'''

Assignment No:- 1

Name:- Riya Manoj Wagh

Class:- SE -Computer-B (SB3)

Roll No:- 65

Subject:- CG

'''

#include<iostream>

#include<math.h>

#include<graphics.h>

using namespace std;

class polygon

{

public:

int x[10],y[10],n;

void read();

void display();

void scanline();

};

void polygon::read()

{

cout<<"Enter No Of Vertices:- ";

cin>>n;

for(int i = 0;i<n;i++)

{

cout<<"Enter Value Of X:-";

cin>>x[i];

cout<<"Enter Value Of Y:-";

cin>>y[i];

}

y[n] = y[0];

x[n] = x[0];

}

void polygon::display()

{

for(int i = 0;i<n;i++)

{

line(x[i],y[i],x[i+1],y[i+1]);

}

}

void polygon :: scanline()

{

int ymin = y[0];

int ymax = y[0];

for(int i =1;i<n;i++)

{

if(ymin>y[i])

ymin = y[i];

if(ymax<y[i])

ymax = y[i];

}

int slope[10],dx,dy;

for(int j = 0;j<n;j++)

{

dx = (x[j+1]-x[j]);

dy = (y[j+1]-y[j]);

if(dy==0)

slope[j]=1;

else if(dx==0)

slope[j]=0;

else

slope[j]=dy/dx;

}

int x\_int[10],temp,p,k;

for(p=ymin;p<ymax;p++)

{

k =0;

for(int i =0; i<n;i++)

{

if((y[i]<=p && y[i+1]>p)||(y[i+1]<=p && y[i]>p))

{

x\_int[k]=x[i]+slope[i]\*(p-y[i]);

k++;

}

}

for(int j =0;j<k-1;j++)

{

for(int i = 0;i<k-1;i++)

{

if(x\_int[i]>x\_int[i+1])

{

temp = x\_int[i];

x\_int[i] = x\_int[i+1];

x\_int[i+1] = temp;

}

}

}

for(int a = 0;a<k;a=a+2)

{

line(x\_int[a],p,x\_int[a+1],p);

delay(100);

}

}

}

int main()

{

int gd= DETECT,gm;

polygon p1;

p1.read();

initgraph(&gd,&gm,NULL);

p1.display();

p1.scanline();

getch();

closegraph();

return 0;

}

/\*

Output:-

Enter No Of Vertices:- 4

Enter Value Of X:-100

Enter Value Of Y:-100

Enter Value Of X:-200

Enter Value Of Y:-100

Enter Value Of X:-200

Enter Value Of Y:-200

Enter Value Of X:-100

Enter Value Of Y:-200

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