Interactive Computer Graphics Project 2

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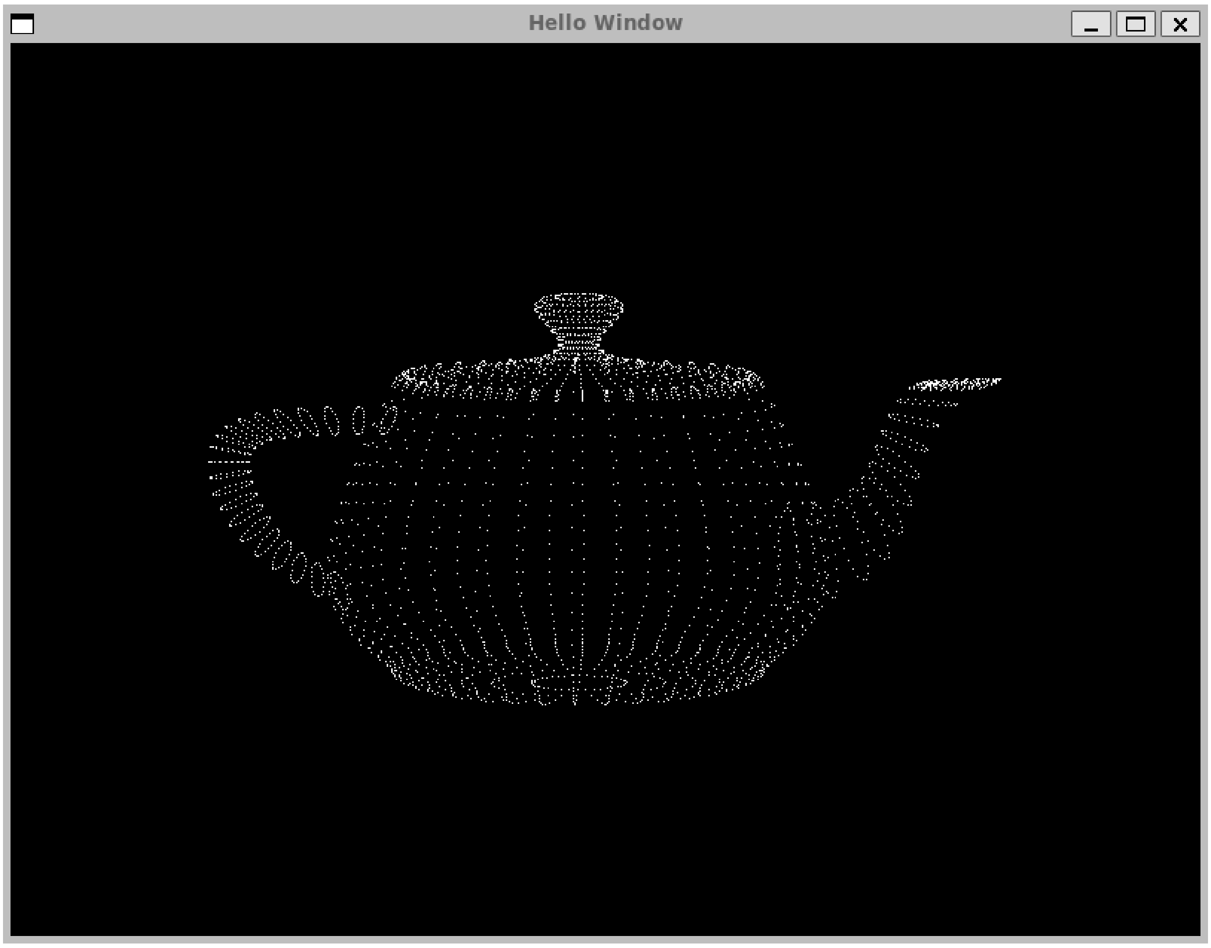
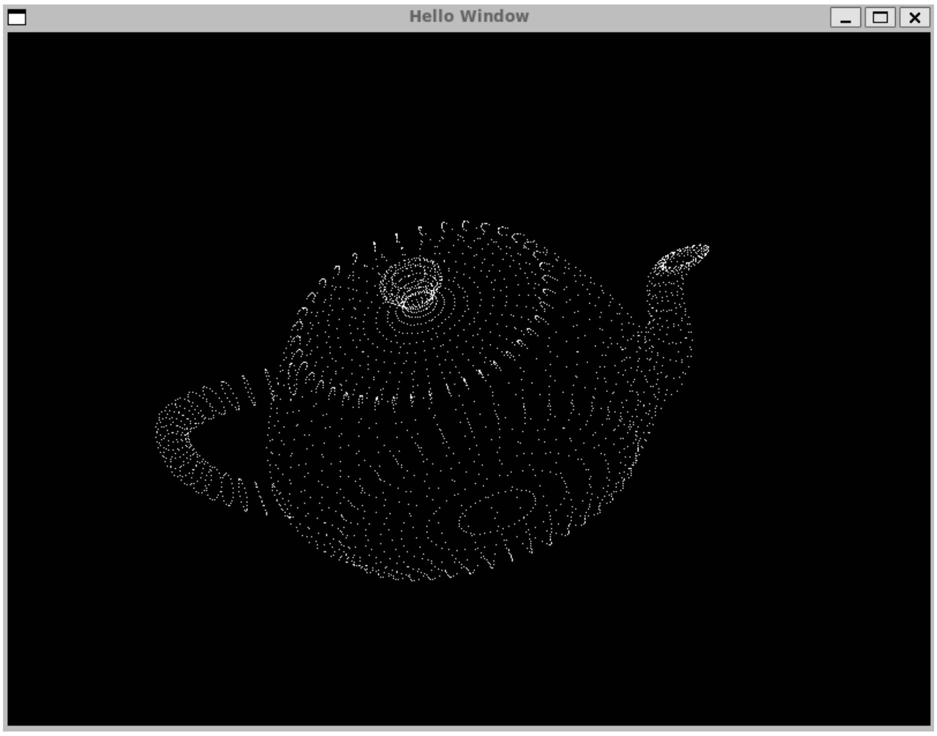
Features Implemented

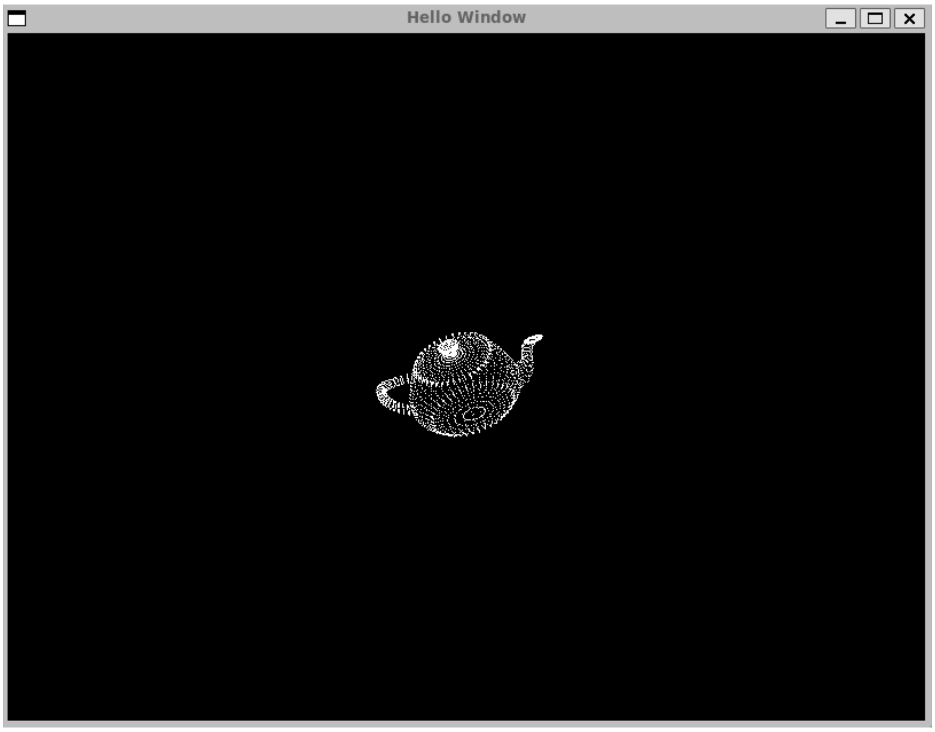
- Vertex buffers created with vertices from.obj file
- A simple vertex shader and fragment shader are linked and compiled to the gl program
- The mesh is centered according to its bounding box



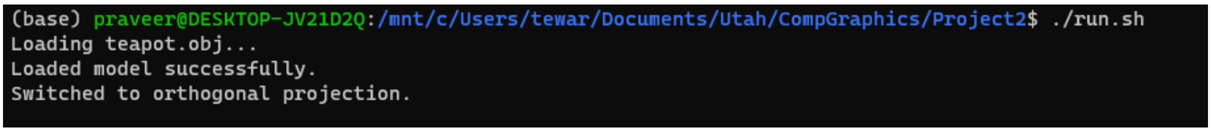
- Camera angles are set with two rotation matrices (rotation along x axis and rotation along y axis)
- Left mouse button (and drag) controls these two camera angles (screenshot below)



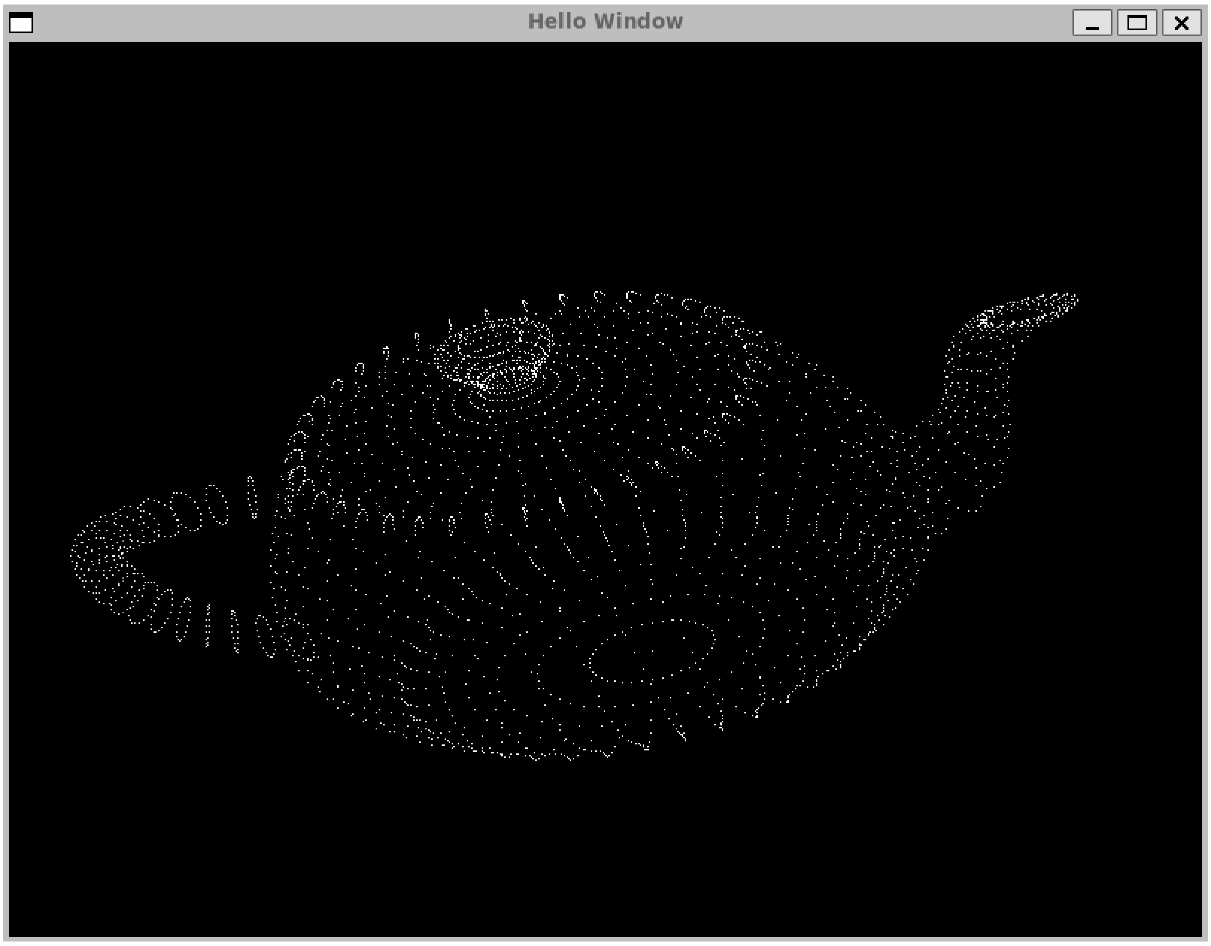
- Camera distance is set with a translation in the view matrix
- Right mouse button (and drag) controls the camera distance (screenshot below)



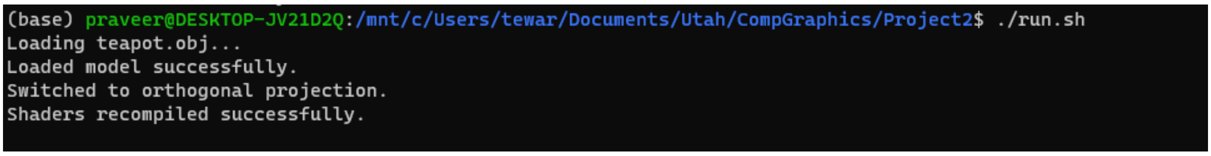
- A perspective projection matrix is set as a default.
- Pressing “P” toggles between a perspective and orthographic projection matrix



```
(base) praveer@DESKTOP-JV21D2Q:/mnt/c/Users/tewar/Documents/Utah/CompGraphics/Project2$ ./run.sh
Loading teapot.obj...
Loaded model successfully.
Switched to orthogonal projection.
```



- Pressing F6 recompiles the vertex and fragment shaders



```
(base) praveer@DESKTOP-JV21D2Q:/mnt/c/Users/tewar/Documents/Utah/CompGraphics/Project2$ ./run.sh
Loading teapot.obj...
Loaded model successfully.
Switched to orthogonal projection.
Shaders recompiled successfully.
```

How to use

- “Esc” closes the window.
- “P” switches between perspective and orthographic projection
- Left mouse button (and drag) controls camera angles
- Right mouse button (and drag) controls camera distance
- “F6” recompiles shaders

Operating System and Compiler notes

Operating System: Ubuntu 22.04.1 LTS (through WSL on windows)
Compiler: I used a Cmake build, which uses gcc to compile.

The project files can be built by running the script ./build.sh.
./run.sh then runs the program from the build folder.

External libraries:

GL, glut and GLEW are linked as specified in the cmakelists.txt file:

```
target_link_libraries(project2 GL)
target_link_libraries(project2 glut)
target_link_libraries(project2 GLEW)
```