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Design Reflection

The objects I chose for my scene are quite simple. I have books made from box mesh code implementation, a crystal made with a cylinder and a cone, and a potion bottle that used several shapes like a pyramid, cones, torus, and a sphere. Programming the objects was easy enough. I started with whichever objects were going to be flush with the plane since I did end up stacking a few of my objects together. Placing the crystal first also helped to give me a guideline for size so the objects seemed proportionate to each other. When stacking an object, I added the height of the bottom object to the Y position for the object that was going to be on top of it. This made it easier to place them accordingly. With the books I ended up adding “pages” just so the books didn’t look like a leather textured box, this added a bit more realism. In adding the pages, I copied the code for the specific book and then adjusted the size as needed, removed the texture mapping, and added the SetColor function to set the object color to white.

The potion bottle I ended up adding a second cylinder to for the bottle neck. I decided to do this because when I added the leather texture to the initial bottle neck it created some texture overlap that I didn’t like. I did something like adding pages to my books and I copied the code for the initial bottle neck cylinder, changed the size accordingly, and then changed the texture to the green glass that I used for the main body of the bottle. This mitigated any obvious texture overlap and made the bottle look a bit more realistic. Overall, I had fun adding in the extra details such as the book pages and the label on the potion bottle.

To navigate the scene a user can utilize several keys as well as their mouse. The mouse will allow them to look around the scene within a minimal cone as well as adjust key movement speed with the mouse wheel. The keys to use are W, A, S, D, E, and U. W allows the user to move forward while S allows the user to move backward. Likewise, A allows the user to move left while D allows the user to move right. Lastly, Q allows the user to move upwards while E allows them to move downwards. These controls give the user the ability to view the scene from multiple angles and look at the detail of each object present.

The custom functions applied would be the textures and lighting functions. I had a difficult time finding a texture I really wanted for my crystal which would have been a dark purple or blue stone texture. In place of that texture, I applied a white marble texture and added colored lighting to the scene focused on that object to change the overall color. This then created some reflection of purple light onto other objects, so I added a warm white/golden yellow light overhead to help diffuse the purple reflecting off the crystal while also adding a warm light to the rest of the scene.

In this case the functions for my textures were all written the same with only a change happening in the texture file. The code was easy to reuse and change depending on what else was to be implemented. The code written for the material functions were also reused, as I would copy the formatting and paste it into place and change what items were necessary to change such as material type and the variables for the different light colors applied to the materials. This makes for neat and easy to read code that can be changed or updated with minimal effort in the case of future additions to the scene.