#include<iostream>

#include<graphics.h>

using namespace std;

int main()

{

int gd=DETECT, gm;

initgraph(&gd,&gm,NULL);

int cnt,temp,i,j,n, ymax, ymin, yscan;

float inter\_x[10], m[10],dx,dy;

int x[10],y[10];

cout<<"Enter no. of vertices of polygon: ";

cin>>n;

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

{

cout<<" Enter " << i+1 << " vertices of polygon (as x and y) is: ";

cin>>x[i]>>y[i];

}

x[n]=x[0];

y[n]=y[0];

setcolor(3);

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

{

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

delay(100);

}

ymax=0;

ymin=480;

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

{

if(y[i]>ymax)

ymax=y[i];

if(y[i]<ymin)

ymin=y[i];

}

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

{

dx=x[i+1]-x[i];

dy=y[i+1]-y[i];

if(dx==0)

m[i]=0;

else if(dy==0)

m[i]=0;

else

m[i]=(float)dy/dx;

}

for(yscan=ymax;yscan>ymin;yscan--)

{

cnt=0;

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

{

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

{

if(m[i]==0)

inter\_x[cnt]=x[i];

else

inter\_x[cnt]= x[i] + (yscan-y[i])/m[i];

cnt++;

}

}

for(j=0;j<cnt-1;j++)

{

if(inter\_x[j]<=inter\_x[j+1])

{

temp=inter\_x[j];

inter\_x[j]=inter\_x[j+1];

inter\_x[j+1]=temp;

}

}

for(j=0;j<cnt-1;j=j+2)

{

line(inter\_x[j],yscan,inter\_x[j+1],yscan);

delay(100);

}

}

setcolor(5);

getch();

return 0;

}