

F. Wonderful Impostors

time limit per test: 2 seconds

memory limit per test: 256 megabytes

You are a proud live streamer known as Gigi Murin. Today, you will play a game with n viewers numbered 1 to n .

In the game, each player is either a crewmate or an impostor. You don't know the role of each viewer.

There are m statements numbered 1 to m , which are either **true or false**. For each i from 1 to m , statement i is one of two types:

- $0\ a_i\ b_i\ (1 \leq a_i \leq b_i \leq n)$ — there are no impostors among viewers $a_i, a_i + 1, \dots, b_i$;
- $1\ a_i\ b_i\ (1 \leq a_i \leq b_i \leq n)$ — there is **at least** one impostor among viewers $a_i, a_i + 1, \dots, b_i$.

Answer q questions of the following form:

- $l\ r\ (1 \leq l \leq r \leq m)$ — is it possible that statements $l, l + 1, \dots, r$ are **all true**?

Note that it is **not guaranteed** that there is at least one impostor among all viewers, and it is **not guaranteed** that there is at least one crewmate among all viewers.

Input

Each test contains multiple test cases. The first line contains the number of test cases $t\ (1 \leq t \leq 10^4)$. The description of the test cases follows.

The first line of each test case contains two integers $n, m\ (1 \leq n, m \leq 2 \cdot 10^5)$ — the number of viewers, and the number of statements.

The i -th of the next m lines contains three integers $x_i, a_i, b_i\ (x_i \in \{0, 1\}, 1 \leq a_i \leq b_i \leq n)$ — describing statement i .

The next line contains a single integer $q\ (1 \leq q \leq 2 \cdot 10^5)$ — the number of questions.

Each of the next q lines contains two integers l and $r\ (1 \leq l \leq r \leq m)$ — describing a question.

It is guaranteed that the sum of n over all test cases does not exceed $2 \cdot 10^5$, the sum of m over all test cases does not exceed $2 \cdot 10^5$, and the sum of q over all test cases does not exceed $2 \cdot 10^5$.

Output

For each question, output "YES" if it is possible that the requested statements are all true. Otherwise, output "NO".

You can output the answer in any case (upper or lower). For example, the strings "yEs", "yes", "Yes", and "YES" will be recognized as positive responses.

Example

input

Copy

```

4
4 3
1 1 3
1 2 4
0 2 3
1
1 3
5 2
0 1 5
1 1 5
3
1 1
2 2

```

Neowise Labs Contest 1 (Codeforces Round 1018, Div. 1 + Div. 2)

Finished

Practice



→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++23 14.2 (64 bit, ms)

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
316678731	Apr/22/2025 15:14	Accepted
316374857	Apr/20/2025 14:29	Time limit exceeded on test 6
316374092	Apr/20/2025 14:22	Time limit exceeded on test 6
316373647	Apr/20/2025 14:18	Time limit exceeded on test 6

→ Problem tags

data structures implementation

two pointers *3100

No tag edit access

→ Contest materials

- Announcement (en)
- Tutorial (en)

```

1 2
1 2
0 1 1
1 1 1
2
1 1
2 2
7 9
1 2 2
1 4 5
0 5 6
1 2 2
1 1 1
0 4 7
0 3 7
0 2 7
0 6 6
5
1 5
2 6
3 7
4 8
5 9

```

output

Copy

```

YES
YES
YES
NO
YES
YES
YES
NO
YES
NO
YES

```

Note

In the first test case, there are 4 viewers and 3 statements. The statements are as follows:

- Statement 1: There is at least one impostor among viewers 1, 2, and 3;
- Statement 2: There is at least one impostor among viewers 2, 3, and 4;
- Statement 3: There are no impostors among viewers 2 and 3.

We can see that it is possible that statements 1, 2, and 3 are all true. For example, this is one possible scenario:

- Viewer 1 is an impostor;
- Viewer 2 is a crewmate;
- Viewer 3 is a crewmate;
- Viewer 4 is an impostor.

In the second test case, there are 5 viewers and 2 statements. The statements are as follows:

- Statement 1: There is at least one impostor among viewers 1, 2, 3, 4, and 5;
- Statement 2: There are no impostors among viewers 1, 2, 3, 4, and 5.

We can see that it is possible that statement 1 is true, and it is possible that statement 2 is true. However, it is not possible that both statements 1 and 2 are true.

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