Another Longest Increasing Subsequence Problem

Given a sequence of **N** pairs of integers, find the length of the **longest increasing subsequence** of it.

An **increasing sequence** $A_1..A_n$ is a sequence such that for every $i < j$, $A_i < A_j$.

A **subsequence** of a sequence is a sequence that appears in the same relative order, but not necessarily contiguous.

A pair of integers (x_1, y_1) is less than (x_2, y_2) **iff** $x_1 < x_2$ and $y_1 < y_2$.

Input

The first line of input contains an integer **N** ($2 \leq$ **N** ≤ 100000).

The following **N** lines consist of **N** pairs of integers (x_i, y_i) ($-10^9 \leq x_i, y_i \leq 10^9$).

Output

The output contains an integer: the length of the longest increasing subsequence of the given sequence.

Example

Input:
8
1 3
3 2
1 1
4 5
6 3
9 9
8 7
7 6

Output:
3