# C. Alyona and Spreadsheet

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

During the lesson small girl Alyona works with one famous spreadsheet computer program and learns how to edit tables.

Now she has a table filled with integers. The table consists of $n$ rows and $m$ columns. By $a_{i,j}$ we will denote the integer located at the $i$-th row and the $j$-th column. We say that the table is sorted in non-decreasing order in the column$j$ if $a_{i,j} \le a_{i+1,j}$ for all $i$ from $1$ to $n$ - $1$.

Teacher gave Alyona $k$ tasks. For each of the tasks two integers $l$ and $r$ are given and Alyona has to answer the following question: if one keeps the rows from $l$ to $r$ inclusive and deletes all others, will the table be sorted in non-decreasing order in at least one column? Formally, does there exist such $j$ that $a_{i,j} \le a_{i+1,j}$ for all $i$ from $l$ to $r$ - $1$ inclusive.

Alyona is too small to deal with this task and asks you to help!

## Input

The first line of the input contains two positive integers $n$ and $m$ ($1 \le n \cdot m \le 100\,000$) — the number of rows and the number of columns in the table respectively. Note that your are given a constraint that bound the product of these two integers, i.e. the number of elements in the table.

Each of the following $n$ lines contains $m$ integers. The $j$-th integers in the $i$ of these lines stands for $a_{i,j}$ ($1 \le a_{i,j} \le 10^9$).

The next line of the input contains an integer $k$ ($1 \le k \le 100\,000$) — the number of task that teacher gave to Alyona.

The $i$-th of the next $k$ lines contains two integers $l_i$ and $r_i$ ($1 \le l_i \le r_i \le n$).

## Output

Print "Yes" to the $i$-th line of the output if the table consisting of rows from $l_i$ to $r_i$ inclusive is sorted in non-decreasing order in at least one column. Otherwise, print "No".

**Example**

**input**

```
5 4
1 2 3 5
3 1 3 2
4 5 2 3
5 5 3 2
4 4 3 4
6
1 1
2 5
4 5
3 5
1 3
1 5
```

**output**

```
Yes
No
Yes
Yes
Yes
No
```

## Note

In the sample, the whole table is not sorted in any column. However, rows 1–3 are sorted in column $1$, while rows 4–5 are sorted in column $3$.