CS 330 Final Project - Reflection

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I began creating the 3D scene by simplifying the reference image into basic geometric shapes, initially ignoring texture, light, and color. The focus was to recreate the structures using simple 3D shapes. I started with the log cabin, breaking it down and using shapes like boxes and prisms to represent its key features. Then, I divided the scene into foreground, back left, and back right sections to make it easier to model the surrounding environment.

In the foreground, I used cylinders to depict the tree trunks. In the back left section, trees were represented using singular cones or a mix of cones and cylinders to show their diverse shapes. I combined cylinders and cones for the back right section to create a cohesive yet varied depiction of the trees.

The 3D scene is equipped with a user-friendly navigation system, empowering users to traverse the environment with ease. The system is designed to be intuitive, enabling users to manipulate the virtual camera in various directions and seamlessly switch between different projection views. Users can navigate the scene using movement commands (Q, W, E, A, S, D) and access different projection views (O and P) using the keyboard. They can also utilize the mouse to explore the space.

I sought to improve the organization and modularity of my scene rendering algorithm by creating custom functions within the program. I carefully segmented the scene into distinct components, such as the ground, cabin, foreground, left background, and right background, and dedicated specific methods to independently manage each section.

My strategic approach to managing the scene involved developing the grassy plane as the foundation for all the objects. For the cabin, I divided into its back, front, and roof portions and managed each part separately. This method was also applied to the foreground and the two background segments, where I broke them down into separate sections for more effective handling.

I initially attempted to manage all the trees as a single entity but soon realized this approach was overwhelming. Consequently, I adjusted my strategy and decided to handle each tree individually. I considered grouping all the trees into a single section to allow for greater flexibility, especially for more significant scenes in the future.