Task 2. Delivery

Mathew is the owner of a delivery company. He lives in a city where there are exactly 10^9 houses ordered in a line. Each house has a number, and the house with number i is adjacent to houses with numbers $i-1$ and $i+1$ (if they exist). Mathew's company has received N queries for a delivery at house H_i at time exactly T_i. There are no two queries that are at the same time and at the same house. To save money, Mathew wants to know how many delivery trucks he will need to complete all the queries. The trucks he will buy can move 1 house to the left or the right in one unit of time (they can also stay at the same house). In the beginning, the trucks can be parked in front of whichever houses the owner chooses. In addition, the time for delivery is negligible.

Mathew is a busy man and has no time for easy tasks like this one so he asks you to write a program `delivery.cpp` that finds the minimum number of delivery trucks he will need.

Input

From the first line of the standard input, your program should read one integer N – the number of queries. Each of the next N lines will contain two integers T_i and H_i – the time and house the delivery should happen at.

Output

On a single line, your program should output the minimum number of delivery trucks that are needed.

Constraints

$1 \leq N \leq 10^6$
$1 \leq T_i, H_i \leq 10^9$
$T_i \neq T_j$ or $H_i \neq H_j$ for $i \neq j$

Subtasks

Subtask	Points	N
1	25	$\leq 10^3$
2	10	$\leq 10^4$
3	40	$\leq 2 \times 10^5$
4	20	$\leq 10^6$

Example 1

Input	Output	Explanation
6 1 1 2 3 3 2 5 4 4 1 4 3	2	The minimum number of delivery trucks we need is 2. One way to complete all deliveries is: First truck: (1, 1)* -> (2, 1) -> (3, 1) -> (4, 1)* -> (5, 1) Second truck: (1, 2) -> (2, 3)* -> (3, 2)* -> (4, 3)* -> (5, 4)* Where (t, h) represents the truck being at house h at time t, and * are times on which the truck makes a delivery.