7-1 Final Project

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A kitchen counter with a black mat and a black spoon

AI-generated content may be incorrect.

A spoon and bottles on a counter

AI-generated content may be incorrect.A kitchen counter with a black mat and white bottles

AI-generated content may be incorrect.A table with different items on it

AI-generated content may be incorrect.A kitchen counter with a spoon and a dish rack

AI-generated content may be incorrect.

Final Project 3D Scene

For my final project, I recreated a real-world scene of a granite kitchen countertop with a spoon rest, a melted butter cube, and a woven black mat. I kept my design efficient by using basic shapes and textures but still aimed to make it feel cohesive and clean.

I created the spoon rest using a stretched cylinder for the oval bowl and a thin box for the handle. I added a small cube to represent a chunk of melted butter resting in the bowl. The black kitchen mat was made from a flattened box, placed slightly above the granite-textured plane that serves as the countertop. Each object was built directly in RenderScene() using scaled and positioned primitive shapes, without breaking them into separate functions since that would’ve added complexity I didn’t need.

For texturing, I used high-resolution textures for the granite counter, mat, and butter. I made sure the textures were aligned well by adjusting UV scaling when needed, like shrinking the spoon rest's pattern horizontally. The white spoon handle was left untextured and colored to contrast nicely against the mat and show off the lighting.

Lighting was one of the trickier parts. At first, the scene was too dark, but after troubleshooting, I added a top-down directional light as the main source and a weak fill light from the right to make objects easier to see. I’m using the full Phong lighting model, ambient, diffuse, and specular, so the spoon and butter reflect light naturally. Getting this to work involved checking normals, tweaking the fragment shader, and making sure the light positions and strengths were reasonable.

The camera is fully navigable using WASD for movement, QE for elevation, and mouse look for yaw and pitch. I also implemented scroll wheel sensitivity changes and a key toggle (P and O) to switch between perspective and orthographic views. This helped match the reference image and made exploration easier.

The code is clean and centralized. I didn’t split everything into helper functions like CreateSpoon() because I wanted fewer moving parts and to stay focused on finishing this class strong while balancing work in others. I kept everything commented and readable in RenderScene() and adjusted lights in SetupSceneLights() to support the look I wanted.

Overall, the scene looks how I imagined it. It’s simple, clean, and realistic enough to match my reference. I prioritized functionality and clarity over complexity and was intentional about every shape, texture, and light I added. [Images attached above]