**Project 6 – Environment Mapping**

|  |  |
| --- | --- |
| **Name:** | Mukunth Balaramachandran Srinivasan |
| **uNID:** | u1467270 |

**What’s implemented?**

*All requirements implemented.* Implemented simple environment mapping including background and the reflection on objects. A plane is also rendered and the reflection of the object above it (teapot with its reeflections) and the reflection of the environment are shown on the plane.

|  |
| --- |
|  |
|  |
|  |
|  |
| Fig 1. Different angles of reflection (varying object sizes) |

**What could not be implemented?**

-

**Additional functionalities**

**Previous projects’ functionalities:**

* Left mouse button to rotate and right mouse button to zoom in/out (click and drag).
* Centering the object on the window based on its boundary values.
* Re-compiling shaders on pressing F6 key.

**How to use implementation?**

g++ main.cpp lodepng.cpp -o main -lfreeglut -lglu32 -lopengl32 -lglew32

This command will generate the output file “main” (“main.exe” in Windows) in the working directory. This command includes the GLEW 32-bit linker. I didn’t use an IDE and had all the libraries and headers globally installed, so I didn’t have to use -I and -L tags to specify paths to headers and DLLs. Place “lodepng.cpp” file in the same directory as the “main.cpp” file.

**All texture maps, .obj files and .mtl files are expected to be in the same directory as the executable file.**

The folder structure for the headers in include is as follows:

-> include

-> GL / all FreeGLUT and GLEW headers

-> cyCodeBase / all cyCodeBase headers

-> lodepng.h

**OS and Compiler**

|  |  |
| --- | --- |
| *Operating System* | Windows 11 (x64) |
| *Compiler* | g++ |

**External libraries and additional requirements**

Apart from FreeGLUT, GLEW, cyCodeBase and LodePNG have been used for this implementation.