

B. Print Check

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

Kris works in a large company "Blake Technologies". As a best engineer of the company he was assigned a task to develop a printer that will be able to print horizontal and vertical strips. First prototype is already built and Kris wants to tests it. He wants you to implement the program that checks the result of the printing.

Printer works with a rectangular sheet of paper of size $n \times m$. Consider the list as a table consisting of n rows and m columns. Rows are numbered from top to bottom with integers from 1 to n , while columns are numbered from left to right with integers from 1 to m . Initially, all cells are painted in color 0.

Your program has to support two operations:

1. Paint all cells in row r_i in color a_i ;
2. Paint all cells in column c_i in color a_i .

If during some operation i there is a cell that have already been painted, the color of this cell also changes to a_i .

Your program has to print the resulting table after k operation.

Input

The first line of the input contains three integers n , m and k ($1 \leq n, m \leq 5000$, $n \cdot m \leq 100\,000$, $1 \leq k \leq 100\,000$) — the dimensions of the sheet and the number of operations, respectively.

Each of the next k lines contains the description of exactly one query:

- 1 r_i a_i ($1 \leq r_i \leq n$, $1 \leq a_i \leq 10^9$), means that row r_i is painted in color a_i ;
- 2 c_i a_i ($1 \leq c_i \leq m$, $1 \leq a_i \leq 10^9$), means that column c_i is painted in color a_i .

Output

Print n lines containing m integers each — the resulting table after all operations are applied.

Examples

input
3 3 3 1 1 3 2 2 1 1 2 2
output
3 1 3 2 2 2 0 1 0

input
5 3 5 1 1 1 1 3 1 1 5 1 2 1 1 2 3 1
output

1	1	1
1	0	1
1	1	1
1	0	1
1	1	1

Note

The figure below shows all three operations for the first sample step by step. The cells that were painted on the corresponding step are marked gray.