SSN COLLEGE OF ENGINEERING
UCS1712---Graphics and Multimedia Lab

LAB TEST

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CODE:

```
//  main.cpp
//  shearing
//
//  Created by cseb65 on 11/10/21.
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//

#include <stdio.h>
#include <math.h>
#include <iostream>
#include <vector>
#include<GLUT/GLUT.h>
using namespace std;

int pntx1, pnty1, choice = 0, edges;
vector<int> pntx;
vector<int> pnty;
int shearingx;

void drawPolygon()
{
   glBegin(GL_POLYGON);
   glColor3f(0.4, 0.6, 0.2);
   for (int i = 0; i < edges; i++)
   {
      glVertex2i(pntx[i], pnty[i]);
   }
   glEnd();
}

void shearing()
{
   glBegin(GL_POLYGON);
   glColor3f(0.2, 0.2, 0.7);
   glVertex2i(pntx[0]+200, pnty[0]);
   glVertex2i(pntx[1] + shearingx+200, pnty[1]);
   glVertex2i(pntx[2] + shearingx+200, pnty[2]);
   glVertex2i(pntx[3]+200, pnty[3]);
   glEnd();
}

void myInit(void)
{
   glClearColor(1.0, 1.0, 1.0, 0.0);
   glColor3f(0.0f, 0.0f, 0.0f);
```
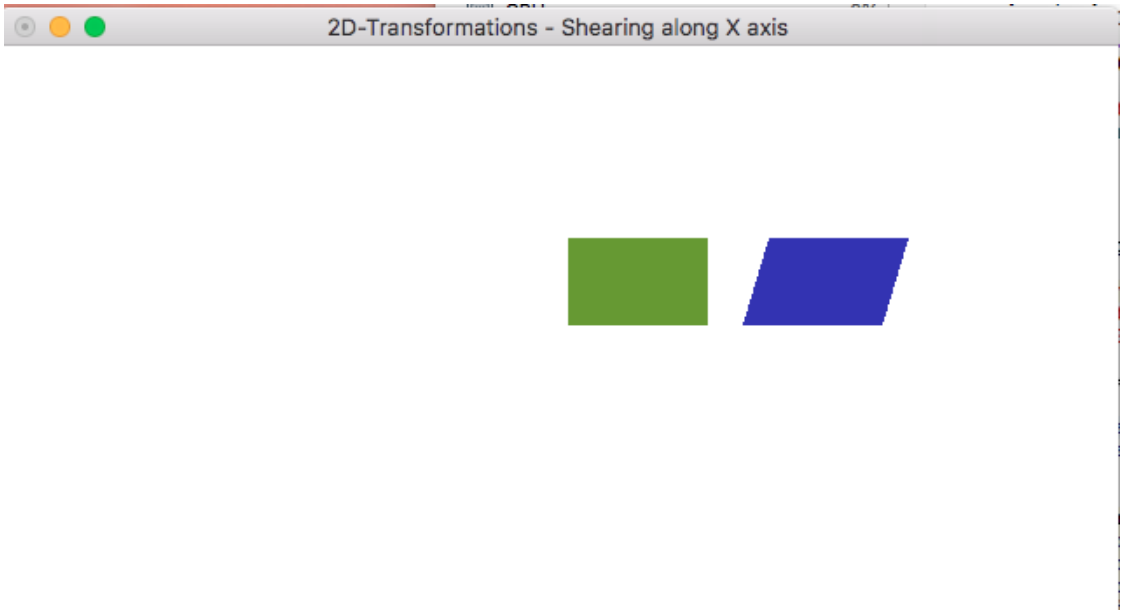

```
    glPointSize(4.0);
    glMatrixMode(GL_PROJECTION);
    glLoadIdentity();
    gluOrtho2D(-640.0, 640.0, -480.0, 480.0);
}

void myDisplay(void){
    glClear(GL_COLOR_BUFFER_BIT);
    glColor3f(0.0, 0.0, 0.0);
    drawPolygon();

    cout << "Enter the shearing factor for X: ";
    cin >> shearingx;
    shearing();
    glFlush();
}

int main(int argc, char** argv)
{
    cout << "\Shearing\n" << endl;
    cout << "Enter no of edges: "; cin >> edges;
    cout << "\nEnter Polygon Coordinates : \n";

    for (int i = 0; i < edges; i++) {
        cout << "Vertex  " << i + 1 << " : "; cin >> pntx1 >> pnty1;
        pntx.push_back(pntx1);
        pnty.push_back(pnty1);
    }

    glutInit(&argc, argv);
    glutInitDisplayMode(GLUT_SINGLE | GLUT_RGB);
    glutInitWindowSize(640, 480);
    glutInitWindowPosition(100, 150);
    glutCreateWindow("2D-Transformations - Shearing along X axis");
    glutDisplayFunc(myDisplay);
    myInit();
    glutMainLoop();
}
```

OUTPUT:


2D-Transformations - Shearing along X axis