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CS-330 Final Project

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Power Plant Model

In the beginning of CS330 we were required to select a scene made up of basic shapes that we would recreate in a 3D model by coding these basic shapes into said scene. The week we were supposed to pick the scene we wanted to reproduce I could not for the life of me decide what I wanted to do. While driving around my area, to work or wherever else I went the only thing I could really find that seemed like all basic shapes were the power plants. I searched for images of all 4 power plants right around me and even a few I used to do work at out of my area and decided on Conemaugh Generating Station for the reason others seemed to have many more buildings or not enough to produce an object from multiple shapes, which was a requirement.

The first few weeks we were working on basic things like how to draw and scale the shapes and placing and rotating the shapes in the scene. We also worked on drawing them in the colors they were. In week 2 we submitted a document on how we were going to approach building our objects which, for the most part, I stuck to. One change I made was originally I was going to use toruses for the cooling towers but was advised not to. I made the cooling towers out of 2 tapered cylinders. The silo building I made from a sphere and two boxes. The rest of the buildings did not require multiple shapes. Both smokestacks were made from tapered cylinders, and the blue building I made from a box. The scrubber stack I did end up using two cylinders so I could make them different textures to better represent the image, which brings me to my next topic. We learned how to apply textures so I used what I thought would best represent what the power plant was made from. The cooling towers are bricks, which I feel I needed to scale a little different, but it ended up making the texture hard to make out, same with the silo. The rest of the buildings I used various colors of concrete texture to make.

The two things I really struggled with during this project were camera movements and lighting. The scene has basic camera movements with the W,S,A,D,Q, and E keys, but I never really figured out how to incorporate the mouse cursor in the code. I used basic lighting techniques, but nothing too complicated or special.

Unfortunately, during the last week, whenever I run my code to render the scene, the smokestacks, scrubber stack, and blue building will not render and I have not figured out why. I do not see anything wrong with my code, minus 2 errors for setting up lighting. Due to this I did not get to build my scene to the extent that I wanted to, to make it as realistic as possible. Also, for this reason I made my best guess of where everything should be placed because I cannot physically see where the buildings are sitting. Another thing I have not figured out since the first few weeks, was the front cooling tower’s top tapered cylinder renders as a regular cylinder, but in the code, it is supposed to be a tapered cylinder.

Overall, this has probably been my favorite class/ project thus far in my educational journey. My grade probably will not reflect that unfortunately because of these bugs I have had the past few weeks, along with the very little amount of time I have had the past few weeks due to things with work and at home. I feel like I started very strong with this project, but fell of at the end due to these reasons.