

Tutorial 03

Basic shapes in OpenGL

IS2107_2020

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Activity 01

```
#include <windows.h>
#include <GL/glut.h>
#include <GL/gl.h>

int main(int argc, char ** argv){

    glutInit(&argc,argv);
    glutCreateWindow("My Cube");
    glutInitWindowSize(1500,1500);
    glutInitWindowPosition(0,0);
    glutDisplayFunc(createCube);
    glutMainLoop();
    return 0;
}

void createCube(){
    glClearColor(0.0,0.0,0.0,1.0);
    glClear(GL_COLOR_BUFFER_BIT);

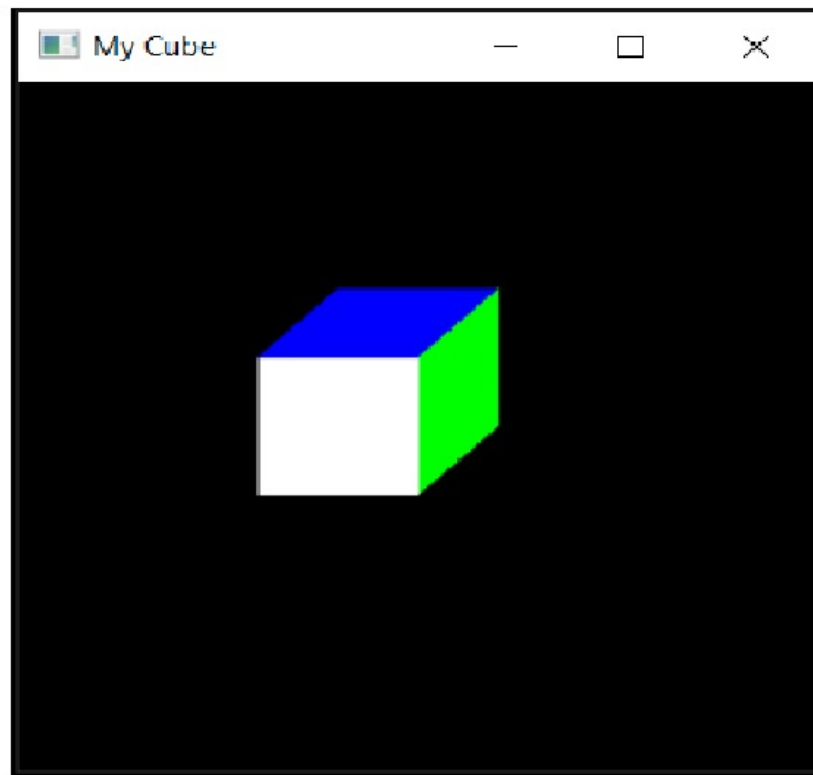
    glBegin(GL_POLYGON);//Back face
    glColor3f(0.5,0,0.5);
    glVertex3f(-0.2,0,-0.4);
    glVertex3f(-0.2,0.4,-0.4);
    glVertex3f(0.2,0.4,-0.4);
    glVertex3f(0.2,0,-0.4);
    glEnd();

    glBegin(GL_POLYGON);//Bottom face
    glColor3f(1.0,0,0);
    glVertex3f(-0.4,-0.2,0);
    glVertex3f(-0.2,0,-0.4);
    glVertex3f(0.2,0,-0.4);
    glVertex3f(0,-0.2,0);
    glEnd();

    glBegin(GL_POLYGON);//Left face
    glColor3f(0,1.0,0);
    glVertex3f(-0.4,-0.2,0);
    glVertex3f(-0.4,0.2,0);
    glVertex3f(-0.2,0.4,-0.4);
    glVertex3f(-0.2,0,-0.4);
    glEnd();
}
```

```
glBegin(GL_POLYGON); //Top face
glColor3f(0,0,1.0);
glVertex3f(-0.4,0.2,0);
glVertex3f(-0.2,0.4,-0.4);
glVertex3f(0.2,0.4,-0.4);
glVertex3f(0,0.2,0);
glEnd();

glBegin(GL_POLYGON); //Front face
glColor3f(1.0,1.0,1.0);
glVertex3f(-0.4,-0.2,0);
glVertex3f(-0.4,0.2,0);
glVertex3f(0,0.2,0);
glVertex3f(0,-0.2,0);
glEnd();
glFlush();
}
```



Activity 02

```
#include <windows.h>
#include <GL/glut.h>
#include <GL/gl.h>
int main(int argc, char ** argv){

    glutInit(&argc,argv);
    glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB | GLUT_DEPTH);
    glutCreateWindow("My Pyramid");
    glutInitWindowSize(1500,1500);
    glutInitWindowPosition(0,0);
    glutDisplayFunc(createPyramid);
    glRotatef(200,0,1,0);
    glutMainLoop();
return 0;
}

void createPyramid(){
    glClearColor(0.0,0.0,0.0,1.0);
    glClear(GL_COLOR_BUFFER_BIT);

    glBegin(GL_TRIANGLES);//Back face
        glColor3f(0,0,1);
        glVertex3f(0,1,0);
        glVertex3f(-0.5,0,-0.5);
        glVertex3f(0.5,0,-0.5);
    glEnd();

    glBegin(GL_TRIANGLES);//Half 01 bottom
        glColor3f(1.0,0.5,0);
        glVertex3f(-0.5,0,0.5);
        glVertex3f(-0.5,0,-0.5);
        glVertex3f(0.5,0,0.5);
    glEnd();

    glBegin(GL_TRIANGLES);//Half 02 bottom
        glColor3f(1.0,0.5,0);
        glVertex3f(-0.5,0,-0.5);
        glVertex3f(0.5,0,-0.5);
        glVertex3f(0.5,0,0.5);
    glEnd();
```

```
glBegin(GL_TRIANGLES); //Right face
glColor3f(1,1,1);
glVertex3f(0,1,0);
glVertex3f(0.5,0,0.5);
glVertex3f(0.5,0,-0.5);
glEnd();

glBegin(GL_TRIANGLES); //Left face
glColor3f(1,1,0);
glVertex3f(0,1,0);
glVertex3f(-0.5,0,0.5);
glVertex3f(-0.5,0,-0.5);
glEnd();

glBegin(GL_TRIANGLES); //Front face
glColor3f(0.5,0.5,0.5);
glVertex3f(0,1,0);
glVertex3f(-0.5,0,0.5);
glVertex3f(0.5,0,0.5);
glEnd();
glFlush();
glutSwapBuffers();
}
```

