

Polygon.cpp

```
#include
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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 {
cout<<"\nEnter co-ordinate no. "< cout<<"\n\tx"<<(i+1)<<"=";
cin>>p[i].x;
cout<<"\n\tty"<<(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()
{
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for(int i=0;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 {
x1=p[i].x;
y1=p[i].y;
x2=p[i+1].x;
y2=p[i+1].y;
if(y2 {

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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 {
line(p[i].x,p[i].y,p[i+1].x,p[i+1].y);
}
delay(100);
for(i=0; i {
delay(100);
line(inter[i],z,inter[i+1],z);
}
}
int main() //main
{
int cl;
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;
}
```

