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Professor Phillips

CS 499

10/14/23

**Artifact Description:**

The artifact at hand is a 3D rendering project I completed as a part of my coursework in the CS 330 course. This project was undertaken in September 2023 and entailed developing a 3D scene based on a 2D image, using C++ and OpenGL. The 3D scene comprised of multiple objects, textures, and lighting effects arranged to mirror the layout of the original image. It was a pivotal project that enabled me to delve deeper into 3D graphics programming, enhancing my understanding and proficiency in C++ and OpenGL.

**Justification for Inclusion:**

I selected this artifact for my ePortfolio as it thoroughly encapsulates my skills in 3D graphics programming and my adeptness in utilizing C++ and OpenGL. The project exhibits my capability to craft low-polygon 3D representations of real-world objects, accurately apply textures to these models, and establish a polished visualization through precise lighting. Additionally, it demonstrates my ability to implement user controls for navigating the 3D scene, thus creating a user-centric interactive environment. This artifact significantly represents my technical and problem-solving skills, which are crucial in software development.

**Reflection on the Enhancement/Modification Process:**

The process of creating and refining this artifact was filled with learning moments. Initially, transitioning from the 2D image to a 3D model was a challenging task. It required a meticulous breakdown of the image into basic shapes and then recreating these shapes in a 3D space.

A major challenge was optimizing the model to adhere to the polygon count constraint while ensuring the objects were discernible and aligned with the project's requirements. This necessitated a strategic approach to geometry and texture application, which in turn enhanced my understanding of 3D modeling intricacies. Additionally, setting up the virtual camera controls for smooth user navigation demanded a solid grasp of 3D space and user interface design.

The iterative nature of this project, dictated by the rubric’s requirements and my personal quest for precision, was a crucial aspect of my learning journey. Each iteration, be it adjusting models, tweaking lighting, or refining user controls, contributed to a more polished and functional artifact. This iterative enhancement not only improved the overall presentation and functionality of the artifact but also deepened my understanding of the technical and aesthetic aspects of 3D graphics programming.

The project underscored the importance of attention to detail, adherence to specified guidelines, and the iterative nature of software development. It was a rewarding challenge that significantly honed my skills in 3D graphics programming and project execution in alignment with provided guidelines. Through this project, I have not only achieved a tangible representation of my technical skills but also gained invaluable experience that will be instrumental in my future endeavors in software development.