

Lexigraphical Matrix

Problem ID: lexmatrix

Time limit: 1 second

A Lex Matrix is a matrix of size $m \times n$, m rows, n columns. Rows are numbered from 1 to m , top to bottom. Columns are numbered from 1 to n , left to right. $A_{x,y}$ is the y -th value on row x . Each row is a permutation of $1, 2, \dots, n$.

Lex Matrix A is considered greater than Lex Matrix B if compare each cell starting from the first row, left to right then to the next row and so on, the first pair of cells (i, j) where $A_{i,j} \neq B_{i,j}$, $A_{i,j} > B_{i,j}$ hold.

Given a Lex Matrix A , You are allowed to pick 2 rows/columns, swap them and repeat by picking again as many times as you want, modify to achieve the greatest possible Lex Matrix from A . Let's call this maximal matrix A' . Given q pairs of number x_i and y_i ($1 \leq x_i \leq m$, $1 \leq y_i \leq n$), find the value of A'_{x_i, y_i} .

Input

The first line of input contains 2 integers m and n ($1 \leq m, n \leq 500$).

The next m lines, representing Lex Matrix A , each contains n numbers, a permutation of $1, 2, \dots, n$.

The next line contains one integer q ($1 \leq q \leq 10000$).

The next q lines, each contains 2 integers x_i and y_i ($1 \leq x_i \leq m$, $1 \leq y_i \leq n$).

Output

Output q lines, each contains one integer, the value of A'_{x_i, y_i} .

Sample Input 1

```
2 3
1 2 3
1 2 3
2
1 1
2 3
```

Sample Output 1

```
3
1
```