Interactive Computer Graphics Project 8:
Tesselation

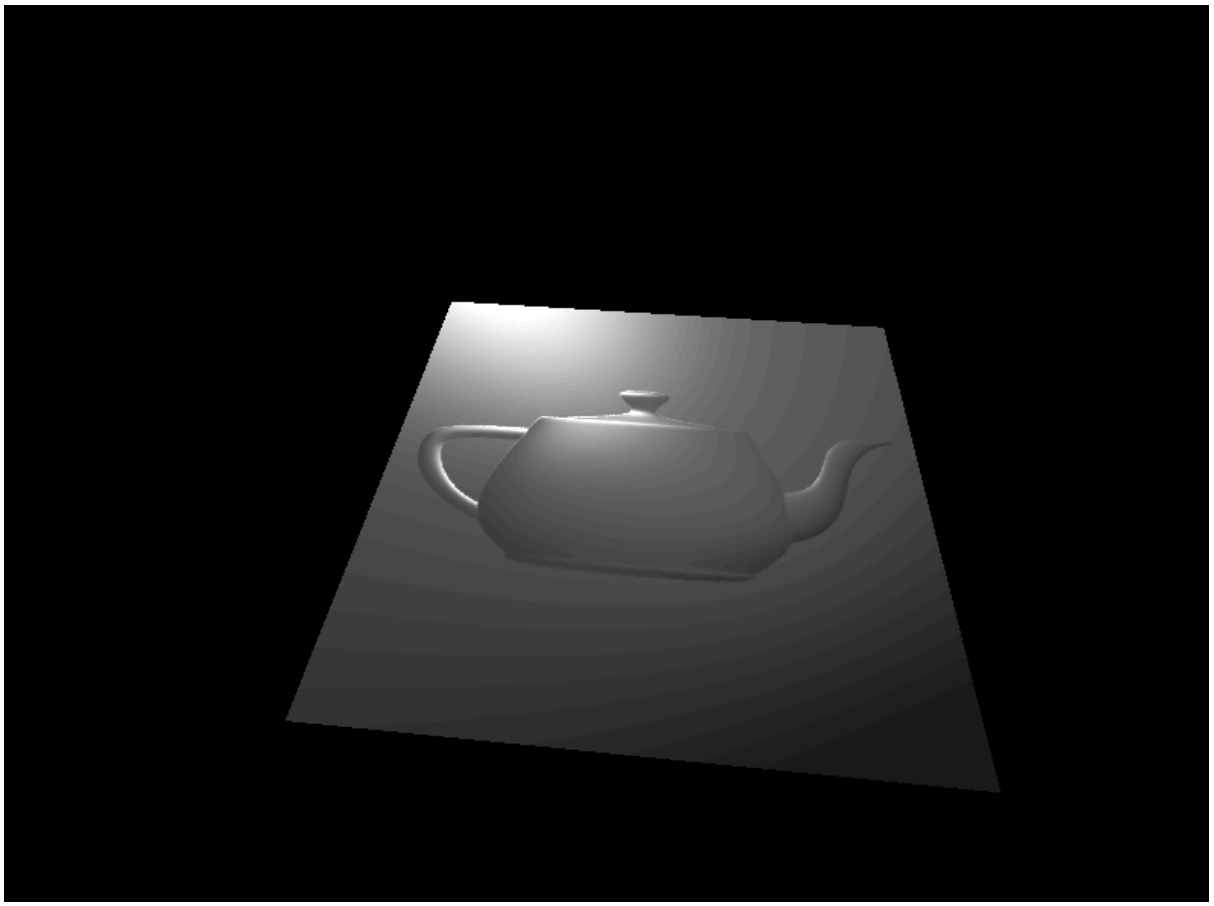
Praveer Tewari u1471817

Features Implemented

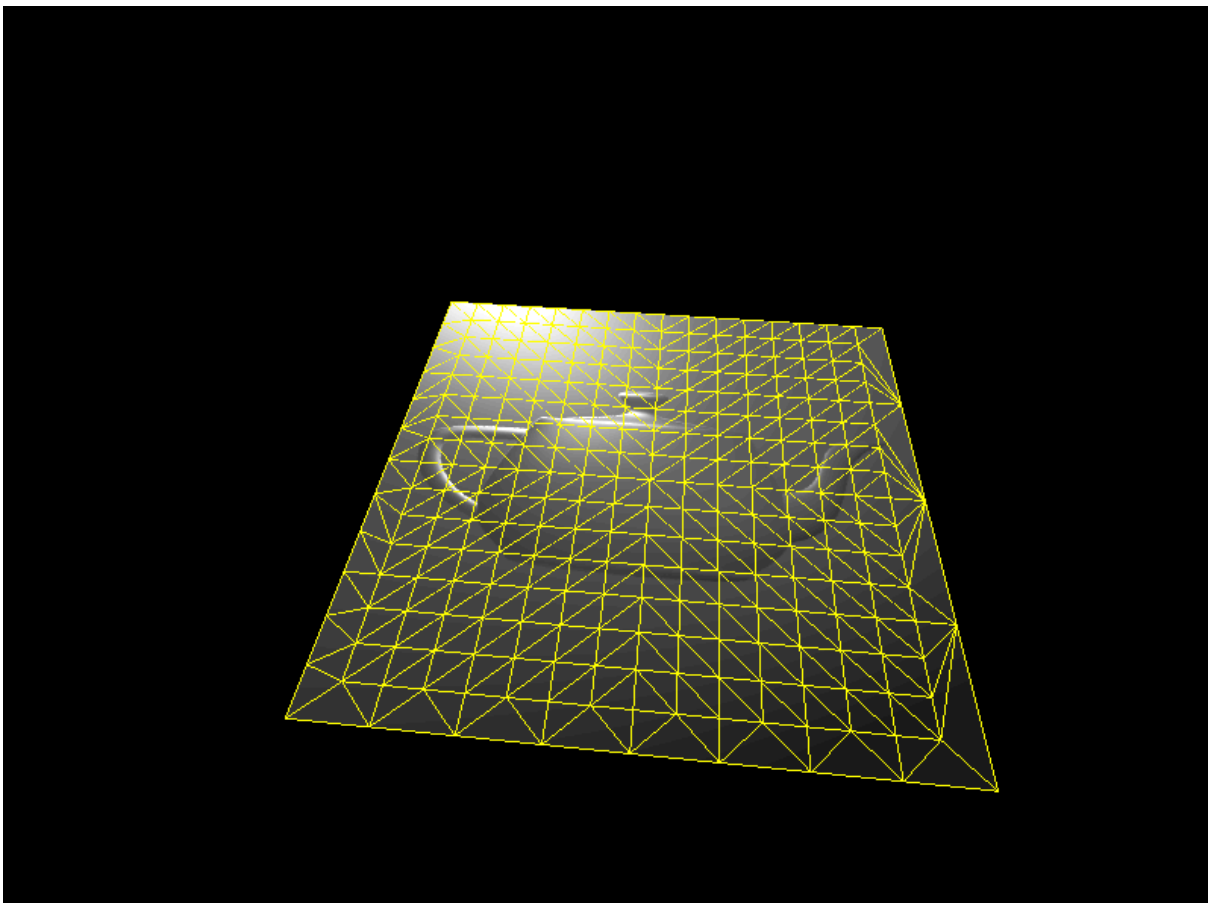
- Program loads in normal map texture as first cmd line arg
- A flat quad is drawn with the normal map texture applied
- A point light is created with blinn-phong shading on the plane
- Geometry shader is used to display triangles in quad as line segments
- If a second cmd line arg is provided, the file is loaded as a displacement map
- Quad is tessellated using tessellation shaders
- Left and right arrow keys control the tessellation level
- Shadow mapping is computed on the displaced quad

Screenshots:

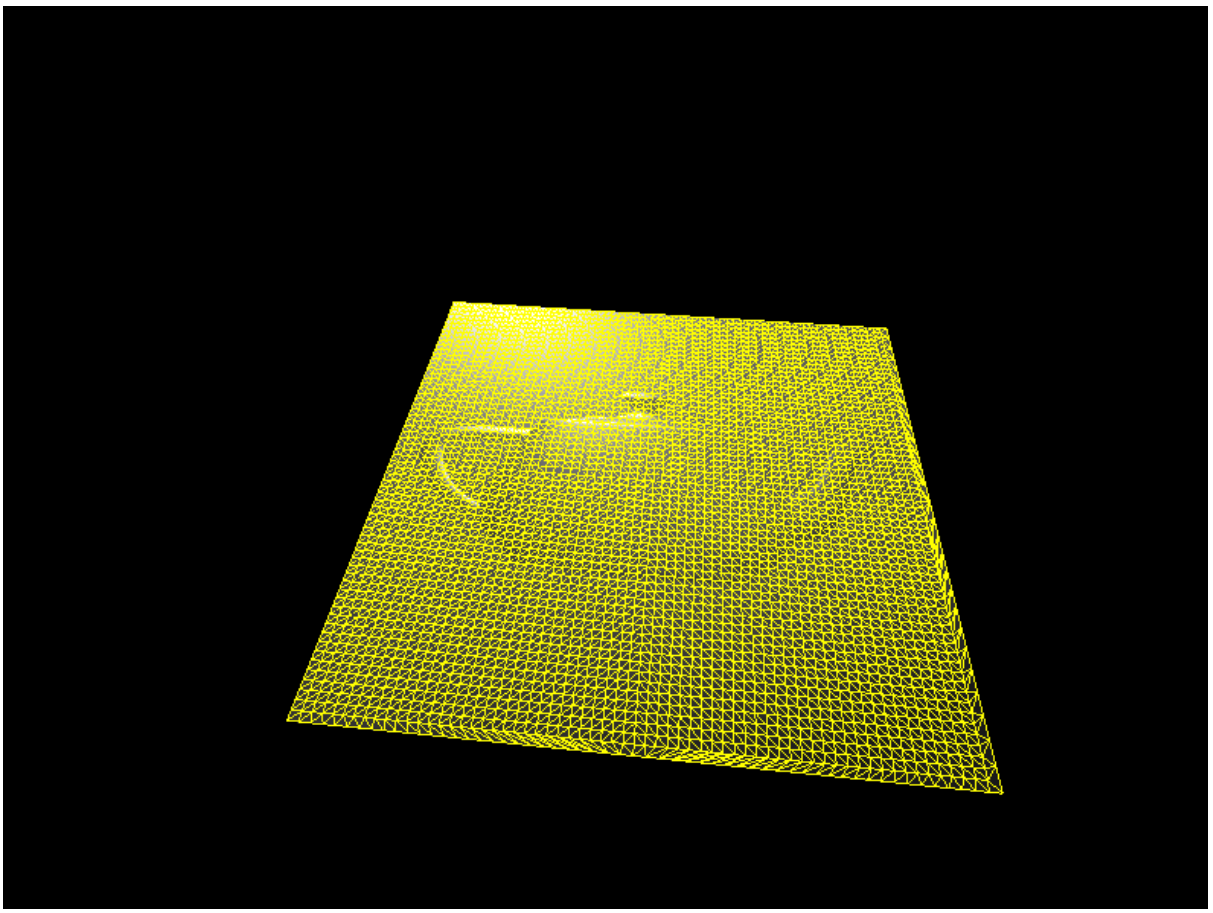
Normal Map texture:



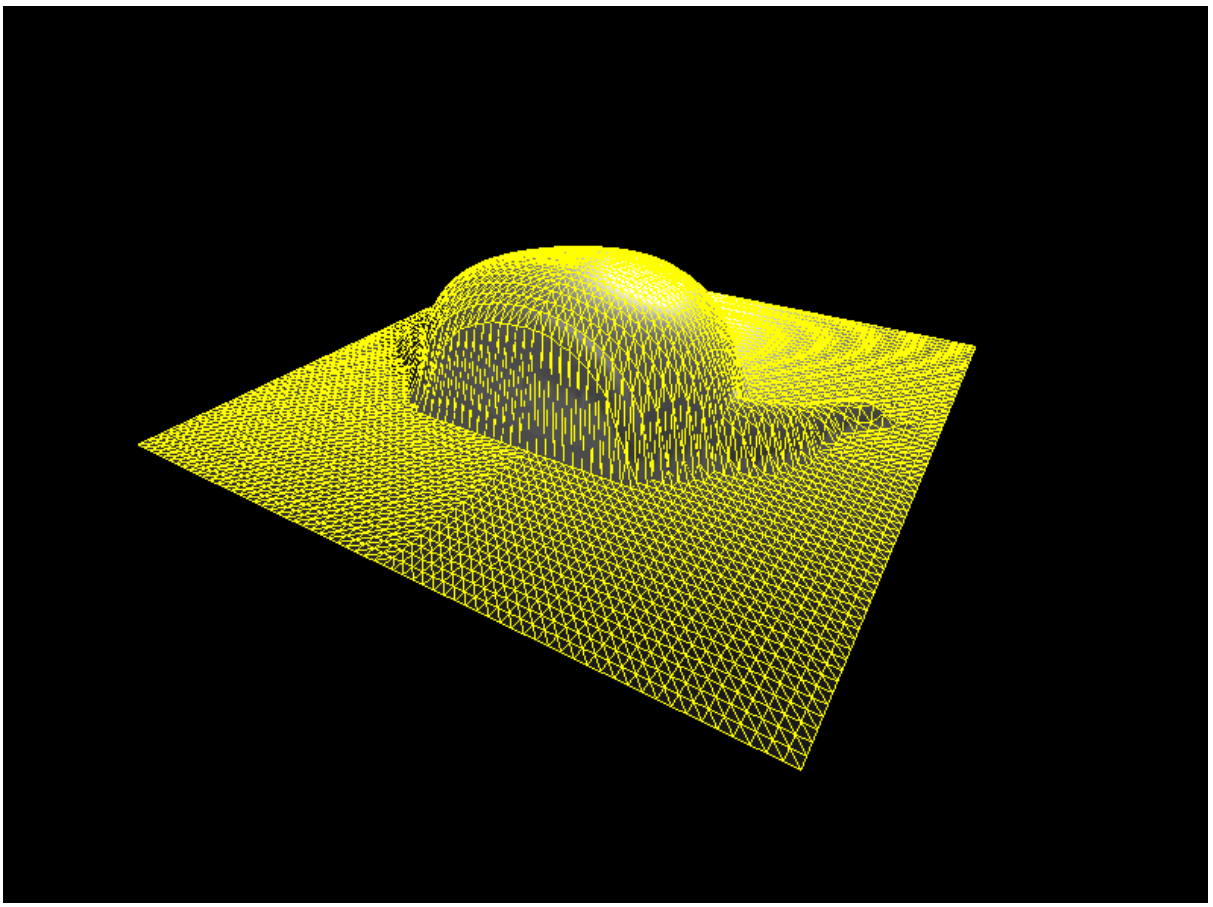
Display triangulation with geometry shader:



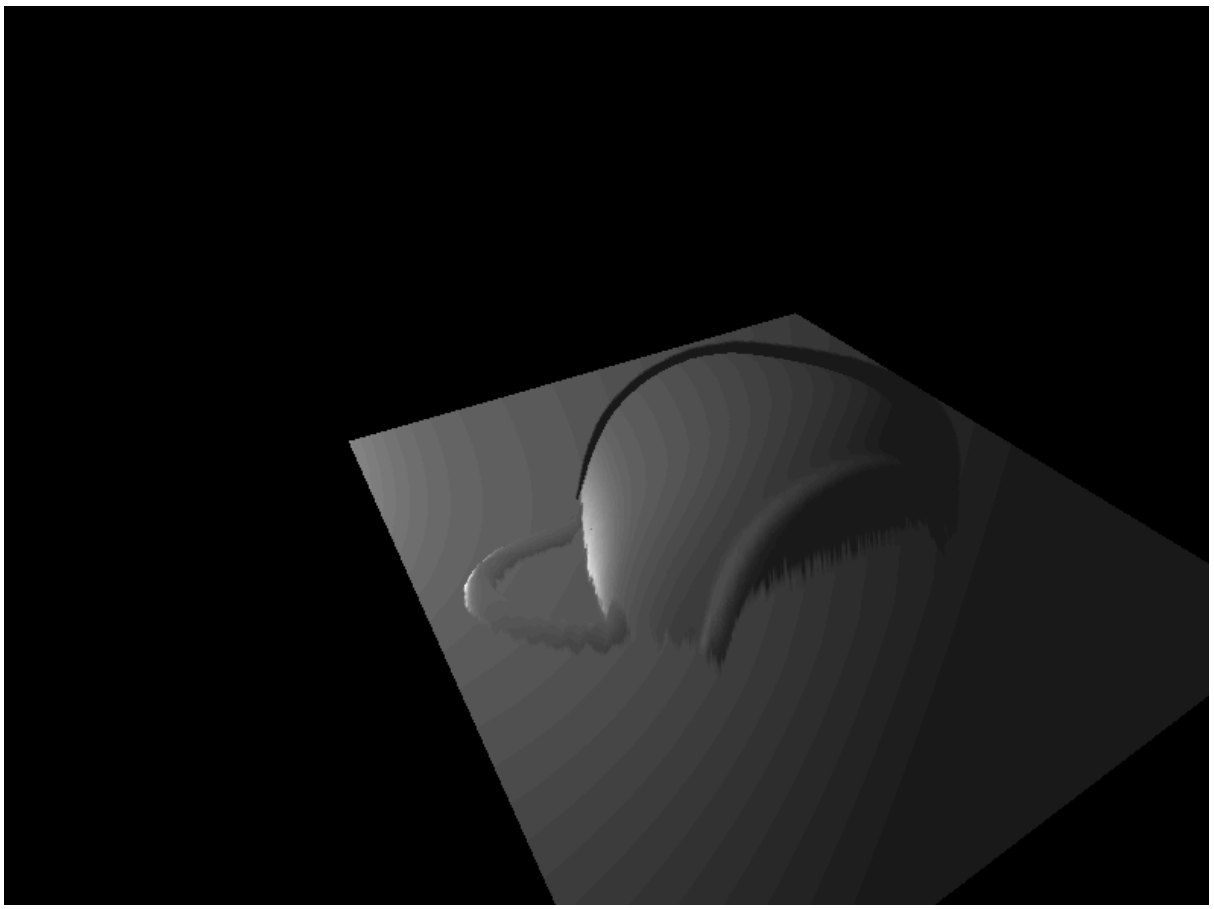
Left and right arrow keys control tessellation level:

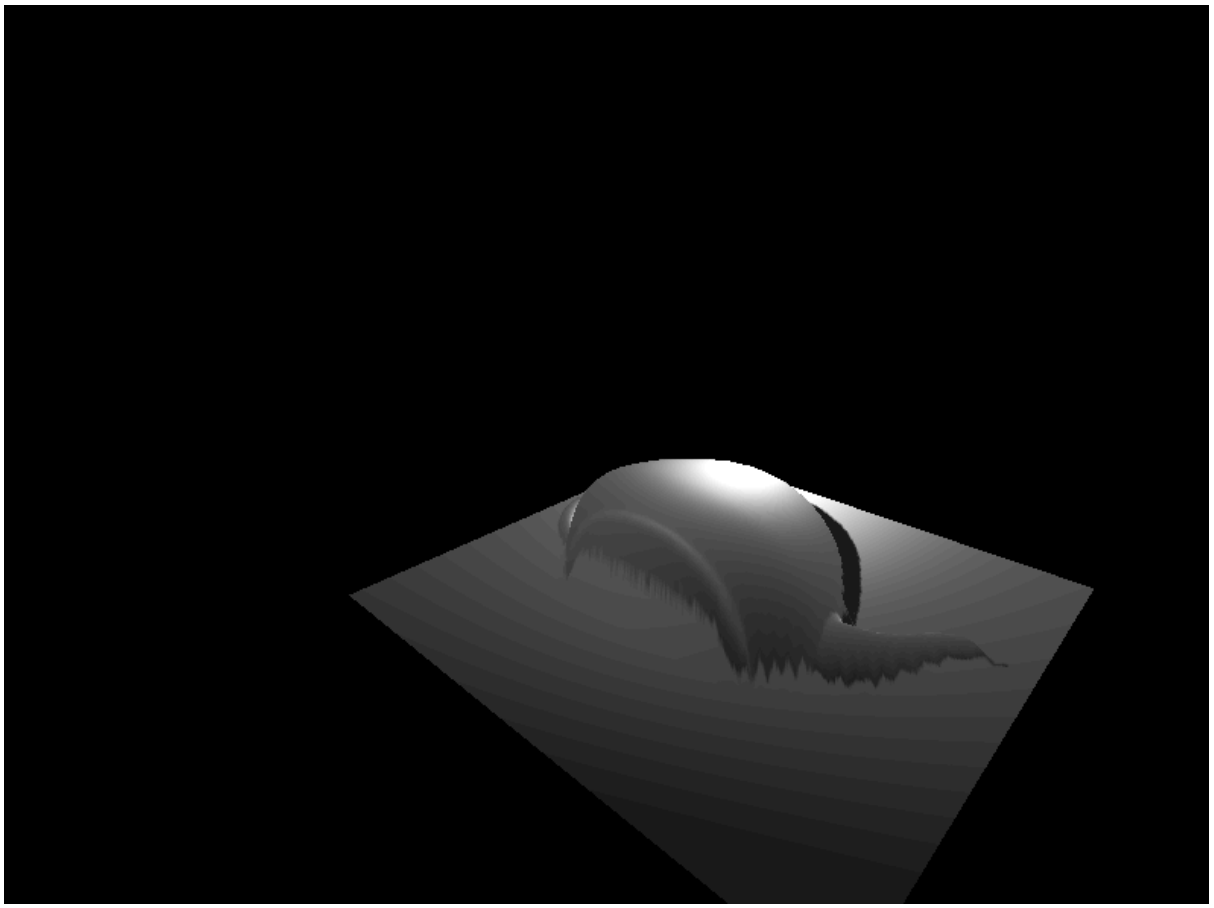


Displacement map applied:



Shadow mapping:





How to use

- “Esc” closes the window.
- Left mouse button (and drag) controls camera angles
- Right mouse button (and drag) controls camera distance
- Holding CTRL controls light rotation
- Space key sets triangulation
- Left and right arrow keys control tessellation level

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(project8 GL)
target_link_libraries(project8 glut)
target_link_libraries(project8 GLEW)
```