Flappy Bird (`flappybird`)

After many years of obscurity, the well-known mobile game Flappy Bird has finally become downloadable again and Stefan decided to install it on his mobile phone in a quest to relive his old childhood days.

Unlike the original version of the game, in this new edition the towers are oriented horizontally, rather than vertically. The bird needs to fly through N pairs of towers, represented as a grid of N rows and a (potentially very large) number of columns. Each of the N rows in the grid is described as an interval: two positions $A[i]$ and $B[i]$ which indicate that the bird can fly through those columns (both extremes are included).
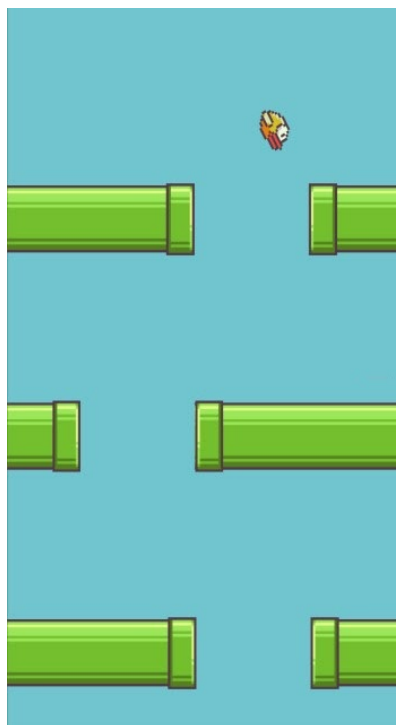

Figure 1: Our vertical version of Flappy Bird.

There is a problem though: given that the rows have no space between them (unlike the image above!), some levels of the game are impossible to solve! For simplicity, let's assume that the bird starts before the first row, can fly horizontally instantaneously, but can only move towards the bottom if there is at least one viable column that is the same between a row and its immediate next one.

Given the description of a level, can the bird actually make it to the bottom and win?

> ☞ Among the attachments of this task you may find a template file `flappybird.*` with a sample incomplete implementation.

Input

The first line contains the only integer N. The following N rows contain two integers $A[i]$, $B[i]$ each.

Output

You need to write a single line with the answer: `"YES"` if the level is winnable, `"NO"` otherwise.

Constraints

- $1 \le N \le 100\,000$.
- $1 \le A_i \le B_i \le 10^9$ for each $i = 0 \ldots N-1$.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points)   Examples.

– **Subtask 2** (25 points) $N = 2$.

– **Subtask 3** (30 points) $N \le 1000$ and there are at most 1000 columns (i.e., all $B[i] \le 1000$).

– **Subtask 4** (45 points)   No additional limitations.

Examples

input	output
5 3 6 4 7 2 4 4 5 1 5	YES
4 4 7 5 6 1 3 3 6	NO

Explanation

In the **first sample case**, in one of the many winning strategies the bird can fly towards the bottom by always staying in column 4.

In the **second sample case** the bird can fly through the first and the second row (e.g., staying in column 5) but then cannot possibly move to the third row.