RECORD OF EXPERIMENTS

Computer Graphics Lab

(CSEG3103)

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Dehradun-248007 2020-21

INDEX

S.No.	**O**bjective of the **E**xperiment	**D**ate of **S**ubmission	**R**emarks
1.	Introduction to OpenGL and initialize a Green color		
2.			

EXPERIMENT-1: Introduction to OpenGL and initialize a Green color

INTRODUCTION TO OPEN GL:

- What is OpenGL?

Answer: Open Graphics Library (OpenGL) is a cross-language, cross-platform application programming interface (API) for rendering 2D and 3D vector graphics. The API is typically used to interact with a graphics processing unit (GPU), to achieve hardwareaccelerated rendering.

- What is GLU/GLUT?

Answer: GLUT is the OpenGL Utility Toolkit, a window system independent toolkit for writing OpenGL programs. It implements a simple windowing application programming interface (API) for OpenGL. GLUT makes it considerably easier to learn about and explore OpenGL Programming.

What is OpenGLArchitecture?

Answer: CPU-GPU Cooperation

The architecture of OpenGL is based on a client-server model. An application program written to use the OpenGL API is the "client" and runs on the CPU. The implementation of the OpenGL graphics engine (including the GLSL shader programs you will write) is the "server" and runs on the GPU. Geometry and many other types of attributes are stored in buffers called Vertex Buffer Objects (or VBOs). These buffers are allocated on the GPU and filled by your CPU program.

Modeling, rendering, and interaction is very much a cooperative process between the CPU client program and the GPU server programs written in GLSL.

CODE FOR INITILIZE A GREEN COLOUR:

OUTPUT:

```
 #include <GL/glut.h>
#include <GL/glu.h>
#include <GL/gl.h>
void display() {
 glClearColor(0.0, 1.0, 0.0,0.0); // Set background color to Green and opaque
 glClear(GL_COLOR_BUFFER_BIT); // Clear the color buffer (background)
glFlush(); // Render now
}
 int main(int argc, char** argv)
```

```
{
glutInit(&argc, argv); // Initialize GLUT
 glutCreateWindow("First OpenGL Program"); // Create a window with the given title
 glutInitWindowSize(320, 320); // Set the window's initial width & height
 glutInitWindowPosition(50, 50); // Initial Position of the window
 glutDisplayFunc(display); // Register display callback handler for window re-paint
 glutMainLoop(); // Enter the event-processing loop
 return 0;
}
```

OUTPUT