Task 4: `Curtains`

Benson the Rabbit is organizing a performance on his plane!

He has a stage with n sections numbered 1 to n from left to right. He also has m curtains numbered from 1 to m.

Each of these m curtains can be lowered. Lowering curtain i covers sections $l[i]$ to $r[i]$. A **curtain configuration** is a set of lowered curtains. Given a curtain configuration, a section x ($1 \leq x \leq n$) is **covered** if and only if there exists a **lowered** curtain i such that $l[i] \leq x \leq r[i]$.

Benson wants to give a total of q performances, numbered from 1 to q. For each performance j, Benson requires a curtain configuration such that the sections $s[j]$ to $e[j]$ are covered and nothing else is covered. More formally, for each $1 \leq x \leq n$,

- If $s[j] \leq x \leq e[j]$, section x is covered.
- Otherwise, section x is not covered.

For each of these q performances, help Benson to determine if there exists a curtain configuration satisfying his requirements.

Input format

Your program must read from standard input.

The first line of input will contain 3 spaced integers n, m and q, representing the number of sections, curtains and performances respectively.

The next m lines of input will contain 2 spaced integers each. The i-th of these lines will contain $l[i]$ and $r[i]$ respectively, describing the range of sections that curtain i can cover.

The next q lines of input will contain 2 spaced integers each. The j-th of these lines will contain $s[j]$ and $e[j]$ respectively, describing the range of sections that need to be covered for performance j.

Output format

Output q lines, the j-th of which should contain `YES` if it is possible to cover the required sections for the j-th performance using the curtains, and `NO` otherwise.

Subtasks

For all subtasks, it is guaranteed that:

- $1 \leq n, m, q \leq 500\,000$
- $1 \leq l[i] \leq r[i] \leq n$ (for all $1 \leq i \leq m$)
- $1 \leq s[j] \leq e[j] \leq n$ (for all $1 \leq j \leq q$)

Your program will be tested on input instances that satisfy the following restrictions:

Subtask	Marks	Additional Constraints
1	3	$1 \leq n, m, q \leq 200$
2	6	$1 \leq n, m, q \leq 2000$
3	15	$1 \leq n \leq 2000$
4	20	$s[j] = 1$
5	36	$1 \leq n, m, q \leq 100\,000$
6	20	No additional restrictions

Sample Testcase 1

This testcase is valid for all subtasks.

Input	Output
6 2 3 1 2 3 4 1 3 1 4 1 5	NO YES NO

Sample Testcase 1 Explanation

Benson has 6 sections and 2 curtains. Curtain 1 covers sections 1 and 2 while curtain 2 covers sections 3 and 4.

It is not possible to exactly cover sections 1 to 3. It is also not possible to exactly cover sections 1 to 5. However, he can use both curtains to cover sections 1 to 4 exactly.

Sample Testcase 2

Input	Output
10 10 10 6 9 6 7 1 6 10 10 5 9 3 9 2 10 5 7 9 10 5 10 7 8 4 7 1 6 2 7 3 9 7 7 2 9 4 9 6 6 5 7	NO NO YES NO YES NO NO NO NO YES