#include <iostream> #include <graphics.h> #include <stdlib.h> using namespace std; class point

{

public:

int x,y;

};

class poly

{

private:

point p[20];

int inter[20],x,y;

int v,xmin,ymin,xmax,ymax; public:

int c;

void read(); void calcs(); void display(); void ints(float); void sort(int);

};

void poly::read()

{

int i;

cout<<"\n Scan Fill Algorithm ";

cout<<"\n Enter Number Of Vertices Of Polygon: "; cin>>v;

if(v>2)

{

for(i=0;i<v; i++) //ACCEPT THE VERTICES

{

cout<<"\nEnter co-ordinate no. "<<i+1<<" : "; cout<<"\n\tx"<<(i+1)<<"=";

cin>>p[i].x; cout<<"\n\ty"<<(i+1)<<"="; cin>>p[i].y;

}

p[i].x=p[0].x;

p[i].y=p[0].y; xmin=xmax=p[0].x; ymin=ymax=p[0].y;

}

else

cout<<"\n Enter valid no. of vertices.";

}

void poly::calcs()

{

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

{

if(xmin>p[i].x)

xmin=p[i].x;

if(xmax<p[i].x)

xmax=p[i].x;

if(ymin>p[i].y)

ymin=p[i].y;

if(ymax<p[i].y)

ymax=p[i].y;

}

}

void poly::display()

{

int ch1; char ch='y'; float s,s2; do

{

cout<<"\n\nMENU:"; cout<<"\n\n\t1 . Scan line Fill "; cout<<"\n\n\t2 . Exit "; cout<<"\n\nEnter your choice:"; cin>>ch1;

switch(ch1)

{

case 1:

s=ymin+0.01; delay(100); cleardevice(); while(s<=ymax)

{

ints(s);

sort(s); s++;

}

break; case 2:

exit(0);

}

cout<<"Do you want to continue?: "; cin>>ch;

}while(ch=='y' || ch=='Y');

}

void poly::ints(float z)

{

int x1,x2,y1,y2,temp; c=0;

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

{

x1=p[i].x;

y1=p[i].y;

x2=p[i+1].x;

y2=p[i+1].y; if(y2<y1)

{

temp=x1; x1=x2; x2=temp; temp=y1; y1=y2;

y2=temp;

}

if(z<=y2&&z>=y1)

{

if((y1-y2)==0)

x=x1; else

{

x=((x2-x1)\*(z-y1))/(y2-y1); x=x+x1;

}

if(x<=xmax && x>=xmin) inter[c++]=x;

}

}

}

void poly::sort(int z) // sorting

{

int temp,j,i; for(i=0;i<v;i++)

{

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

}

delay(100); for(i=0; i<c;i+=2)

{

delay(100); line(inter[i],z,inter[i+1],z);

}

}

int main() //main

{

int cl;

int gd=DETECT,gm; initgraph(&gd,&gm,NULL);

//initwindow(500,600); cleardevice();

poly x; x.read();

x.calcs(); cleardevice();

cout<<"\n\tEnter The Color You Want :(In Range 0 To 15 )->"; //selecting color cin>>cl;

setcolor(cl); x.display();

closegraph(); //closing graph getch();

return 0;

}