

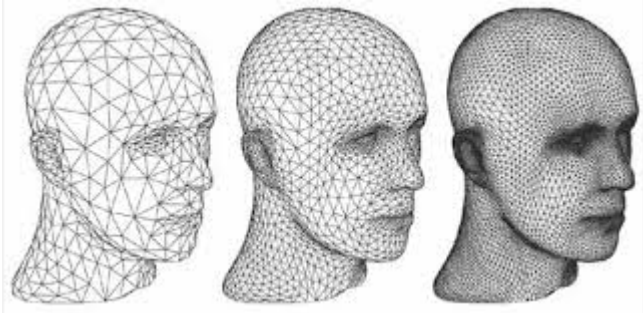
10 Tessellating

7 points

Introduction

In order to efficiently show a 3D model to a user it is highly recommendable to use a graphics card that supports either OpenGL or Direct3D standards.

These rendering engines need to be fed, among other things, with a list of triangles in the 3D space of the model that will be shown to the user. The process of transforming a 3D model in a list of triangles is called tessellation.



The algorithm proposed to be implemented will be used to tessellate a 2D convex* polygon.

Write a program that receives a list of 2D vertices, which configure a convex polygon (the last vertex is the same as the first one but it will be provided as part of the input), and returns the list of triangles to be sent to OpenGL or Direct3D.

Example:

Input

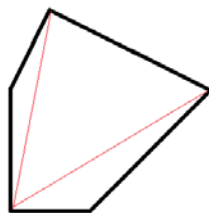
The input of the program is the list of 2D vertices.

```
0,0  
2,0  
5,3  
1,5  
0,3  
0,0
```

Output

The output of the program is the list of triangles. Each line displays the list of vertices that create the triangle.

```
0,0; 2,0; 5,3  
0,0; 5,3; 1,5  
0,0; 1,5; 0,3
```



** In a convex polygon, all interior angles are less than or equal to 180 degrees.*