**EXPERIMENT - 01**

1. **Implement Brenham’s line drawing algorithm for all types of slope.**

#include<GL/glut.h>

#include<stdio.h>

intx1,y1,x2,y2;

voiddraw\_pixel(intx,inty)

{

glColor3f(1.0,0.0,0.0);

glBegin(GL\_POINTS);

glVertex2i(x,y);

glEnd();

}

voidbrenhams\_line\_draw(intx1,inty1,intx2,inty2)

{

intdx=x2-x1,dy=y2-y1;

intp=2\*dy\*dx;

inttwoDy=2\*dy;

inttwoDyMinusDx=2\*(dy-dx);// paranthesis are required

intx=x1,y=y1;

if(dx<0)

{

x=x2;

y=y2;

x2=x1;

}

draw\_pixel(x,y);

while(x<x2)

{

x++;

if(p<0)

p+=twoDy;

else

{

y++;

p+=twoDyMinusDx;

}

draw\_pixel(x,y);

}

}

voidmyInit()

{

glClearColor(0.0,0.0,0.0,1.0);

glMatrixMode(GL\_PROJECTION);

glLoadIdentity();

gluOrtho2D(0.0,500.0,0.0,500.0);

glMatrixMode(GL\_MODELVIEW);

}

voiddisplay()

{

glClear(GL\_COLOR\_BUFFER\_BIT);

brenhams\_line\_draw(x1,y1,x2,y2);

glFlush();

}

voidmain(intargc,char\*\*argv)

{

printf("Enter Start Points (x1,y1)\n");

scanf("%d %d",&x1,&y1);

printf("Enter End Points (x2,y2)\n");

scanf("%d %d",&x2,&y2);

glutInit(&argc,argv);

glutInitDisplayMode(GLUT\_SINGLE|GLUT\_RGB);

glutInitWindowSize(500,500);

glutInitWindowPosition(0,0);

glutCreateWindow("Bresenham's Line Drawing");

myInit();

glutDisplayFunc(display);

glutMainLoop();

}