

Code:

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1 #include <stdio.h>
2 #include <conio.h>
3 #include <graphics.h>
4 int main()
5 {
6     int n, i, j, k, gd, gm, dy, dx;
7     int x, y, temp;
8     int a[20][2], xi[20];
9     float slope[20];
10    clrscr();
11    printf("Enter the no. of edges of polygon : ");
12    scanf("%d", &n);
13    printf("Enter the cordinates of polygon :\n ");
14    for (i = 0; i < n; i++)
15    {
16        printf("X%d Y%d : ", i, i);
17        scanf("%d%d", &a[i][0], &a[i][1]);
18    }
19    a[n][0] = a[0][0];
20    a[n][1] = a[0][1];
21    detectgraph(&gd, &gm);
22    initgraph(&gd, &gm, "C:\\\\TurboC3\\\\BGI");
23    /*- draw polygon -*/
24    for (i = 0; i < n; i++)
25    {
26        line(a[i][0], a[i][1], a[i + 1][0], a[i + 1][1]);
27    }
28    getch();
29    for (i = 0; i < n; i++)
30    {
31        dy = a[i + 1][1] - a[i][1];
32        dx = a[i + 1][0] - a[i][0];
33        if (dy == 0)
34            slope[i] = 1.0;
35        if (dx == 0)
36            slope[i] = 0.0;
37        if ((dy != 0) && (dx != 0)) /*- calculate inverse slope -*/
38        {
39            slope[i] = (float)dx / dy;
40        }
41    }
42    for (y = 0; y < 480; y++)
43    {
44        k = 0;
45        for (i = 0; i < n; i++)
46        {
47            if (((a[i][1] <= y) && (a[i + 1][1] > y)) ||
48                ((a[i][1] > y) && (a[i + 1][1] <= y)))
49            {
50                xi[k] = (int)(a[i][0] + slope[i] * (y - a[i][1]));
51                k++;
52            }
53        }
54        for (j = 0; j < k - 1; j++) /*- Arrange x-intersections in order -*/
55            for (i = 0; i < k - 1; i++)
56            {
57                if (xi[i] > xi[i + 1])
58                {
59                    temp = xi[i];
60                    xi[i] = xi[i + 1];
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61         xi[i + 1] = temp;
62     }
63 }
64 setcolor(9);
65 for (i = 0; i < k; i += 2)
66 {
67     line(xi[i], y, xi[i + 1] + 1, y);
68 }
69 }
70 getch();
71 closegraph();
72 return 0;
73 }

```