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CS 5610

Interactive Computer Graphics

Project 5-Render Buffers

- **What was implemented:**
  - Texture loads correctly on a cubic plane.
  - Plane rotates as expected along with the texture rendered on it.
  - Lighting/shading works the exact same as before with the regular teapot.
- **What you could not implement.**
  - ~~Texture distorts slightly when the plane is vertical (don't know if this is intentional) the texture also seems more pixelated than it should be.~~

  Submission2

  - Fixed issue with texture distortion and texture now is not pixelated, was rendering at too small of a resolution
  - Plan is now vertical by default
  - Cleaned up code. Removed a bunch of lines that were commented out or changed and ended up being pointless but not breaking anything(to my knowledge)
  - Made the plane Grey.
  - Draw plane with Triangle strip instead of triangles
  - Made the lighting move better(still can't figure out how to get it 100%)
  - Fixed plane and cube to be centered

  Submission3

  - Made it so the alt key+left rotates the plane and alt key+right zooms the plane while right without alt zooms the teapot and left without alt rotates the teapot
  - Adjusted how translation for zooming is done
  - Various other small bug fixes and refactoring
- **Additional functionalities beyond project requirements.**
  - No additional functionalities at this time
- **How to use your implementation.**
  - Right click and drag to zoom in and out
  - Left click and drag to rotate. Left and right rotates left and right, up and down rotates up and down
  - P switches between orthogonal and normal transforms
  - F6 recompiles the shaders.
  - ESC exits the window
  - CTRL and left click slightly moves the lighting
- **What operating system and compiler you used**

- o Operating system: Windows 11
- o Programmed in Visual studio: used VS internal compiler(gl????)
- **External libraries and additional requirements to compile your project.**
  - o Same as previous projects:
  - o Required libraries:
    - ▪ FreeGlut
    - ▪ Glew
    - ▪ CyCodeBase
    - ▪ LodePNG

In addition, FreeGlut.dll and Glew.dll were required to be put in System 32. Libraries were put in folders next to the project along with the associated headers. Both LodePNG.h and LodePNG.cpp need to be included in the headers as well.

A header file with the functions in the program is also included. Main.h

In addition, I used:

```
#include <string.h>
#define _USE_MATH_DEFINES
#include <math.h>
//I had to put this to make it work...for some reason
#pragma comment(lib, "glew32.lib")

There were really no other changes from the things required for previous projects.
Everything should be run using the exe in the zipped folder in either debug or
release


Third submission
Figure 1:  Rotated teapot and plane
```
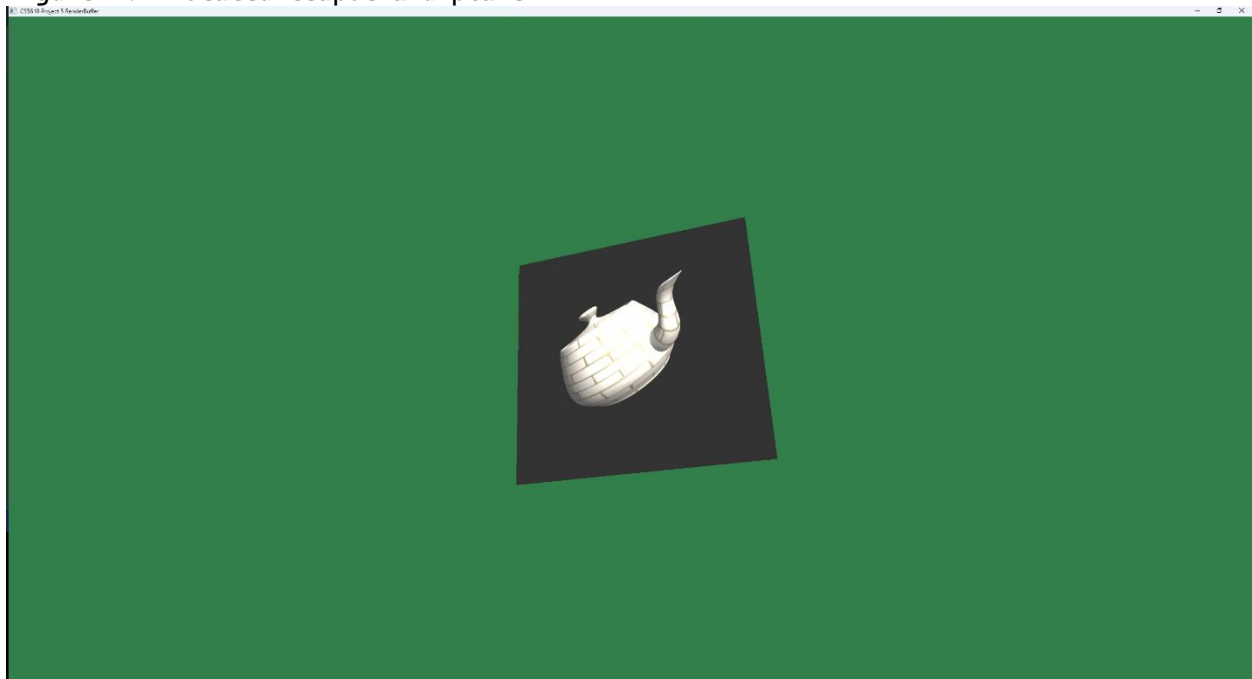
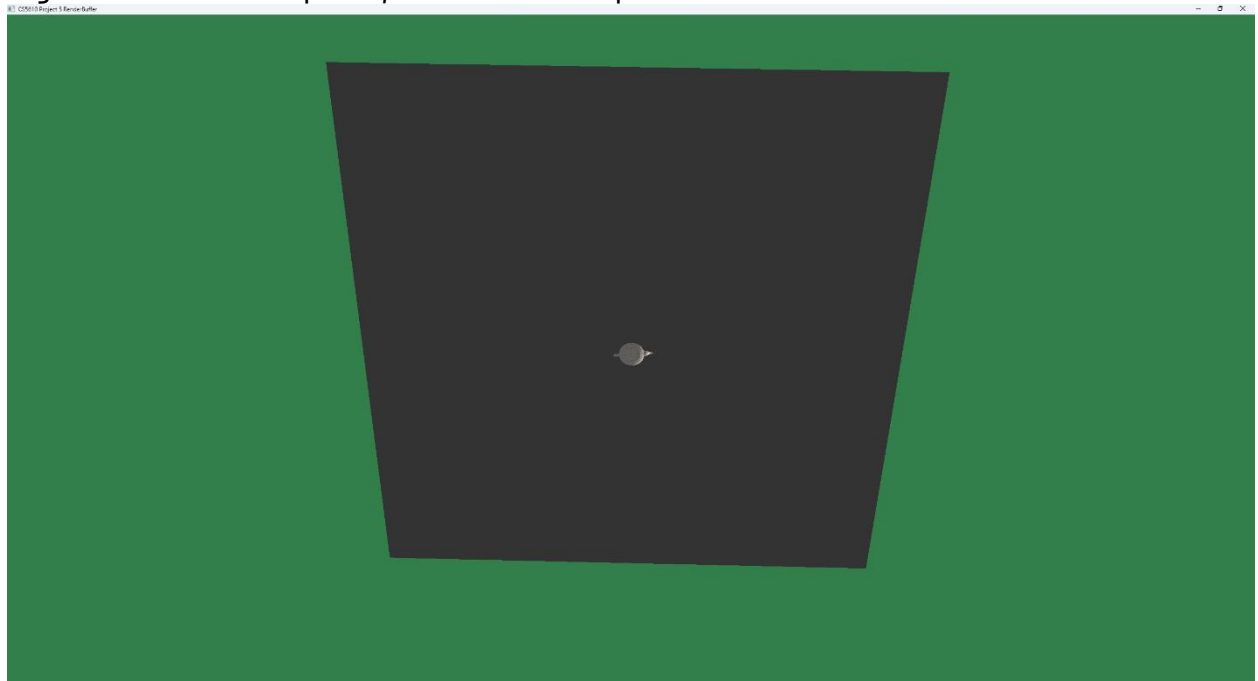Figure 2: Zoomed in plane, Zoomed out teapot
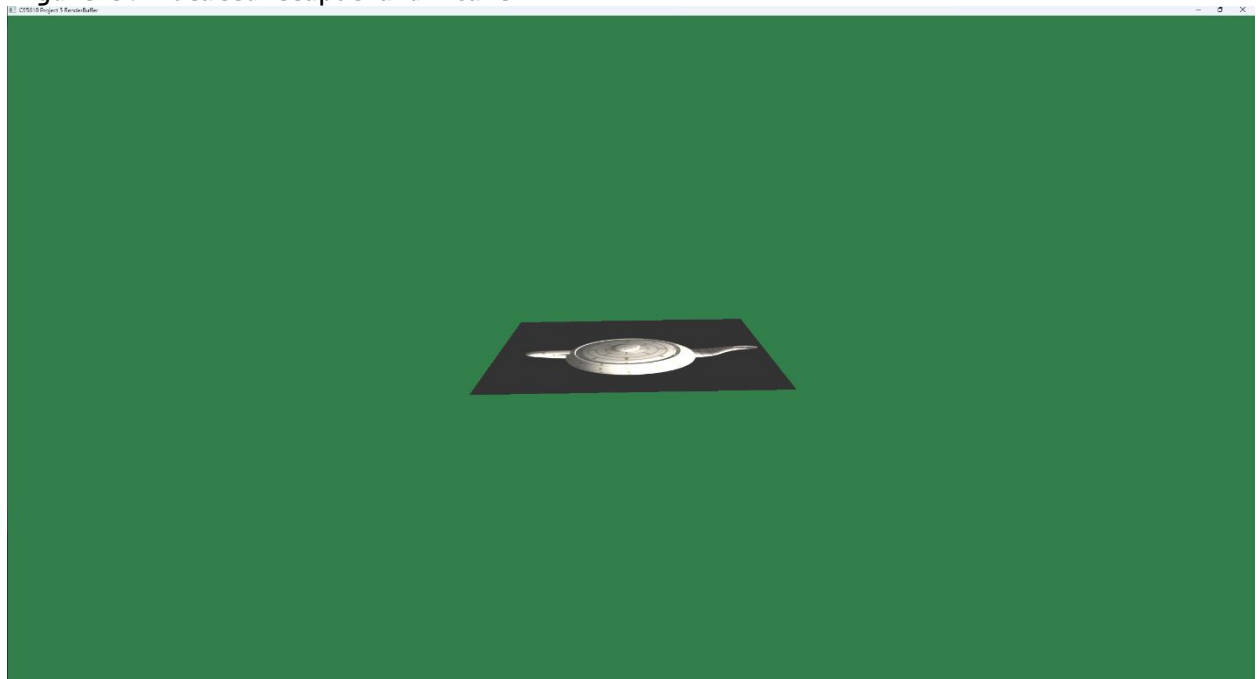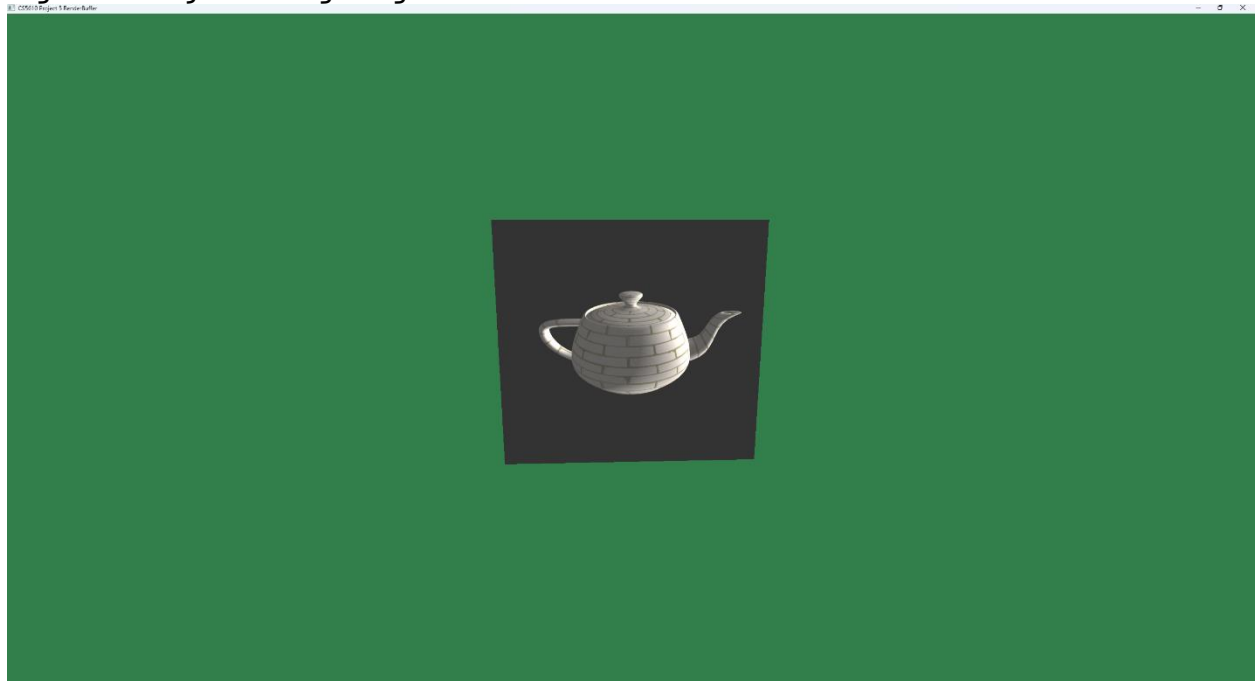

Figure 3: Rotated teapot and Plane

Figure 4: Adjusted lighting
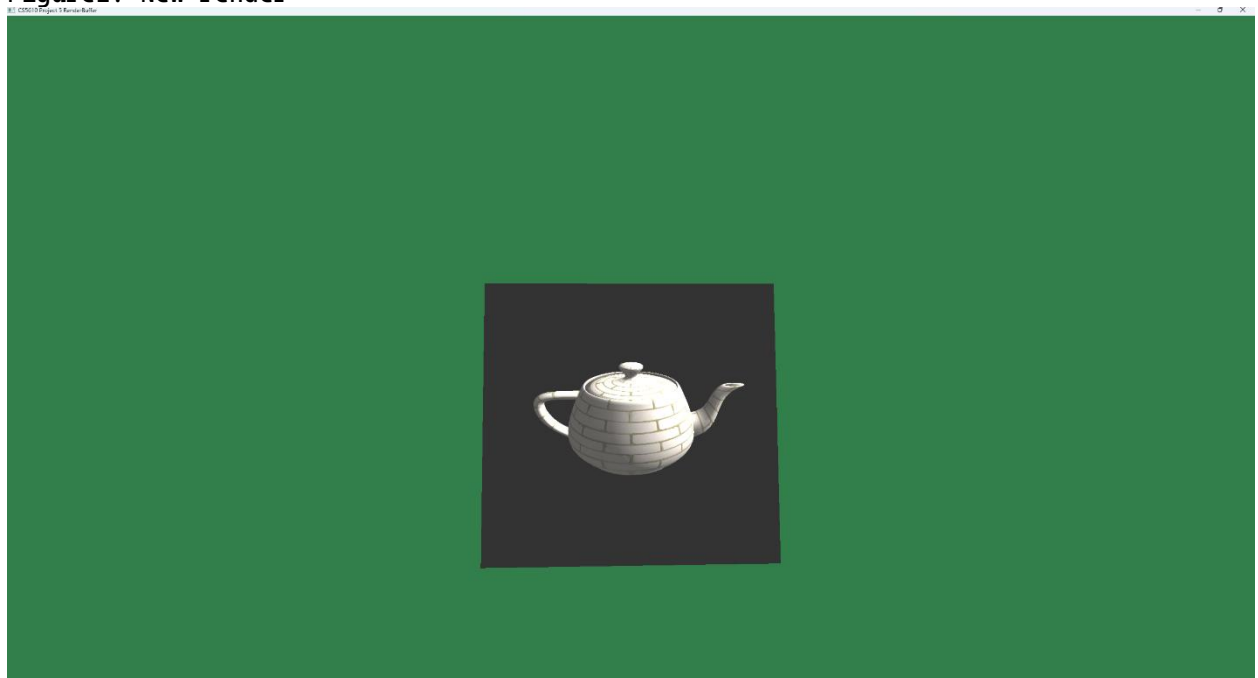

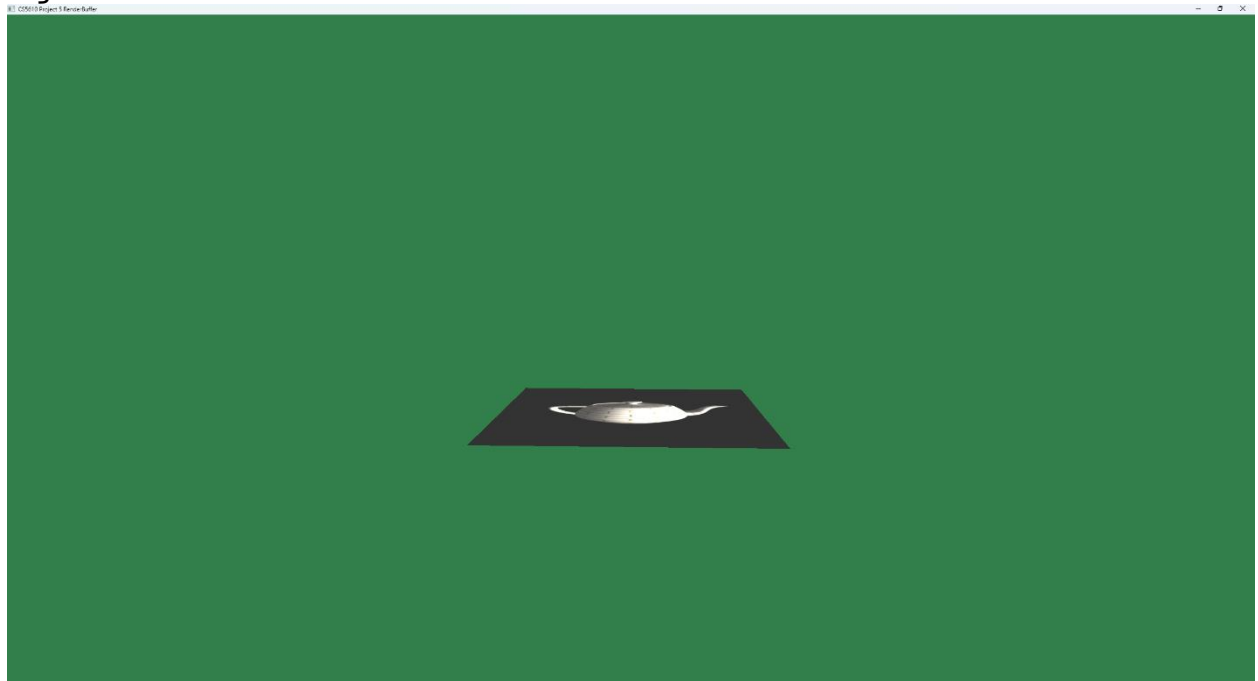Second Submission
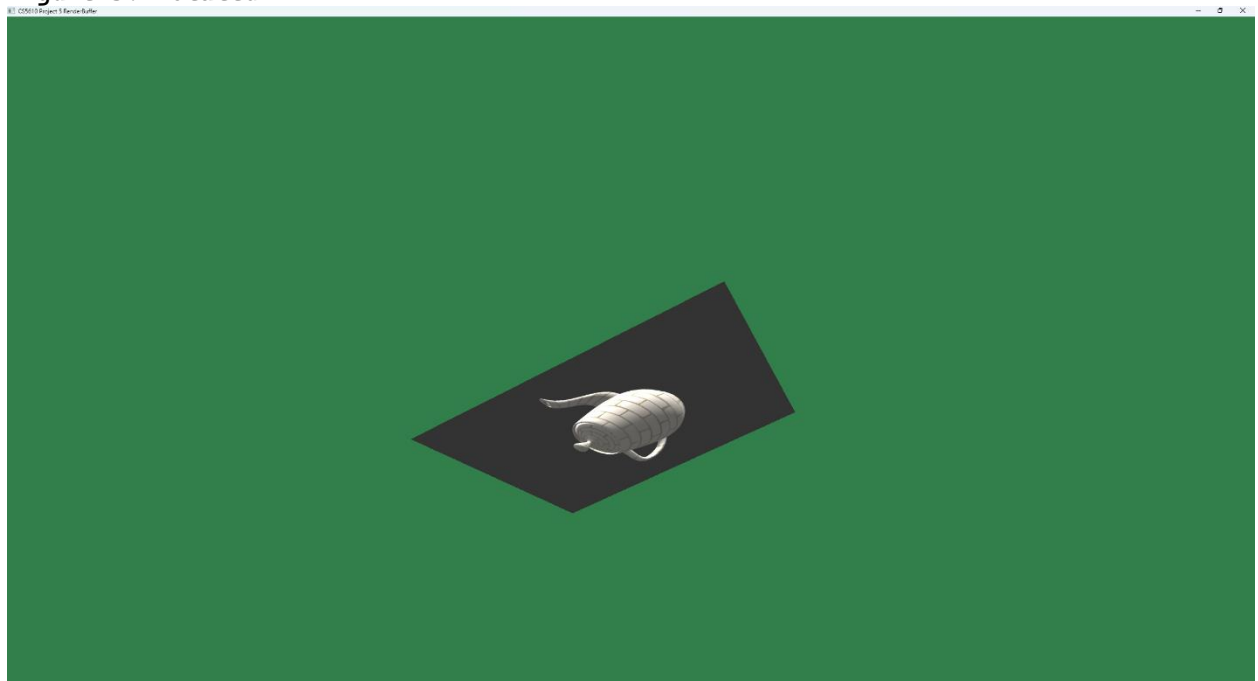Figure1: New render
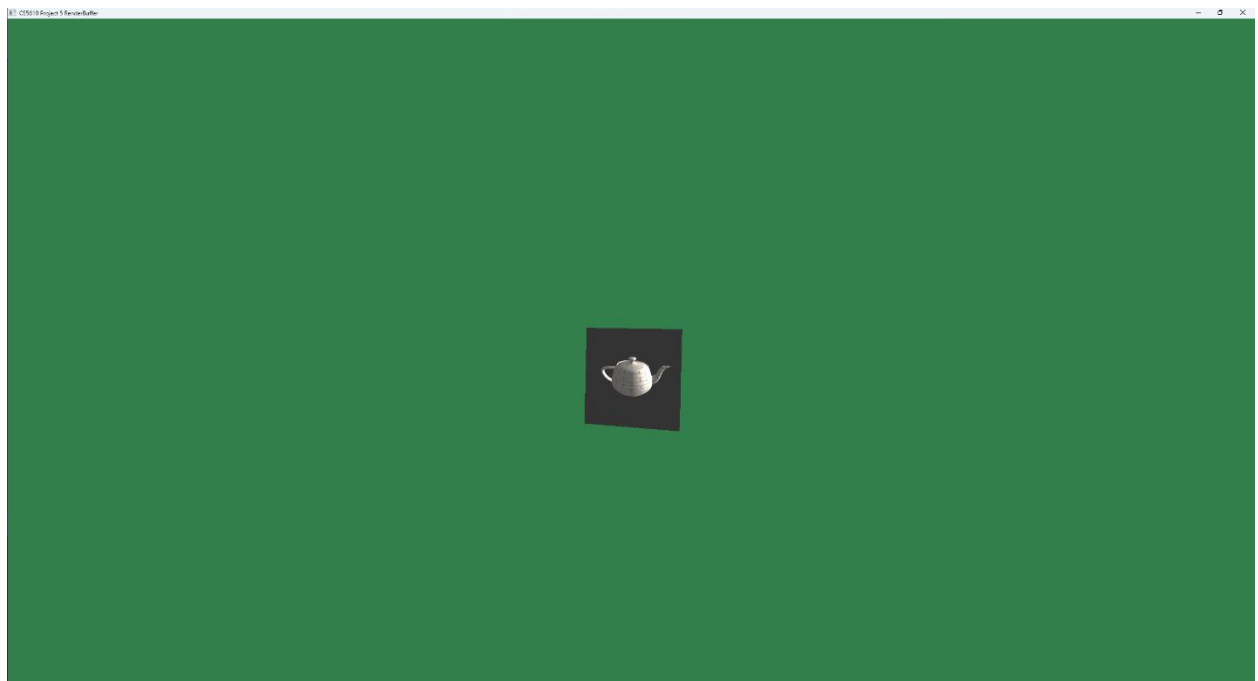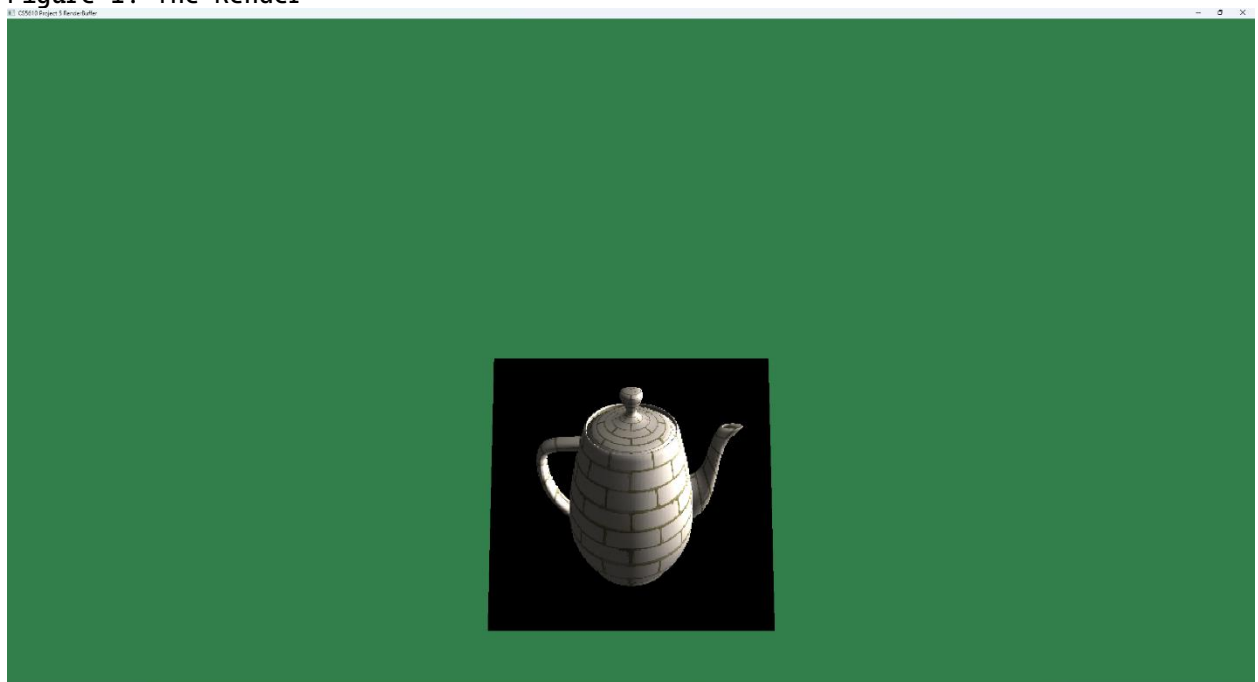
Figure 2: flattened:

Figure 3: Rotated

Figure 4: More rotation

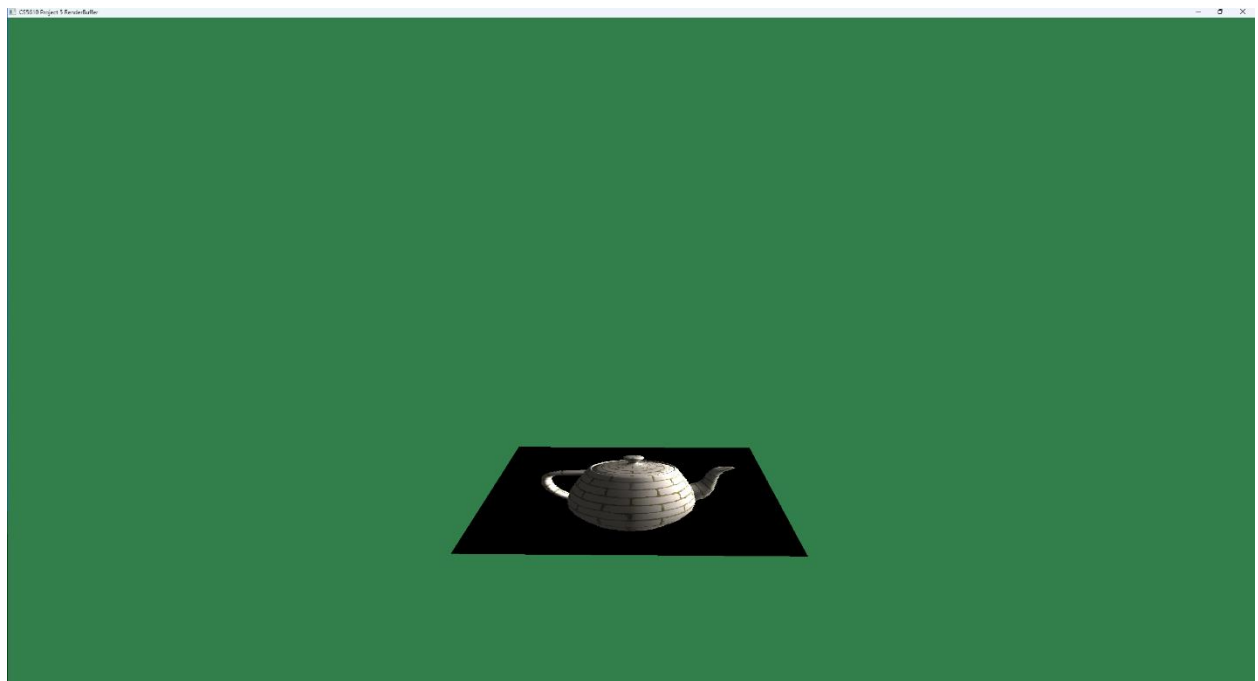FIRST SUBMISSION
Figure 1: The Render

Figure 2: Rotated

Figure 3: More rotation