Problem I : Hidden Treasures

time limit per test: 6 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Nami is the navigator of the Straw Hat Pirates in “One Piece”, and one of her primary skills is cartography.
She has recently drawn a map for her team, this map is a matrix of dimensions **n×m**, where **n** and **m** denote the number of rows and columns respectively, composed of integers. This matrix serves as a guide to predict positions of hidden treasures.
The diagonals of a matrix are defined as follows:

- **Main diagonal**: diagonal starting from element (1, 1) and passing through elements (d, d) for 1≤d≤min(n, m).
- **Upper diagonals**: diagonals starting from elements (1, 1+d) and passing through elements (k, k+d) for 1≤k≤n, 1≤d<m, k+d<m.
- **Lower diagonals** : diagonals starting from elements (1+d, 1) and passing through elements (k+d, k) for 1≤k≤m, 1≤d<n, k+d≤n.

Each element is then part of only one diagonal.
The diagram below illustrates the diagonals of a **3×4** matrix:

1	2	3	4
5	6	7	8
9	10	11	12

Elements 1, 6 and 11 make a diagonal, Element 4 makes a diagonal by itself too...
An element of position **(x, y)** contains a treasure if and only if it divides the diagonal into two parts with equal sum. In other words, the sum the elements above our element in the diagonal is equal to the sum of elements under our element in the diagonal.
More formally $\mathbf{\Sigma_{elements(i,\ j)\in diagonal\ containing(x,\ y)\ |\ i<x,\ j<y}\ M[i][j] = \Sigma_{elements(i',\ j')\in diagonal\ containing(x,\ y)\ |\ x<i',\ y<j'}\ M[i'][j']}$.
You will be given the matrix, and q queries, for each query you will be given a position **(x, y)**
Output **“YES”** if that position contains a treasure, and **“NO”** otherwise.

Input :

The first line contains 3 integers **n**, **m** $(2 \leq n, m \leq 2.10^3)$, number of rows and number of columns of our matrix respectively and **q** queries $(1 \leq q \leq 10^6)$.
The next n lines each contain **m** space separated integers describing rows of the matrix. Each integer of the matrix a_{ij} $(-10^9 \leq a_{ij} \leq 10^9)$
The next q lines each contain 2 integers **x** and **y** (1≤x≤n, 1≤y≤m), a specific row and column of our matrix respectively.

Output :

For each query, output **“YES”**(without quotes) if the position **(x, y)** can contain a treasure, and **“NO”**(without quotes) otherwise.

Example:

Input :

```
4 4 4
9 4 7 8
6 5 0 3
11 4 2 5
10 3 8 14
1 4
3 3
3 2
4 2
```