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Assignment A8

Aim:- Write C++/Java program to draw the following pattern using any Line drawing algorithms.

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#include <iostream>

#include <math.h>

#include <graphics.h>

using namespace std;

float xa,ya,xb,yb,xc,yc,xd,yd;

class shape\_draw

{

public:

int sign(float n)

{

if(n>1)

return 1;

else if(n<1)

return -1;

else

return 0;

}

void dda\_line(float xa,float ya,float xb,float yb)

{

int i,dx,dy,steps;

float x,y,Dx,Dy;

dx=xb-xa;

dy=yb-ya;

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

steps=abs(dx);

else

steps=abs(dy);

Dx=(float) dx/steps;

Dy=(float) dy/steps;

x=xa;

y=ya;

putpixel(x,y,14);

x=xa+(0.5\*sign(Dx));

y=ya+(0.5\*sign(Dy));

for(i=1;i<steps;i++)

{

x=x+Dx;

y=y+Dy;

putpixel(x,y,14);

}

}

};

void midpoint(float x0,float y0,float x1,float y1,float x2,float y2,float x3,float y3)

{

xa=(x0+x1)/2; ya=(y0+y1)/2;

xb=(x1+x2)/2; yb=(y1+y2)/2;

xc=(x2+x3)/2; yc=(y2+y3)/2;

xd=(x3+x0)/2; yd=(y3+y0)/2;

}

int main()

{

float x1,y1,x2,y2,x3,y3,x4,y4;

int gd=DETECT,gm;

shape\_draw obj;

cout<<"\nEnter X1 & Y1 :"<<endl;

cin>>x1>>y1;

cout<<"\nEnter X2 & Y2 :"<<endl;

cin>>x2>>y2;

cout<<"\nEnter X3 & Y3 :"<<endl;

cin>>x3>>y3;

cout<<"\nEnter X4 & Y4 :"<<endl;

cin>>x4>>y4;

initgraph(&gd,&gm,NULL);

obj.dda\_line(x1,y1,x2,y2);

obj.dda\_line(x2,y2,x3,y3);

obj.dda\_line(x3,y3,x4,y4);

obj.dda\_line(x4,y4,x1,y1);

midpoint(x1,y1,x2,y2,x3,y3,x4,y4);

obj.dda\_line(xa,ya,xb,yb);

obj.dda\_line(xb,yb,xc,yc);

obj.dda\_line(xc,yc,xd,yd);

obj.dda\_line(xd,yd,xa,ya);

midpoint(xa,ya,xb,yb,xc,yc,xd,yd);

obj.dda\_line(xa,ya,xb,yb);

obj.dda\_line(xb,yb,xc,yc);

obj.dda\_line(xc,yc,xd,yd);

obj.dda\_line(xd,yd,xa,ya);

getch();

closegraph();

return 0;

}

**---------------------------------------------------------------------------------------------------------------------**

**OUTPUT :-**

Enter X1 & Y1 :

100

100

Enter X2 & Y2 :

600

100

Enter X3 & Y3 :

600

400

Enter X4 & Y4 :

100

400

