**Practical Question 1**

**Write a program to implement Bresenham’s line drawing algorithm.**

#include<iostream>

#include <conio.h>

#include <graphics.h>

#include <cmath>

using namespace std;

int main()

{

//int gdriver=DETECT, gmode;

//initgraph(&gdriver, &gmode,"C:\\Dev-Cpp\\MinGW64\\include\\winbgim");

//int h=720;

initwindow(1024,720,"Breseham Algorithm");

int x1,y1; //initial point

int x2,y2; //final point

int xk,yk; //intermediate points

cout<<"Enter initial coordinates"<<endl;

cout<<"X1=";cin>>x1;

cout<<"Y1=";cin>>y1;

cout<<"Enter final coordinates"<<endl;

cout<<"X2=";cin>>x2;

cout<<"Y2=";cin>>y2;

//y1=h-y1;

//y2=h-y2;

putpixel(x1,y1,RED);

putpixel(x2,y2,RED);

int dx=x2-x1;

int dy=y2-y1;

int pk;

xk=x1;yk=y1;

if(abs(dx)>abs(dy))

{

pk = (2\*abs(dy)) - abs(dx);

for(int i=1;i<abs(dx);i++)

{

xk=x1<x2?xk+1:xk-1;

if(pk<0)

pk=pk+(2\*abs(dy));

else

{

yk=y1<y2?yk+1:yk-1;

pk=pk+(2\*abs(dy))-(2\*abs(dx));

}

putpixel(xk,yk,GREEN);

cout<<"("<<xk<<","<<yk<<")\tpk="<<pk<<endl;

delay(10);

}

}

else

{

putpixel(xk,yk,GREEN);

pk = (2\*abs(dx))-abs(dy);

for(int i=1;i<abs(dy);i++)

{

yk =y1<y2?yk+1:yk-1;

if(pk<0)

pk=pk+(2\*abs(dx));

else

{

xk=x1<x2?xk+1:xk-1;

pk=pk+(2 \* abs(dx))-(2 \*abs(dy));

}

putpixel(xk,yk,GREEN);

cout<<"("<<xk<<","<<yk<<")\tpk="<<pk<<endl;

delay(10);

}

}

getch();

}

**OUTPUT:**



