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A development choice that I had was the addition of other objects. Initially, the scene that I drew out lacked detail and realistic features. I was able to recreate the scene so that it looked like a real-life gym scene. This came with the addition of a resting bench, foam roller, and an additional old-school dumbbell. I added the bench in substitution of the box jump, due to the realistic idea I had for the bench. The box jump did not feel as realistic to me even with the different textures that I applied to it, so I just chose another object one would see in a gym.

The development choice for a different barbell came due to a misunderstanding of the objects within the scene. The first idea for the barbell was created after seeing a Christmas tree made with a torus shape. Little did I know I would be able to create a realistic-looking barbell with weights for the final project.

Programming for the required functionality took a lot of organization and the use of multiple files. The additional files I used were helpful in creating the objects and the lighting in my environment. Oftentimes I would keep the old code and functions just in case the new code was going to break my program. Updating the different functions and files was sometimes tedious, especially if I needed to update a file that the main program was using, such as the camera.h file.

Navigating around the 3D scene was established early on and came with some hiccups. Navigating with the WASD keys was set up early in the tutorial code, this code was a clue into building the functionality of moving the camera up and down. This was a confusing area for me as some of the tutorial code was different for the WASD keys. Eventually, I was able to understand how to edit the camera.h file so that there was input to move the camera forward, backward, side to side, up, and down.

The mouse input encountered similar difficulties as using and modifying the camera.h file took a while for me. There were different assignments that called for different functionality from the scroll wheel which was camera speed and camera zoom. After spending some time, I was able to modify the mouse so that the scroll wheel could be used to change the camera speed so the user could choose how fast they wanted to move through the environment. Of course, moving the mouse also controls how the user views the environment because the code captures the input from the device.

Functions in this program can be reusable, such as the input processing and the texture adding. A lot of the code was sourced from tutorial code, and there was no need to implement loads of different functions as it was a lot of cookie-cutter action. Really, most of this program could be considered reusable and could be used to make many kinds of 3D scenes with various kinds of lighting, models, and textures. The lighting was really something special as it allowed the lighting to be set in a way that worked best for the scene whether that was more ambient, specular, or diffused lighting. You could reuse the functions that call for lighting to make all kinds of different light sources such as lamps, commercial lights, or even the sun. The function that called for keyboard input could be used in all kinds of diverse ways as well, the sky is the limit. If you wanted to make a scene where you switched the lighting source with a different key, this function could be used to do that.