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CS -330

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CS 330 Final Project

**Justify development choices for your 3D scene. Think about why you chose your selected objects. Also consider how you were able to program for the required functionality.**

I decided to create a modern living room as my project. Each object was carefully selected to give you the shapes needed. For example the fire place I used the box shapes to give you the perfect shape of the fireplace. I also used this for the fireplaces fire. It was pretty simple because of the shapes were already shaped like boxes. For the coffee table I used cylinders for the legs of the table. Also for the vase/art object I used a sphere and a torus for a unique shape. And for the chair I used box shapes again. For the programming side I created functions like SetTransformations(), which allowed me to apply scaling, rotation, and positioning. I also used SetShaderTexture() to assign image textures to specific objects, and SetShaderColor() when I wanted a solid material instead. This made it easy to switch between different looks while keeping my code clean and reusable. I could also easily control material properties using SetShaderMaterial(), which passed in things like shininess and reflectiveness.

**Explain how a user can navigate your 3D scene. Explain how you set up to control the virtual camera for your 3D scene using different input devices.**

You can navigate my scene by using a mouse and keyboard. The keyboard allows you to move forward, backward, and side to side. The mouse lets you look around and change camera directions. This is best so the user can move around freely. You can also speed up how fast you want to go by moving the scroll wheel or you can slow it down. This was all done by setting up virtual camera logic. The mouse adjusts the yaw and pitch of the camera, allowing users to look left, right, up, and down. The keyboard controls move the camera position in 3D space. As mentioned above this was important so the user can move around freely.

**Explain the custom functions in your program that you are using to make your code more modular and organized. Ask yourself, what does the function you developed do and how is it reusable?**

The functions I used to keep the code more modular was SetTransformations(). This let me pass in position, scale, and rotation values so I could reuse the same logic across all objects. I also used SetShaderTexture() to switch between different textures without hardcoding them, and SetShaderColor() when I didn’t need a texture. These functions allowed me to stay flexible while keeping the code clean. Another important function was the SetShaderMaterial(), which passed in values like ambient strength, specular color, and shininess to control how each object interacted with the light sources. It was important to make the surfaces like the fireplace and the fire look glossy. When navigating the room you can see how each area responds to light different because of the wat the light is hitting it.