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CS 330

A computer on a desk

AI-generated content may be incorrect.Milestone One

Now that I have begun exploring different shapes to construct larger objects, I will be planning out my own 3D scene. The choices I make here will guide the work I complete later for my final project.

I have considered various possible 2D scenes to replicate in 3D. I have seen examples of objects on a desk, a garden, a building, and a kitchen, and I understand that the possibilities are endless. After careful consideration, I have selected a 2D image featuring a rectangular desk with an attached bookshelf underneath containing books, a pull-out drawer with a mouse pad, mouse, and keyboard, and a Mac desktop placed on top. This scene includes multiple objects that can be represented using basic 3D shapes and provides an interesting and structured composition for my final project.

The objects I will be replicating in 3D include the desk with a bookshelf, the Mac desktop, the pull-out drawer with a keyboard and mouse, and books in the bookshelf. The desk and bookshelf will primarily be modeled using boxes to form the flat surfaces and storage compartments, with multiple shelves represented as thin rectangular prisms. The Mac desktop will be constructed using boxes for the screen and base, while the stand will use a tapered cylinder to achieve a realistic shape. The pull-out drawer will be a box, with the keyboard modeled as a thin box and the mouse as a combination of a sphere and a box to create its ergonomic form. The books in the bookshelf will also be represented as boxes with different textures applied to simulate covers and spines. Additionally, I will include a mouse pad as a thin plane and a grounding plane to serve as the base of the scene, providing a virtual surface for all objects.

I chose these objects because they represent a structured and organized workspace, making them an excellent choice for demonstrating OpenGL 3D modeling techniques. By incorporating a variety of shapes, including boxes, planes, spheres, and a tapered cylinder, I will create a visually engaging scene that meets all project requirements. The Mac desktop and pull-out drawer add interactivity potential, such as movable components or reflections on the screen. Including books also adds realism and depth to the scene.

For implementation, I will start by constructing the desk and bookshelf as the foundation of the scene using multiple boxes and planes. The Mac desktop will feature a screen texture for realism and a stand made from a tapered cylinder. The pull-out drawer will contain a keyboard and mouse, positioned accurately within the scene. The books will be modeled as various-sized boxes with texture mapping to differentiate their appearance. To enhance realism, I will apply lighting and texture mapping throughout the scene. This structured plan ensures that my 3D project is balanced, achievable, and effectively meets all rubric criteria.