SAC '22 Code Challenge 5 P4 - Querying Intervals

Time limit: 1.0s   **Memory limit:** 256M

Since Mr. DeMello hates flavour text, he decides to give you a sleek statement instead:

> Given N intervals of $[l_i, r_i]$, answer Q queries.
>
> Each query comes in the form `L_i R_i`, where you will check if you can move from L_i to R_i while always being on an interval (i.e., every integer on that interval must be contained in at least one of the N intervals).
>
> Output `Y` if you can cover the range $[L_i, R_i]$; otherwise, output `N` if you cannot cover the range.

Can you help Mr. DeMello?

Constraints

$1 \leq N, Q \leq 100\,000$

$-10^9 \leq l_i \leq r_i \leq 10^9$

$-10^9 \leq L_i \leq R_i \leq 10^9$

Input Specification

The first line will contain two integers, N and Q, the number of intervals and the number of queries, respectively.

The next N lines will contain two integers, l_i and r_i, the endpoints of the ith interval.

The next Q lines will contain two integers, L_i and R_i, the endpoints of the ith query.

Output Specification

Output Q lines, the answers to the queries.

Sample Input

```
4 3
7 9
-5 4
10 14
16 19
8 10
-5 -5
11 18
```

Sample Output

```
Y
Y
N
```