CS 5610/6610 - Spring 2022 - Interactive Computer Graphics

Project 8 - Tessellation

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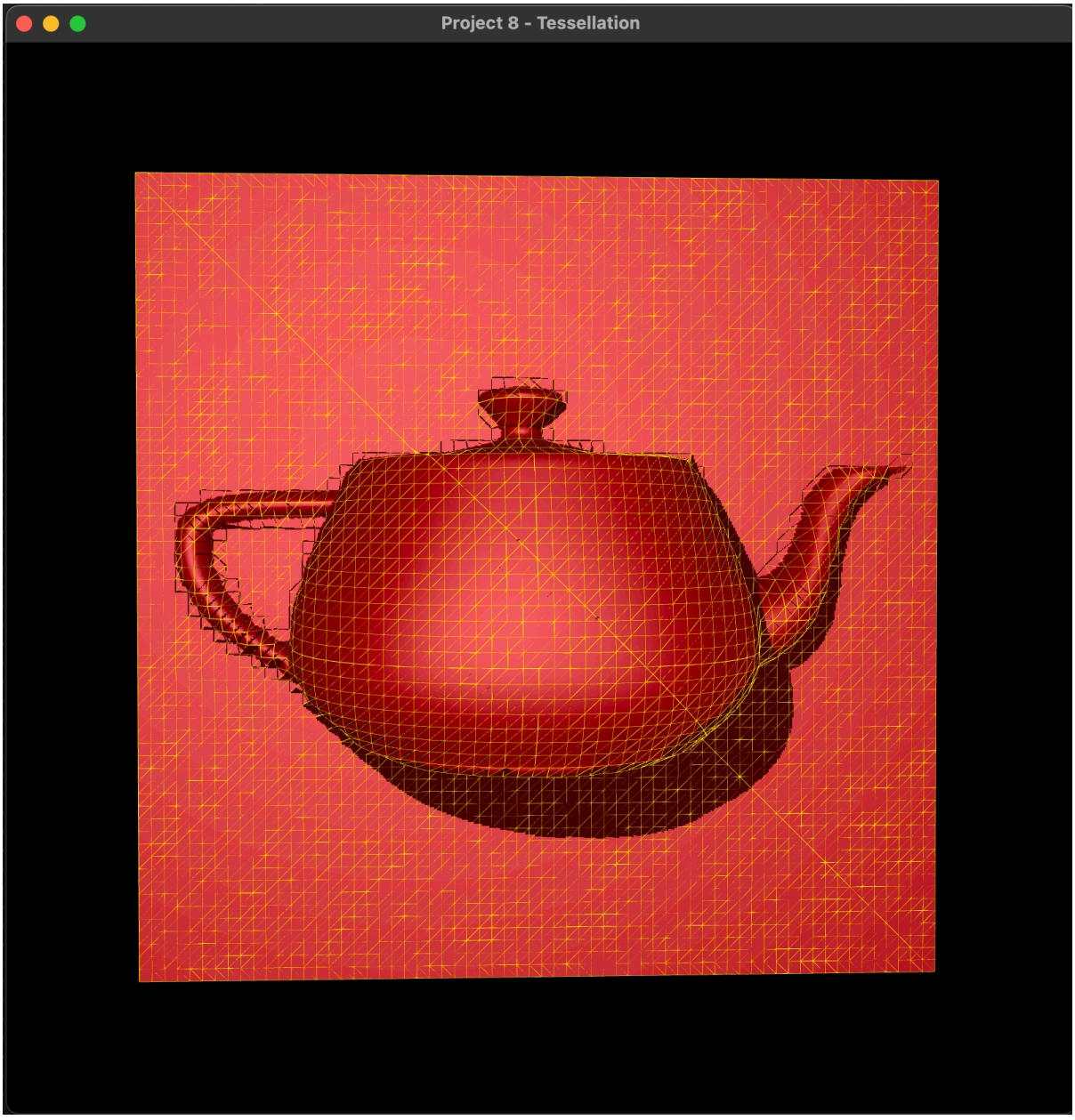
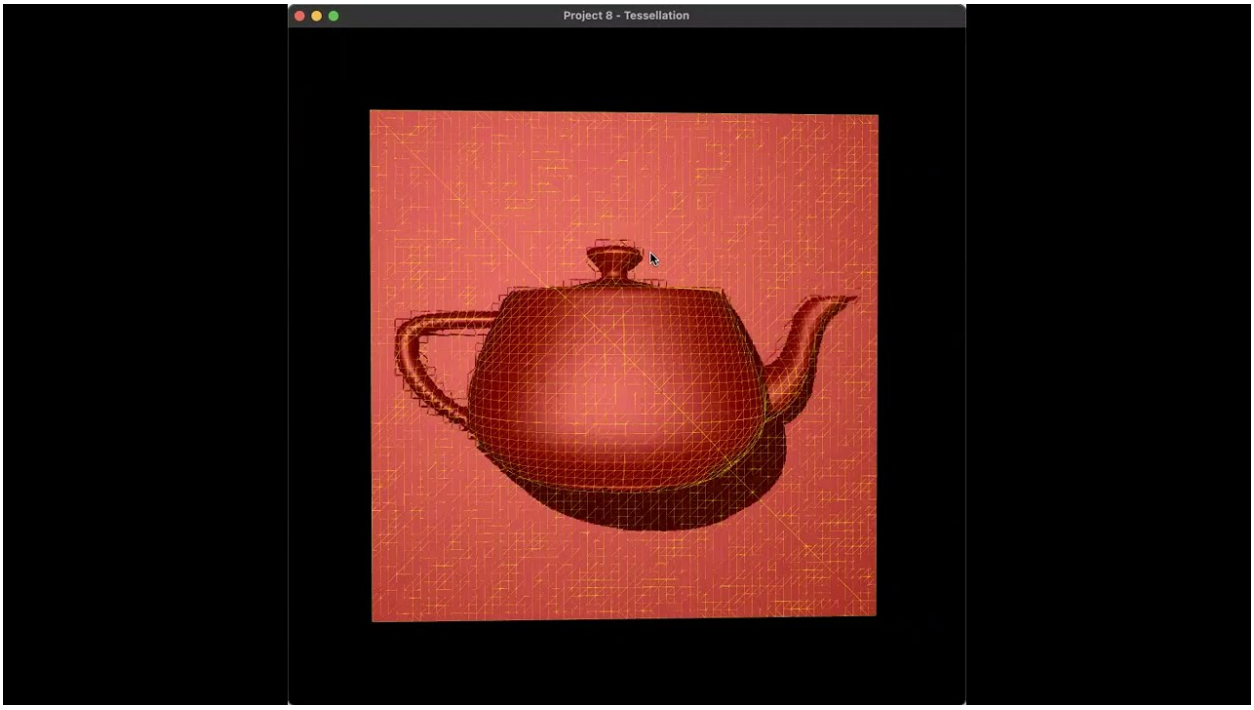
Project Screenshots:



Video



Implemented Features:

- The program takes the normal mapping .png file as first argument and used for normal mapping.
- Blinn shading is used with non-zero diffuse and specular component.
- Space key enables/disables triangulation which is rendered using geometry shader.
- The program takes the displacement mapping .png file as second argument and used for normal mapping.
- Left and right arrow controls the tessellation level.
- Up and down arrow controls the displacement level.
- Shadow mapping is used to compute the shadows with displacement mapping.
- Press “S” key to enable the shadow.

Development Environment:

OS: OS X 12.01
IDE: XCode 13.2.1
Compiler: clang++

External Libraries and Dependencies:

- C++
- OpenGL
- glfw
- GLEW
- glm
- cyCodeBase

All the libraries and dependencies can be found in the include and lib folder inside the project directory.

Steps to Compile and Run the Project:

- Run the below command in the project directory (inside the Project1 folder).

```
clang++  -std=c++11 -stdlib=libc++ -arch x86_64 -o run tessellation/
main.cpp tessellation/lodepng.cpp lib/libGLEW.2.2.0.dylib lib/
libglfw.3.3.dylib -framework OpenGL -I include -L lib
```

```
./run teapot_normal.png teapot_disp.png
```

Run the below command to run the executable.

- Alternatively, the project can be open in X Code and running on Rosetta.