UCS 1712 – GRAPHICS AND MULTIMEDIA LAB

ASSIGNMENT – 1

VISHAL N

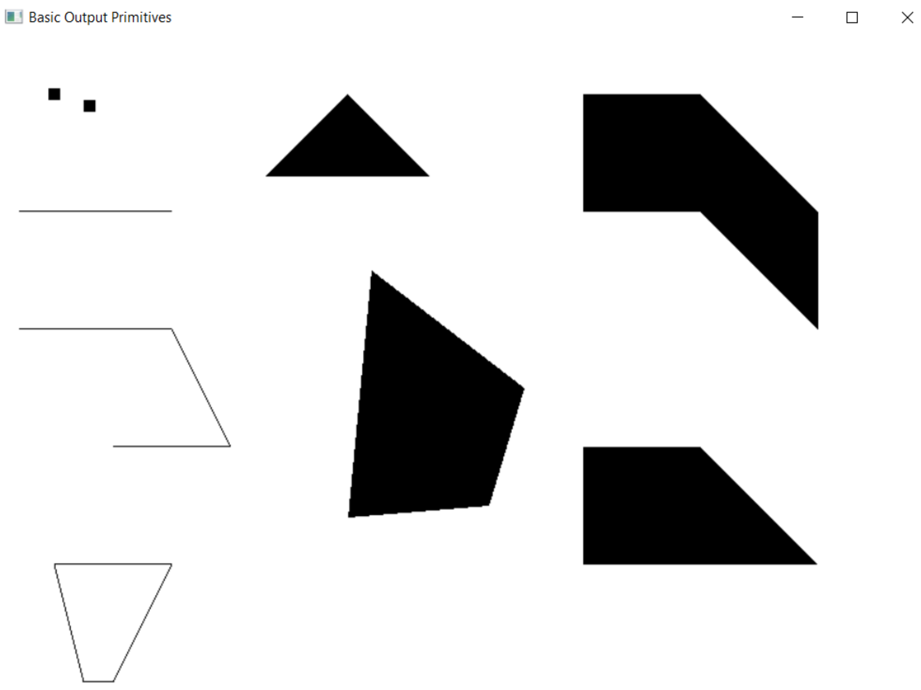
185001198

27.07.2021 **CSEC**

1.

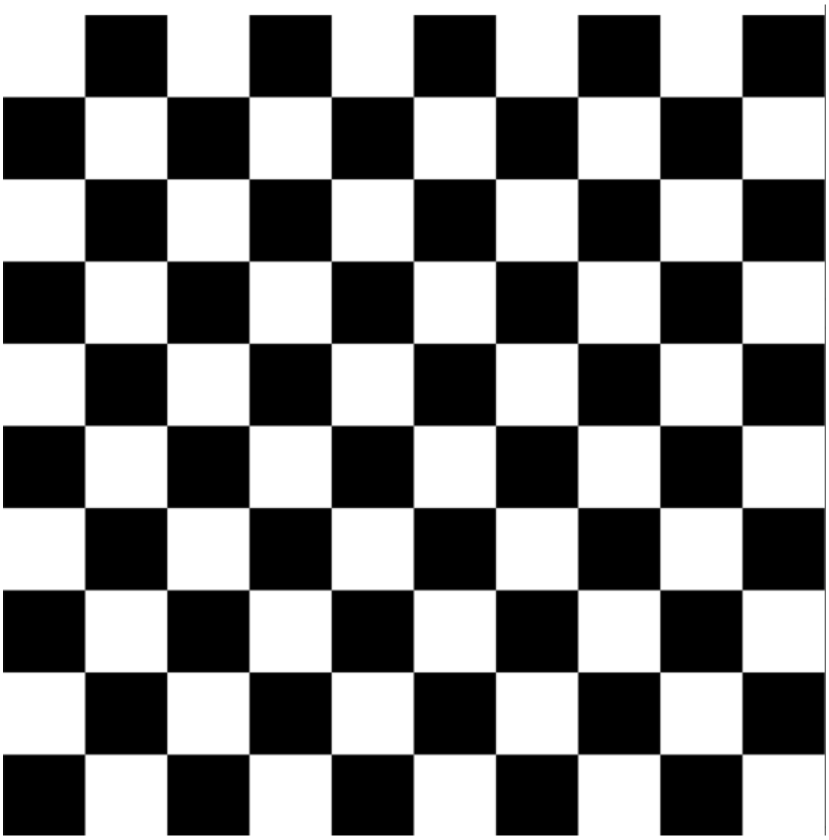
A)

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

void myInit() {
    glClearColor(2.0, 1.0, 2.0, 0.0);
    glColor3f(0.0f, 0.0f, 0.0f);
    glPointSize(10);
    glMatrixMode(GL_PROJECTION);
    glLoadIdentity();
    gluOrtho2D(0.0, 800.0, 0.0, 600.0);
}

void basicPrimitives() {
    glClear(GL_COLOR_BUFFER_BIT);

    glBegin(GL_POINTS);
    glVertex2d(50, 550);
    glVertex2d(80, 540);
    glEnd();

    glBegin(GL_LINES);
    glVertex2d(20, 450);
    glVertex2d(150, 450);
    glEnd();

    glBegin(GL_LINE_STRIP);
    glVertex2d(20, 350);
    glVertex2d(150, 350);
    glVertex2d(200, 250);
    glVertex2d(100, 250);
    glEnd();

    glBegin(GL_LINE_LOOP);
    glVertex2d(50, 150);
    glVertex2d(150, 150);
    glVertex2d(100, 50);
    glVertex2d(75, 50);
    glVertex2d(50, 150);
    glEnd();

    glBegin(GL_TRIANGLES);
    glVertex2d(300, 550);
    glVertex2d(370, 480);
    glVertex2d(230, 480);
    glEnd();

    glBegin(GL_QUADS);
    glVertex2d(320, 400);
    glVertex2d(450, 300);
    glVertex2d(420, 200);
    glVertex2d(300, 190);
    glEnd();

    glBegin(GL_QUAD_STRIP);
    glVertex2d(500, 550);
    glVertex2d(500, 450);
    glVertex2d(600, 550);
    glVertex2d(600, 450);
    glVertex2d(700, 450);
    glVertex2d(700, 350);
    glEnd();

    glBegin(GL_POLYGON);
    glVertex2d(500, 250);
    glVertex2d(600, 250);
    glVertex2d(700, 150);
    glVertex2d(600, 150);
    glVertex2d(500, 150);
    glEnd();
    glFlush();
}

int main(int argc, char* argv[]) {
    glutInit(&argc, argv);
    glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
    glutInitWindowSize(800, 600);
    glutCreateWindow("Basic Output Primitives");
    glutDisplayFunc(basicPrimitives);
    myInit();
    glutMainLoop();
    return 1;
}
```



B)

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

void myInit() {
    glClearColor(2.0, 1.0, 2.0, 0.0);
    glColor3f(0.0f, 0.0f, 0.0f);
    glPointSize(10);
    glMatrixMode(GL_PROJECTION);
    glLoadIdentity();
    gluOrtho2D(0.0, 500.0, 0.0, 500.0);
}

void checker() {
    glClear(GL_COLOR_BUFFER_BIT);

    int i, j;
    for (i = 0; i < 800; i += 100) {
        for (j = 0; j < 800; j += 50) {
            if (j % 100 == 0) {
                glBegin(GL_QUADS);
                glVertex2d(i, j);
                glVertex2d(i, j + 50);
                glVertex2d(i + 50, j + 50);
                glVertex2d(i + 50, j);
                glEnd();
            }
            else {
                glBegin(GL_QUADS);
                glVertex2d(i + 50, j);
                glVertex2d(i + 50, j + 50);
                glVertex2d(i + 100, j + 50);
                glVertex2d(i + 100, j);
                glEnd();
            }
        }
    }
    glFlush();
}

int main(int argc, char* argv[]) {
    glutInit(&argc, argv);
    glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
    glutInitWindowSize(500, 500);
    glutCreateWindow("Checker Pattern");
    glutDisplayFunc(checker);
    myInit();
    glutMainLoop();
    return 1;
}
```



C)

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

void myInit() {
    glClearColor(2.0, 1.0, 2.0, 0.0);
    glColor3f(0.0f, 0.0f, 0.0f);
    glPointSize(10);
    glMatrixMode(GL_PROJECTION);
    glLoadIdentity();
    gluOrtho2D(0.0, 640.0, 0.0, 480.0);
}

void house() {
    glClear(GL_COLOR_BUFFER_BIT);

    glBegin(GL_TRIANGLES);
    glColor3f(0.5, 0.0, 0.0);
    glVertex2d(200, 400);
    glVertex2d(150, 300);
    glVertex2d(250, 300);
    glEnd();

    glBegin(GL_QUADS);
    glColor3f(0.0, 0.0, 0.5);
    glVertex2d(150, 300);
    glVertex2d(250, 300);
    glVertex2d(250, 200);
    glVertex2d(150, 200);
    glEnd();

    glBegin(GL_QUADS);
    glColor3f(1.0, 0.0, 0.0);
    glVertex2d(200, 400);
    glVertex2d(400, 400);
    glVertex2d(450, 300);
    glVertex2d(250, 300);
    glEnd();

    glBegin(GL_QUADS);
    glColor3f(0.0, 0.0, 1.0);
    glVertex2d(250, 300);
    glVertex2d(450, 300);
    glVertex2d(450, 200);
    glVertex2d(250, 200);
    glEnd();
    glFlush();
}
```

```
int main(int argc, char* argv[]) {
    glutInit(&argc, argv);
    glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
    glutInitWindowSize(640, 480);
    glutCreateWindow("House");
    glutDisplayFunc(house);
    myInit();
    glutMainLoop();
    return 1;
}
```