University of Victoria

Department of Computer Science

CSC 305: B01

Assignment #2

Real time Renderer

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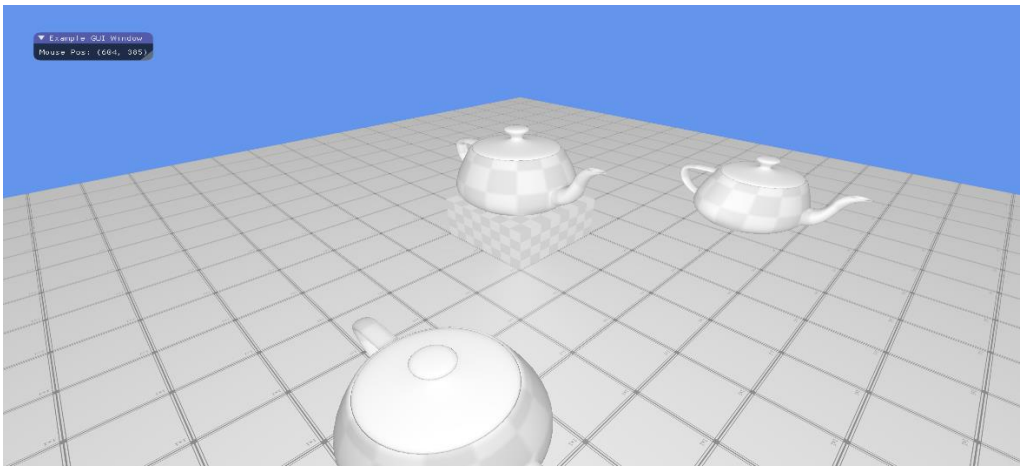
Objective

For this assignment, I have been Introduced vertex shaders and fragment shaders in GLSL. Also shadow mapping in OpenGL and integrating more complex scene into the renderer.

Discussion

List of Figures

1. 

In this Real Time Rendering Assignment, what I have implemented are:

1. Vextex shader, and Fragment Shader:

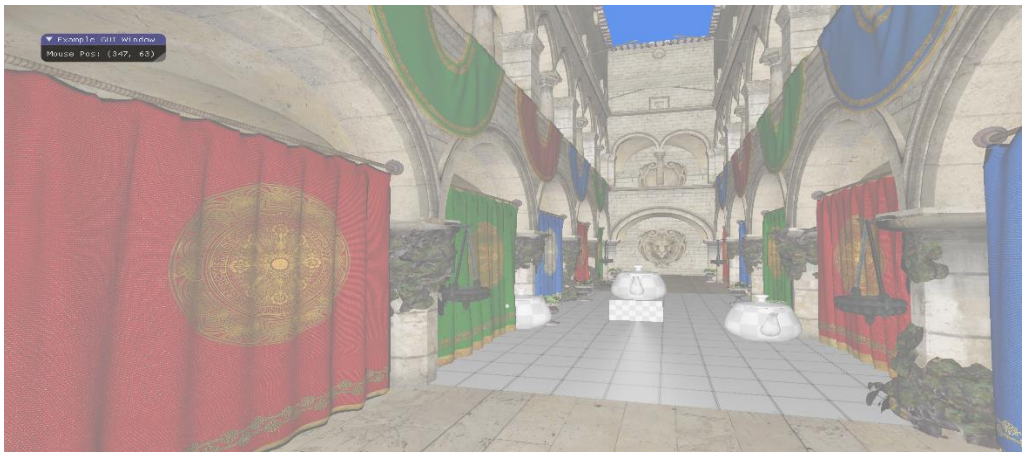
In scene.vert, `gl_Position = ModelViewProjection * Position;` I implemented Phong shading what is for interpolating the surface normal between vertices. Inside the fragment shader, I implemented Blinn-Phong shading for the diffuse. Phong reflection is an empirical model of local illumination. It describes the way a surface reflects light. In scene.frag, `vec3 colorLinear = 0.05*Ambient + lambertian * diffuseMap + specular * Specular;` is the Phong equation. There is one problem that I had encountered, when I first do the shading, only the top part of the teapot has its shading, whereas the body of the teapot did not show that. The way I fixed it is by using add additional two line of code to inside if statement. `vec3 colorLinear = 0.05*Ambient + lambertian * diffuseMap + specular * Specular; vec3 colorGammaCorrected = pow(colorLinear, vec3(1.0/screenGamma)); FragColor = vec4(colorGammaCorrected, 1.0);`

The whole scene is very bright compare to the lab result, it is because of the ambient light is too bright, my solution is to remove it.

2. Spinning Scene

   The whole scene spinning around with the cube.

3. Render the Sponza scene :



After Implemented sponza_texture, the scene will look like as top.