Name	**:**	**V Vikram**	**Class**	**:**	CSE ‘C’
Reg. No.	**:**	**18 5001 194**	**Date**	**:**	04/10/2021
Subject	**:**	**UCS1712---Graphics and Multimedia Lab**			

Lab Exercise 10: Creating a 3D Scene in C++ using OpenGL

AIM :

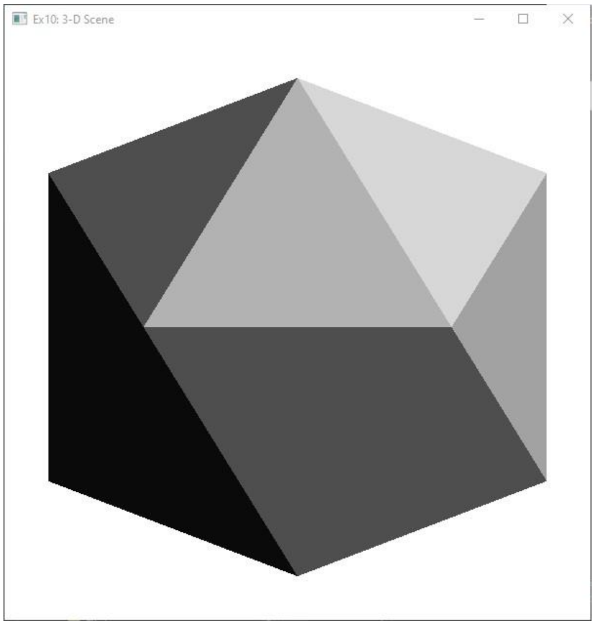
To ,

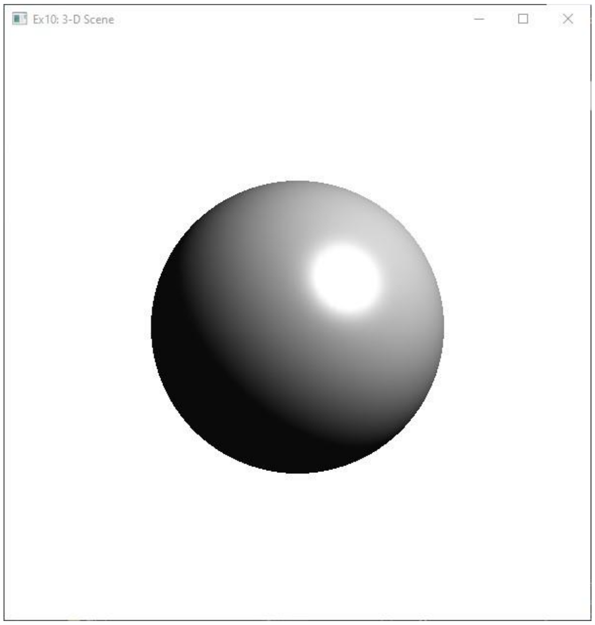
A. Write a C++ program using OpenGL to draw at least four 3D objects
B. Apply lighting and texture and render the scene.
C. Apply transformations to create a simple 3D animation using built-in transformation functions.

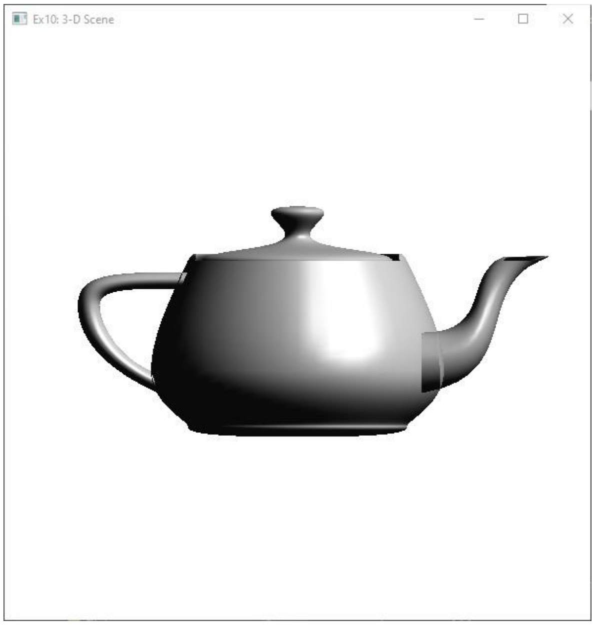
CODE :

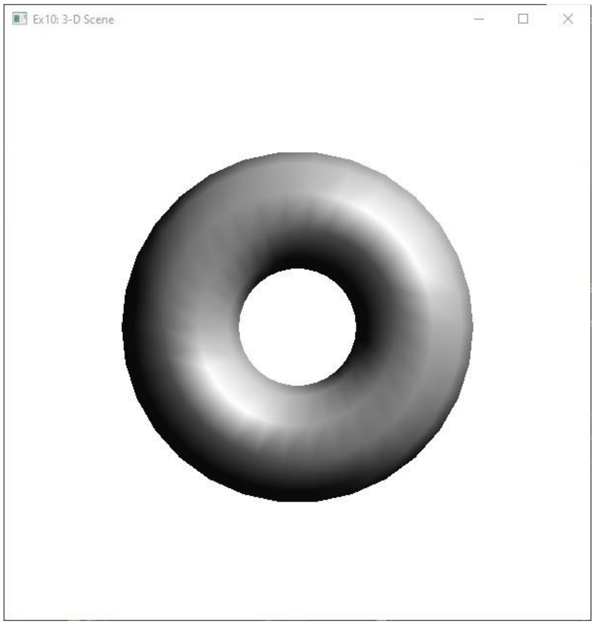
```
#include<iostream>
#include <GL/glut.h>
using namespace std;

void init() {
        glClearColor(1.0, 1.0, 1.0, 1.0);
        glEnable(GL_DEPTH_TEST);
        GLfloat mat_specular[] = { 1.0, 1.0, 1.0, 1.0 };
        GLfloat mat_shininess[] = { 50.0 };
        GLfloat light_position[] = { 1.0, 1.0, 1.0, 0.0 };
        glShadeModel(GL_SMOOTH);

        glColor3f(1.0, 1.0, 0.0);
        glMaterialfv(GL_FRONT, GL_SPECULAR, mat_specular);
        glMaterialfv(GL_FRONT, GL_SHININESS, mat_shininess);
        glLightfv(GL_LIGHT0, GL_POSITION, light_position);
        glEnable(GL_LIGHTING);
        glEnable(GL_LIGHT0);
}
void disp(int i) {
        glClear(GL_COLOR_BUFFER_BIT | GL_DEPTH_BUFFER_BIT);
        glMatrixMode(GL_MODELVIEW);
        glLoadIdentity();
        glLoadIdentity();
        gluLookAt(0, 0, 1, 0, 0, 0, 0, 1, 0);

}
void display() {

        disp(1);
        glRotatef(0, 0, 1, 0);
        glRotatef(0, 1, 0, 0);

        glColor3f(0.0, 1.0, 1.0);

        //glutSolidTorus(0.2, 0.4, 10, 30);
        //glutSolidTeapot(0.5);
        //glutSolidIcosahedron();
                //void glutSolidIcosahedron(void);
        glutSolidSphere(0.5,100,100);
                //void glutSolidSphere(GLdouble radius,GLint slices, GLint stacks);

        glFlush();
}

int main(int argc, char* argv[]) {
        glutInit(&argc, argv);
        glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB | GLUT_DEPTH);
        glutInitWindowSize(600, 600);
        glutCreateWindow("Ex10: 3-D Scene");

        init();
        glutDisplayFunc(display);
        glutMainLoop();
        return 0;
}
```

OUTPUT SNAPSHOTS:









LEARNING OUTCOMES :