**Code:**

Algorithm: Digital Differential Analyzer

#include<bits/stdc++.h>

#include<graphics.h>

#include<string.h>

#include<math.h>

using namespace std;

int main(){

int Xmin,Ymin,Xmax,Ymax;

initwindow(600,600);

Xmin=20;

Xmax=600-20;

Ymin=50;

Ymax=600-50;

rectangle(Xmin,Ymin,Xmax,Ymax);

line(Xmax/2,Ymin,Xmax/2,Ymax);

line(Xmin,Ymax/2,Xmax,Ymax/2);

int x1,x2,y1,y2;

float m,dx,dy,b;

x1=10;

y1=10;

x2=100;

y2=100;

dx=x2-x1;

dy=y2-y1;

m=dy/dx;

int xstart,ystart,xend,yend;

xstart=x1+Xmax/2;

ystart=Ymax/2-y1;

xend=x2+Xmax/2;

yend=Ymax/2-y2;

char heading[50],h1[20];

strcpy(heading,"(ID: ");

strcat(heading,itoa(174049,h1,10));

strcat(heading,")");

outtextxy(200,30,heading);

char st[20],st1[20];

strcpy(st,"(");

strcat(st,itoa(x1,st1,10));

strcat(st,",");

strcat(st,itoa(y1,st1,10));

strcat(st,")");

outtextxy(xstart+10,ystart-5,st);

strcpy(st,"(");

strcat(st,itoa(x2,st1,10));

strcat(st,",");

strcat(st,itoa(y2,st1,10));

strcat(st,")");

outtextxy(xend+10,yend-5,st);

char topic[100];

strcpy(topic,"Algorithm: Digital Differential Analyzer(DDA)");

outtextxy(150,570,topic);

if(m<=1)

{

for(int i=xstart;i<xend;i++)

{

putpixel(i,ystart,10);

delay(100);

i++;

ystart=ystart-m;

}

}

else

{

for(int i=ystart;i>yend;i++)

{

putpixel(xstart,i,10);

delay(100);

i--;

xstart=xstart+1/m;

}

}

while(!kbhit()){

delay(100);

}

}

Algorithm: Bresenham’s Line Drawing Algorithm

#include<bits/stdc++.h>

#include<graphics.h>

#include<math.h>

using namespace std;

int main(){

int Xmin,Ymin,Xmax,Ymax;

initwindow(600,600);

Xmin=20;

Xmax=600-20;

Ymin=50;

Ymax=600-50;

rectangle(Xmin,Ymin,Xmax,Ymax);

line(Xmax/2,Ymin,Xmax/2,Ymax);

line(Xmin,Ymax/2,Xmax,Ymax/2);

int x1,x2,y1,y2;

float m,dx,dy,b;

x1=10;

y1=10;

x2=100;

y2=100;

dx=x2-x1;

dy=y2-y1;

m=dy/dx;

int xstart,ystart,xend,yend,inc1,inc2;

xstart=x1+Xmax/2;

ystart=Ymax/2-y1;

xend=x2+Xmax/2;

yend=Ymax/2-y2;

char heading[50],h1[20];

strcpy(heading,"(ID: ");

strcat(heading,itoa(174049,h1,10));

strcat(heading,")");

outtextxy(200,30,heading);

char st[20],st1[20];

strcpy(st,"(");

strcat(st,itoa(x1,st1,10));

strcat(st,",");

strcat(st,itoa(y1,st1,10));

strcat(st,")");

outtextxy(xstart+10,ystart-5,st);

strcpy(st,"(");

strcat(st,itoa(x2,st1,10));

strcat(st,",");

strcat(st,itoa(y2,st1,10));

strcat(st,")");

outtextxy(xend+10,yend-5,st);

char topic[100];

strcpy(topic,"Algorithm: Bresenhams's Line Algorithm");

outtextxy(150,570,topic);

inc1=2\*dy;

inc2=2\*dy-2\*dx;

while(xstart<=xend)

{

int d=2\*dy-dx;

if(d>0)

{

putpixel(xstart,ystart,10);

delay(100);

d=d+inc2;

ystart--;

}

else

{

putpixel(xstart,ystart,10);

delay(100);

d=d+ inc1;

}

xstart++;

}

while(!kbhit()){

delay(100);

}

}

Result:



