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CS-330

Final

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Design Decisions

Starting with a still life picture of chalice type glasses, fruits and books, I chose to only to do two glasses, three fruits, and three books to simplify the image.

The fruits where made with one shape each, being the sphere shape. The two lemons were made into ovals by adjusting the X and Y axis to shorter than the Z axis measurement. The orange remained a sphere with symmetrical X, Y, and Z axis measurements. The books where made with one box shape and one plane shape with the box shape as the pages and the plane shape as the cover of the book, this allowed the cover to be a different texture than the pages.

The two glass cups where the complex objects having the seven different shapes of three torus, cylinder, tapered cylinder, half sphere, and cone shape. These shapes allowed for a cone for the glass base, a cylinder for the glass stem, two torus for the rings around the stem, the half sphere for the bottom part of the cup of the glass, the tapered cylinder for the upper part of the cup of the glass, and one torus for the top of the glass rim.

The textures used for this still life included a draped cloth texture for the background and bottom surfaces. The glasses used a blue glass texture on the stem portions, the cup and base were made with the shader color selector and transparency to represent opaque blue glass. The lemons have a lemon skin texture and the orange has an orange skin texture. The box shapes for the books have book page texture and the planes shapes have a brown leather texture to represent a book cover.

Using the transformation function, I rotated two planes for upright backgrounds connecting to the base plane. For the glasses I also rotated the shapes of tapered cylinder 180 degrees and all three torus shapes 90 degrees. The box shapes and plane shapes of the books where rotated each so that the plane matched the angle of the corresponding box shape to look like a poorly stacked stack of books. Shader materials were made to give the glasses the similar sine of glass, the fruit a bit of shine from the fruit skin, and the books a dull shine from the paper and leather of the cover. Lighting is mostly point lights and one directional light. The directional light is very faint for an indoor look while the point lights brought the most light into the scene with some light “bouncing” off the backgrounds.

Virtual camera inputs of the keyboard keys of O,P,E,S,W,D,A,and Q where implemented to navigate the scene with zoom in and out, move up and down, move left and move right, perspective view to orthographic view. The mouse is also able to rotate the scene.

For the coding I separated each object in the scene with star commenting to find each set of shapes for each object more easily. The functions of LoadSceneTextures(), PrepareScene(), RenderScene(), DefineObjectMaterials(), and SetupSceneLights() were added to SceneMaanger header file as public functions which allowed them to be inherited into the .cpp files.