

# Exercise 4

## DCEL

I have 3 class:

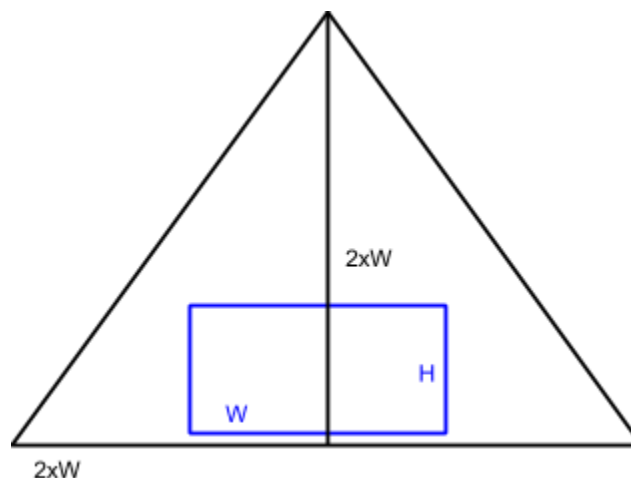
- **Vertice**, represent a point of vertice and the incident edge of triangle.
- **Edge**, represents a middle edge, have the other middle edge of segment, next edge, the face, and the vertex.
- **Face**, represents a face, and have the edge.

## Triangulation

The process of the algorithm are the nexts:

1. Create the big triangle to evolve all points.
2. For each point, search the face to insert.
3. Insert the points in the face.
4. Paint the result.

First to **create the big triangle to evolve all points**, I get the minimum and maximum and create the triangle with the high are  $2 \times \text{maximumWeight}$ , and de weight are  $2 \times \text{maximumWeight}$ .

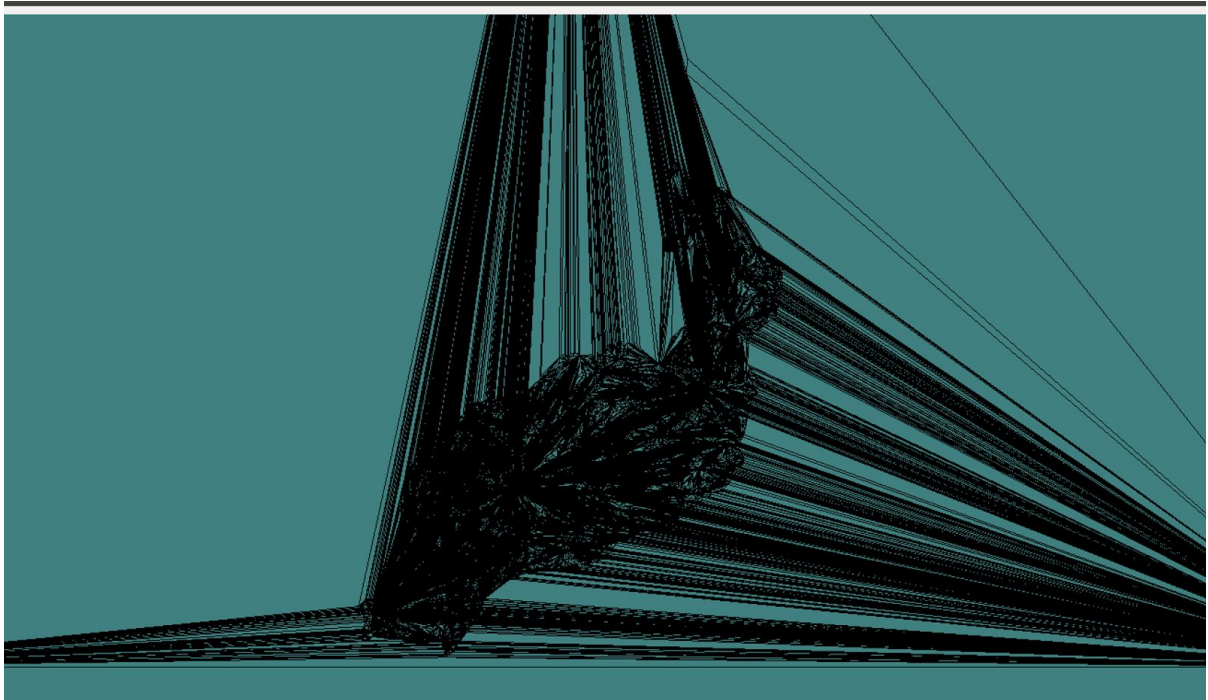


**For each point search the face** using the algorithm visibility walking triangulation, I start in the last insert face and check for each segment of triangle, if the line of segment is between the point and the face, if I found I jump to the next face with reverse edge.

To **insert the point in the face**, if the point is in edge, I need modify the edges of the face and the face of the other reverse edge, if is inside only modify the edges of triangle.

For finally **paint** all triangles.

## Solution



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