Polygon

There are given the coordinates of n points in the plane. These points must be numerated to make a polygon if possible. No unused points or segments should be left.

Task. Write an algorithm to solve this problem. Explain the solution.

Input. The number of points n is given in the first line. Each of the following n lines contains two integers, the coordinates of the point x and y.

Output. The output is the coordinates of points which are the vertexes of a polygon should be given either in clockwise or counterclockwise direction.

If the data are such that it is not possible to draw a polygon, output `NEGALIMA`.

Examples.

Input	Output
4 1 1 5 9 5 1 1 9	1 1 5 1 5 9 1 9

Input	Output
4 1 1 2 2 3 3 4 4	NEGALIMA

Constraints. $1 \leq n \leq 5$, $-100 \leq x, y \leq 100$.