**UCS1712 – GRAPHICS AND MULTIMEDIA LAB**

**Ex. No. 2 DDA Line Drawing Algorithm in C++ using OpenGL**

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**Question:**

To plot points that make up the line with endpoints (x0,y0) and (xn,yn) using DDA line drawing algorithm.

Case 1: +ve slope Left to Right line

Case 2: +ve slope Right to Left line

Case 3: -ve slope Left to Right line

Case 4: -ve slope Right to Left line Each case has two subdivisions (i) |m|<= 1 (ii) |m|>1

Note that all four cases of line drawing must be given as test cases.

**Code:**

#include<GL/glut.h>  
#include<stdio.h>  
#include<iostream>  
  
using namespace std;  
  
float x1\_arr, y1\_arr, x2\_arr, y2\_arr;  
  
void myInit()  
{  
glClearColor(1.0,1.0,1.0,0.0);  
gluOrtho2D(-100,100,-100,100);  
}  
  
void myDisplay()  
{  
glClear(GL\_COLOR\_BUFFER\_BIT);  
float dy,dx,step,x,y,k,Xin,Yin;  
float x1, y1, x2, y2;  
  
  
x1 = x1\_arr;  
y1 = y1\_arr;  
x2 = x2\_arr;  
y2 = y2\_arr;  
  
dx=x2-x1;  
dy=y2-y1;  
  
if(abs(dx)> abs(dy))  
{  
step = abs(dx);  
}  
else  
step = abs(dy);  
  
Xin = dx/step;  
Yin = dy/step;  
  
x= x1;  
y=y1;  
  
glColor3f(0.0,0.0,0.0);  
glBegin(GL\_POINTS);  
glVertex2f(x,y);  
glEnd();  
  
for (k=1 ;k<=step;k++)  
{  
x= x + Xin;  
y= y + Yin;  
  
glColor3f(0.0,0.0,0.0);  
glBegin(GL\_POINTS);  
glVertex2i(x,y);  
glEnd();  
}  
  
  
glFlush();  
  
}  
  
int main(int argc,char\* argv[])  
{  
int temp1,temp2,temp3,temp4;  
cin>>temp1;  
cin>>temp2;  
cin>>temp3;  
cin>>temp4;  
x1\_arr = temp1;  
y1\_arr = temp2;  
x2\_arr = temp3;  
y2\_arr = temp4;  
  
  
glutInit(&argc,argv);  
glutInitDisplayMode(GLUT\_SINGLE|GLUT\_RGB);  
glutInitWindowSize (500, 500);  
glutInitWindowPosition (100,100);  
glutCreateWindow("check");  
glutDisplayFunc(myDisplay);  
myInit();  
glutMainLoop();  
return 1;  
}

**Output:**

