

## Problem H. Delete the Points

Input file: *standard input*  
Output file: *standard output*  
Time limit: 3 seconds  
Memory limit: 512 mebibytes

There are  $n$  points in the plane. The coordinates of the points are integer. The number  $n$  is always even.

You can draw a square whose sides are parallel to the coordinate axes. Its vertices can have real coordinates. If there are exactly two points inside the square or on its borders, they are deleted.

You have to find a way to delete all points or say that it is impossible.

### Input

The first line contains a single integer  $n$  ( $1 \leq n \leq 3000$ ), the number of points.

Each of the following  $n$  lines contains two integers  $x_i$  and  $y_i$  ( $0 \leq x_i, y_i \leq 10^9$ ), describing the coordinates of the  $i$ -th point.

All points are distinct.

### Output

If it is impossible to delete all points, print “No” in the first line.

Otherwise, print “Yes” in the first line. In each of the next  $n/2$  lines, print four real numbers: the coordinates of the opposite corners of the square. Squares should be printed in the order in which they should be drawn. If there are several possible answers, print any one of them.

Real numbers should be output with no more than four digits after the decimal point. Print them in the following form: possibly unary minus, then any number of decimal digits, and then possibly a decimal point, followed by up to four decimal digits.

### Examples

standard input	standard output
4 1 1 2 2 5 5 6 6	Yes 1.0 1.0 2.0 2.0 5.0 5.0 6.0 6.0
4 0 0 1 2 2 1 4 4	Yes 1.0 1.0 2.0 2.0 0.0 0.0 4.0 4.0