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990 . Assignment 6 - 2D Rank Finding (Deadline: 2019-10-19 23:59:59)

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Description

In the XY-plane, we say a point (x_i, y_i) **dominates** another point (x_j, y_j) if and only if $x_i \geq x_j$ and $y_i \geq y_j$.

The **rank** of a point is the number of points which are dominated by the point.

Given a set of points in the XY-plane, find the **rank** of each point.

No two points share the same coordinates.

Input Format

Input starts with an integer n, where n denotes the number of points. Each of the next n lines gives two integers which are the x and y coordinates of a point.

- $5 \leq n \leq 3 \times 10^5$
- $-2^{31} \leq x, y < 2^{31}$

Output Format

Output the **rank** of each point in sequence.

Sample Input #1