```
#include <GL/gl.h>
#include <GL/glut.h>
#include <stdio.h>
int x1, y1, x2, y2;

void myInit()
{ glClear (GL_COLOR_BUFFER_BIT);
  glClearColor (0.0, 0.0, 0.0, 1.0);
  glMatrixMode (GL_PROJECTION);
  gluOrtho2D (0,500, 0,500);
}

void draw_pixel (int x, int y)
{ glBegin (GL_POINTS);
  glVertex2i (x,y);
  glEnd();
}

void draw_line (int x1, int x2, int y1, int y2)
{ int dx, dy, i, e;
  int incx, incy, inc1, inc2;
  int x,y;
  dx = x2-x1;
  dy = y2-y1;

  if (dx<0) dx = -dx;
  if (dy<0) dy = -dy;
  incx = 1
  if (x2 < x1) incx = -1;
  incy = 1;
```

```
if (y2 < y1)  incy = -1;
   x = x1 ; y = y1;
   if (dx > dy)
     {
        draw_pixel (x, y);
          e = 2 * dy - dx;
        incl = 2 * (dy - dx);
        inc2 = 2 * dy;
        for (i=0 ; i<dx ; i++)
          { if  (e >=0)
              {  y += incy;
                 e += incl;
              }
          else
              e += inc2;
              x += incx;
              draw_pixel (x, y);
          }
     }
   else
     {  draw_pixel (x, y);
        e = 2* dx - dy;
        incl = 2 * (dx - dy);
        inc2 = 2* dx ;
        for (i=0; i<dy; i++)
          { if (e >=0)
              {  x += incx;
                 e += incl;
              }
           else
              e += inc2;
              y += incy;
              draw_pixel (x, y);
          }
     }
}
```

```
void myDisplay()
{
    draw_line (x1, x2, y1, y2);
    glFlush();
}

int main (int argc, char ** argv)
{
    printf ("Enter (x1, y1, x2, y2) \n");
    scanf ("%d %d %d %d", &x1, &y1, &x2, &y2);
    glutInit (&argc, argv);
    glutInitDisplayMode (GLUT_SINGLE | GLUT_RGB);
    glutInitWindowSize (500,500);
    glutInitWindowPosition (0,0);
    glutCreateWindow ("Bresenhams' Line Drawing");
    myInit();
    glutDisplayFunc (myDisplay);
    glutMainLoop();

    return 0;
}
```

04/05/2022

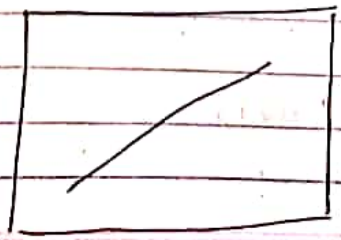
Enter (x_1, y_1, x_2, y_2)

100

100

400

400



11-05-22

Lab 2

2] Create & rotate a triangle about the origin at a fixed point.

```
#include <stdio.h>
#include <GL/glut.h>
float house[5][2] = {{200,100},{400,100},{300,300}};
float h=200, k=100, theta;

void drawtriangle()
{
    glBegin(GL_LINE_LOOP);
      glVertex2fv(house[0]);
      glVertex2fv(house[1]);
      glVertex2fv(house[2]);
    glEnd();
}

void display()
{   glClear(GL_COLOR_BUFFER_BIT);
    drawtriangle();
    glTranslatef(h,k,0);
    glRotatef(theta,0,0,1);
    glTranslatef(-h,-k,0);
    drawtriangle();
    glFlush();
}

void init()
{
    gluOrtho2D(-500,500,-500,500);
}
```

```
int main (int argc, char ** argv)
{   printf ("enter the rotation angle \n");
    scanf ("%f", &theta);
    glutInit (&argc, argv);
    glutInitDisplayMode (GLUT_SINGLE);
    glutInitWindowSize (350, 350);
    glutCreateWindowFunc (display);
    init ();
    glutMainLoop ();
}
```

o/p : Enter the rotation angle : 30