Problem F. Flower's land 4

Time limit: 1.5 seconds
Memory limit: 2048 megabytes

There are n segments on a 2D plane. Each segment starts on the **non-negative part of the x-axis** and ends on the **non-negative part of the y-axis**. In other words, its starting point has coordinates $(x_i, 0)$ with $x_i \geq 0$, and its ending point has coordinates $(0, y_i)$ with $y_i \geq 0$.

You are given q queries. In each query, a segment is specified whose starting point lies on the x-axis, and whose ending point can be **anywhere in the first quadrant or the non-negative parts of the axes** of the plane. For each query segment, determine whether it intersects with any of the existing segments. **Intersections at endpoints are counted.**

Queries are independent of each other; that is, the segment given in each query will not be kept in the remaining queries.

Input

The input contains multiple testcases. The first line of the input contains an integer T ($1 \leq T \leq 10^6$), the number of testcases.

For each test case, the first line contains two integers n, q ($1 \leq n, q \leq 10^6$), the number of existing segments and the number of queries.

Each of the next n lines contains two integers x_i, y_i ($0 \leq x_i, y_i \leq 10^9$), describing a segment that starts at $(x_i, 0)$ and ends at $(0, y_i)$.

Then, each of the following q lines contains three integers a_j, b_j, c_j ($0 \leq a_j, b_j, c_j \leq 10^9$), describing a query segment that starts at $(a_j, 0)$ and ends at (b_j, c_j).

It's guaranteed that the sum of n and the sum of q over all testcases does not exceed 10^6, respectively.

Output

For each query, print `YES` if the query segment intersects (including at endpoints) with at least one of the existing segments, and `NO` otherwise.

Example

standard input	standard output
1 3 5 6 6 2 6 6 2 10 4 4 10 3 3 0 1 1 0 2 2 5 2 1	NO YES NO YES NO