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Milestone Two: Narrative

1. **Briefly describe the artifact. What is it? When was it created?**

The artifact I’m showcasing is a 3D scene project that recreates a small bathroom, originally developed in the CS 330: Computational Graphics and Visualization course. The scene features a toilet, a sink, and a light fixture, all constructed using basic geometric primitives like boxes and cylinders. I programmed the scene using OpenGL and applied textures to add realistic surface details. Users can explore the environment using a virtual camera, which is controlled through keyboard and mouse inputs. This project was created to highlight my skills in 3D modeling, texture mapping, and interactive scene navigation within a computational graphics framework.

1. **Justify the inclusion of the artifact in your ePortfolio. Why did you select this item? What specific components of the artifact showcase your skills and abilities in software development? How was the artifact improved?**

I chose this artifact for my ePortfolio because it demonstrates my capability to develop interactive 3D environments—an essential skill in both software engineering and computational graphics. The project illustrates my proficiency with OpenGL, where I applied core 3D modeling principles and basic transformations to recreate real-world items in a digital space.

The elements of this artifact that most effectively highlight my skills are:

* **3D Modeling**: Creating virtual representations of real-life objects like a desk and monitors using basic shapes such as boxes and cylinders.
* **Texture Mapping**: Applying surface textures to enhance realism, including tiled patterns for the floor and walls.
* **Interactive Navigation**: Developing camera controls that enable users to move through and interact with the scene dynamically.

The artifact was enhanced by adding detailed comments throughout the code, which serve to explain the purpose and functionality of each section. These comments not only make the program easier to understand for others who may review or maintain it in the future, but they also reflect my ability to write clear, organized, and maintainable code. By documenting key logic, transformation steps, and rendering processes, I ensured that the structure and flow of the program are more accessible and easier to follow, which is a crucial practice in professional software development.

1. **Did you meet the course outcomes you planned to meet with this enhancement in Module One? Do you have any updates to your outcome-coverage plans?**

During the enhancement process, I initially planned to transition the project from OpenGL to Blender to take advantage of Blender's advanced rendering capabilities. However, I ultimately decided to shift my focus toward improving and updating the core components of the original OpenGL code instead. While this change in direction was challenging, I believed it was the right decision to better demonstrate my programming skills, particularly in adhering to best coding practices. By refining the original codebase, I was able to highlight my strengths in clean, maintainable code, logical structuring, and effective use of computational graphics principles—key aspects that are essential for a professional software development environment.

1. **Reflect on the process of enhancing and modifying the artifact. What did you learn as you were creating it and improving it? What challenges did you face?**

Revisiting this project allowed me to appreciate the significance of fundamental practices, such as writing clear and descriptive comments within my code. It reminded me how proper documentation can greatly enhance code readability and ease future updates or debugging. I didn’t encounter many obstacles during the revision process, aside from the initial challenge of remembering the purpose and function of each code block. This experience reinforced the value of thorough documentation and consistent coding practices, especially when returning to a project after some time has passed.