Win Inlaw

Professor Philip Enkema

Computer Graphics and Visualization

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**Design Decisions**

My 3D scene all began off a 2D picture in which consisted of a bedroom in the picture. The bedroom represented a bed, dresser, window, painting’s, and flower pot on the dresser. When starting my 3D scene I decided to not implement the painting’s on the wall as well as the things on top of the dresser. The texturing for the floor is carpet in a brownish cream color. As well as the walls are similar in color but lighter with trim on the bottom of the walls. The trim was something else I decided to not implement in the scene. I choose the items I chose because they help capture the idea of what the room is. Let alone stand for a bedroom, the dresser, bed, and other necessary things like the window. When coding the objects I had to make sure to not overlap the objects added when building the scene. Like for the dresser I used four plane’s to capture it. One in the middle, the top, and the sides. Moving on to the control of the scene which can be controlled through multiple keys. The W, A, S, and D keys help with direction in the scene. Things like moving forward, backward, and left or right motion. These keys allow the user to move beyond the walls of the scene and explore every angle it has to offer. Whether it was meant to be seen in the picture of the 3D scene or not. I also used the keys Q and E to allow the control of upward and downward movement. Allowing an overlook and underlook of the scene to get different camera viewpoints through the entire scene. These allow total movement throughout the scene with these keys to allow the users to move accordingly throughout the scene as they please. You can capture angles of the scene at any and every angle because of the camera access with these keys provided. All this is for the control of the virtual camera in the 3D scene using all the different input devices needed. With everything mentioned we captured the moving navigation of the scene and development of the objects in the scene. We can now talk about some of the custom functions in the program that help make the code more modern and organized. If you look throughout the code you will see // which indicates the comment line. On each one is a needed note to keep organized in which code is what. Allowing not only others to go back and trace my steps but for me to go back and know what code is what without needing to read the entire code to understand what everything is and means. Small things like even keeping things that change the scene completely like color or texture together so when I decide to change my scene up all changing features are by each other allowing a smooth transfer. Another thing that helps is always checking for errors or misplaced code for everything to come out as expected. This scene was overall easy to execute throughout the scene. It gave tricky moments with adding a light source and texture at first but once I got some of it done more just started becoming easier. This project was very fun to do with trying to mimic something into graphics from something real-time. Overall rendering and processing this scene became an educational time learning the sizing and placement of objects. Even understanding the textures within an object to capture your scene and learning how to look for them appropriately.