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CS-330

25 February 2024

Final Project Reflection: Creating a 3D Scene

The selection of objects for this scene was inspired by the simple, everyday toys that were scattered around my house. These were the playthings that my niece and nephew would often engage with during their visits. The process of choosing these toys was not random but rather a thoughtful one. I carefully picked a few toys that I felt would add depth and interest to the scene. Once the selection was made, I arranged them in a visually pleasing manner and took several photographs to serve as reference points for the scene.

Among the objects I chose, there were a few that were particularly complex in their structure. One such object was a set of pickup sticks. Each stick was composed of a cylindrical body capped with two spherical ends, creating an interesting contrast of shapes. Another object was a cup, which was essentially a hollow cylinder. What made it unique was the torus-shaped rim that added an extra dimension to its form. The third object was a small plastic toy knife. It had a cylindrical handle and a blade shaped like a rectangular prism. The combination of these different shapes and forms added a layer of complexity to the scene.

The scene was designed to be interactive, with a camera object serving as the user’s eyes within the virtual space. The user could navigate the scene using a combination of keyboard and mouse controls. The WASD keys were used for directional movement, allowing the user to move forward, backward, left, or right. The QE keys enabled vertical movement, letting the user ascend or descend within the scene. The mouse was used to look around, providing a 360-degree view of the environment. Additionally, the scroll wheel on the mouse allowed the user to adjust their movement speed, offering a greater degree of control over navigation. By pressing the ‘P’ key, the user could switch between perspective and orthographic views, further enhancing the interactive experience.

The code for this project was organized into several functions, each serving a specific purpose. There was a function dedicated to initializing the window, setting up the necessary parameters for the display. Another function was responsible for resizing the window, ensuring that the scene would adapt to different screen sizes. Yet another function was tasked with processing user input within the window, translating keystrokes and mouse movements into actions within the scene.

In addition to these, there were functions for creating meshes, shader programs, and textures. These were crucial for defining the visual elements of the scene. Finally, there was a function to render everything to the window, bringing the scene to life. By separating the code into these distinct functions, I was able to maintain a high level of readability and reusability. Whenever I needed to add a texture to the scene, I simply called the appropriate function, saving me the trouble of having to rewrite the same boilerplate code each time.

This approach to coding not only made the development process more efficient but also made the code easier to understand and modify. It allowed me to focus on the creative aspects of the project, knowing that the technical foundation was solid and reliable. This, in turn, resulted in a more engaging and immersive scene, one that truly captured the playful spirit of the toys that inspired it.