape/scale easily and added withing the PrepareScene() function. The textures function also allowed for the additional textures that I kept adding to the scene. The function PrepareScene() was able to be easily expanded by adding new objects. The SetTransformation() function could be used for any object. The SetShaderTexture() function is able to assign textures to the objects and it allows for easy modifications. The SetShaerMaterial() function is used to apply different material properties like shininess or reflectivity to the objects in the scene to make them look more realistic.