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CS-330 Comp Graphic and Visualization

Final Project

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The reason I chose the items I did was because they seemed to make the most sense in trying to develop a scene to make it seem more filled in. The hardest one was the plate to get it to look the way I wanted. It still did not turn out perfect to the way I envisioned it, but I could not think of any other shapes to use to create them. I chose to do the cereal box instead of the spoon since the box fills out the scene a little better than just the spoon lying there. I chose the countertop since I needed a place for all the items to sit on. These items seemed to create the best form of a realistic setting for a kitchen. The eggs and hot sauce bottle filled out the scene more to show that it was more of a breakfast scene than just a kitchen countertop. I think the scene comes together very well with the selected items I chose. I loaded in textures for each object to enhance the visual appeal and realism of each item. I used the ‘CreateGLTexture’ function to load in the textures seamlessly. The material definitions help to show the light realistically on each object. If I just used glass on all the objects, then the cardboard and eggs would be a little too reflective, so I needed to add in more object materials for the scene to seems more realistic. The lighting setup is used to illuminate the scene and to define the position of the lights as well as the color of them. This helps to enhance the overall scene so that the objects show their reflectiveness realistically.

For the user to get better engagement and interaction I needed to set up camera controls so they can move around the scene and see it from different perspectives. To do this, I needed to implement camera controls. I created this so the user can use a keyboard or a mouse to move around the scene. The camera position and orientations are adjusted based on the input from the user. This allows for a deeper immersion for the user. The camera control is implemented using the function ‘SetTransformations’ which allow the manipulation of the camera position, rotation, and zoom.

To ensure modularity and organization in my code I utilized custom functions throughout the codebase. These functions encapsulate specific tasks, maintainability, and promote reusability. Transformation management includes functions like ‘SetTransformations’ that facilitate transformation operations. This enables precise control over the position, rotation, and scaling of the objects. This approach promotes code reusability and helps to simplify the scene setup. The functions like ‘BindGLTextures’, ‘CreateGLTexture’, and ‘DestroyGLTextures’ handle the texture management tasks. This includes loading, releasing, and binding of the textures. This approach allows for code reuse and helps to simplify the handling of the textures. Material handling is handled by the functions ‘FindMaterial’ and ‘SetShaderMaterial’. These manage material properties which allows for easy configuration of the materials. This helps to enhance the code clarity and maintainability by encapsulating the material logic.