**/\*WAP to implement BLA algorithm in Cpp\*/**

**//Bresenham Line Drawing Algorithm**

**#include <iostream>//line(x1,y1,x2,y2)**

**#include <cmath>**

**#include <graphics.h>**

**using namespace std;**

**int x\_1,x\_2,y\_1,y\_2,p\_n,dx,dy,add\_y;**

**float m;**

**void line\_plot\_m\_s() // del\_y = y2-y1 , del\_x = x2 -x1 , p(0)=2\*del\_y-del\_x, if p(n)>0 p(n+1)=p(n)+2\*del\_y-2\*del\_x, if p(n)<=0 p(n+1)=p(n)+2\*del\_y**

**{**

**if (p\_n<0)**

**{**

**p\_n=p\_n+2\*dy;**

**x\_1++; // changhe x\_1 only**

**}**

**else**

**{**

**p\_n=p\_n+2\*dy-2\*dx;**

**x\_1++; //change both x\_1 and y\_1**

**y\_1=y\_1+add\_y;**

**}**

**putpixel(x\_1,y\_1,GREEN);**

**}**

**void line\_plot\_m\_l() // del\_y = y2-y1 , del\_x = x2 -x1 , p(0)=2\*del\_x-del\_y, if p(n)>0 p(n+1)=p(n)+2\*del\_x-2\*del\_y, if p(n)<=0 p(n+1)=p(n)+2\*del\_x**

**{**

**if (p\_n<0)**

**{**

**p\_n=p\_n+2\*dx;**

**y\_1=y\_1+add\_y; //change y\_1 only**

**}**

**else**

**{**

**p\_n=p\_n+2\*dx-2\*dy;**

**x\_1++; //change both x\_1 and y\_1**

**y\_1=y\_1+add\_y;**

**}**

**putpixel(x\_1,y\_1,GREEN);**

**}**

**int main()**

**{**

**int i;**

**while(1)**

**{**

**cout<<"\n\n\n\t\t\t\t\t1366\*768 ";**

**cout<<"\n\n\n\t\t Enter line coordinates (x1,y1), (x2,y2) with in range (0,0) to (1365,767)";**

**cout<<"\n\n Enter (x1,y1)";**

**cout<<"\n Enter x1: ";**

**cin>>x\_1;**

**cout<<" Enter y1: ";**

**cin>>y\_1;**

**cout<<"\n\n Enter (x2,y2)";**

**cout<<"\n Enter x2: ";**

**cin>>x\_2;**

**cout<<" Enter y2: ";**

**cin>>y\_2;**

**initwindow(1366,768);**

**for(i=0; i<=1365; i++) // creates white background**

**{**

**line(0,i,1365,i);**

**}**

**//setcolor(GREEN);**

**//line(x\_1+50,y\_1+50,x\_2+50,y\_2+50);**

**if (x\_2==x\_1)**

**{**

**if (y\_2<y\_1)**

**{**

**y\_1=y\_1+y\_2;**

**y\_2=y\_1-y\_2;**

**y\_1=y\_1-y\_2;**

**}**

**while(y\_1<y\_2)//small slope |m|=1/0**

**{**

**putpixel(x\_1,y\_1,GREEN);**

**y\_1++;**

**}**

**getch();**

**break;**

**}**

**m=(y\_2-y\_1)/(x\_2-x\_1);**

**if (x\_2<x\_1)//swap**

**{**

**x\_1=x\_1+x\_2;**

**x\_2=x\_1-x\_2;**

**x\_1=x\_1-x\_2;**

**y\_1=y\_1+y\_2;**

**y\_2=y\_1-y\_2;**

**y\_1=y\_1-y\_2;**

**}**

**dx=abs(x\_2-x\_1);**

**dy=abs(y\_2-y\_1);**

**if (y\_2<y\_1)**

**{**

**add\_y=-1;**

**}**

**else**

**{**

**add\_y=1;**

**}**

**putpixel(x\_1,y\_1,GREEN);**

**if (fabs(m)<1)// small slope |m|<1**

**{**

**p\_n=2\*dy-dx;**

**while(x\_1<x\_2)//small slope |m|<1**

**{**

**line\_plot\_m\_s();**

**}**

**}**

**else**

**{**

**p\_n=2\*dx-dy;**

**while(x\_1<x\_2)// large slope |m|=>1**

**{**

**line\_plot\_m\_l();**

**}**

**}**

**getch();**

**closegraph();**

**}**

**return 0;**

**}**

**/\***

**Test lines (x1,y1,x2,y2,slope)**

**(50,60,1200,600,0.46)**

**(1200,600,50,60,0.46)**

**(50,600,1200,70,-0.46)**

**(1200,70,50,600,-0.46)**

**(50,60,600,700,1.16)**

**(600,700,50,60,1.16)**

**(70,600,400,60,-1.63)**

**(400,60,70,600,-1.63)**

**(50,50,70,70,1)**

**(70,70,50,50,1)**

**(70,30,50,50,-1)**

**(50,50,70,30,-1)**

**(80,70,900,70,0)**

**(900,70,80,70,0)**

**(80,70,80,700,1/0)**

**(80,700,80,70,-1/0)**

**\*/**