

# Concave Polygon

You are given the cartesian coordinates of a set of points in a **2D** plane (in no particular order). Each of these points is a corner point of some Polygon,  $P$ , which is not self-intersecting in nature. Can you determine whether or not  $P$  is a [concave polygon](#)?

## Input Format

The first line contains an integer,  $N$ , denoting the number of points.

The  $N$  subsequent lines each contain **2** space-separated integers denoting the respective  $x$  and  $y$  coordinates of a point.

## Constraints

- $3 \leq N \leq 1000$
- $0 \leq x, y \leq 1000$

## Output Format

Print **yes** if  $P$  is a concave polygon; otherwise, print **no**.

## Sample Input

```
4
0 0
0 1
1 1
1 0
```

## Sample Output

```
NO
```

## Explanation

The given polygon is a square, and each of its **4** internal angles are **90°**. As none of these are over **180°**, the polygon is *not* concave and we print **no**.

## Scoring

The percentage score awarded for your submission will be:

```
100 - 2*(percentage of tests which you solve incorrectly)
```

If this value is negative, the percentage score for your submission will be 0.  
So if you get half or more of the tests incorrect, your score will be a zero.