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Project one Documentation

For this project, I selected a workspace scene with a laptop, notepad, coffee cups, and pens, aiming to replicate the layout in a 3D environment with low-polygon models. Each object was created using simple geometric shapes to keep the polygon count low while still achieving a realistic appearance. The laptop was made from a combination of planes and boxes, the notepad from a plane with cylinder rings, and the coffee cups and pens from cylinders. This approach allowed me to create an efficient and visually cohesive scene.

The textures were used to create a better use of realism, focusing on the laptop screen and notepad. A texture resembling a digital interface was used for the laptop screen, while a paper texture added depth to the notepad. Each texture was around the 1024x1024 pixels for clarity. Lighting was crucial to emphasize the objects and create a polished look. I implemented thre light sources: a primary point light illuminating the center of the scene and a warm-colored ambient light to simulate indoor lighting to the left and right. Using the Phong shading model with ambient, diffuse, and specular components allowed for subtle highlights and shadows, adding depth to the scene.

Object placement was carefully aligned with the original image, using X, Y, and Z coordinates to arrange each component on a circular tabletop. The laptop was positioned

centrally with the notepad, pens, and coffee cups surrounding it, maintaining the organized workspace layout. Ensuring each object was correctly positioned relative to the others helped the 3D scene closely match the reference image, providing a coherent and visually appealing arrangement.

To allow us to have a better exploration, I made sure to implement camera navigation using both keyboard and mouse controls. The WASD keys control horizontal movement, QE keys handle vertical movement, and the mouse cursor adjusts the camera's orientation. Additionally, the mouse scroll wheel allows for speed adjustment, giving users fine control as they navigate the scene. This interactive setup enables users to appreciate the details of each object and the layout from multiple angles, making the scene more immersive.

Finally, I followed best coding practices for readability and modularity. Key functions helped organize the code, and descriptive comments clarified each function's purpose. Consistent indentation and spacing were applied throughout, enhancing readability. Overall, the project successfully replicates a 3D version of the workspace scene, capturing the layout and atmosphere of the original image with interactive camera controls for an engaging experience.