E. Working routine

time limit per test: 2.5 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Vasiliy finally got to work, where there is a huge amount of tasks waiting for him. Vasiliy is given a matrix consisting of n rows and m columns and q tasks. Each task is to swap two submatrices of the given matrix.

For each task Vasiliy knows six integers $a_i, b_i, c_i, d_i, h_i, w_i$, where a_i is the index of the row where the top-left corner of the first rectangle is located, b_i is the index of its column, c_i is the index of the row of the top-left corner of the second rectangle, d_i is the index of its column, h_i is the height of the rectangle and w_i is its width.

It's guaranteed that two rectangles in one query do not overlap and do not touch, that is, no cell belongs to both rectangles, and no two cells belonging to different rectangles **share a side**. However, rectangles are allowed to share an angle.

Vasiliy wants to know how the matrix will look like after all tasks are performed.

Input

The first line of the input contains three integers n, m and q ($2 \le n, m \le 1000$, $1 \le q \le 10\,000$) — the number of rows and columns in matrix, and the number of tasks Vasiliy has to perform.

Then follow n lines containing m integers $v_{i,j}$ ($1 \le v_{i,j} \le 10^9$) each — initial values of the cells of the matrix.

Each of the following q lines contains six integers $a_i, b_i, c_i, d_i, h_i, w_i$ ($1 \le a_i, c_i, h_i \le n$, $1 \le b_i, d_i, w_i \le m$).

Output

Print n lines containing m integers each — the resulting matrix.

Examples

input

```
4 4 2
1 1 2 2
1 1 2 2
3 3 4 4
3 3 4 4
1 1 3 3 2 2
3 1 1 3 2 2
```

output

```
4 4 3 3
4 4 3 3
2 2 1 1
2 2 1 1
```

input

```
4 2 1
1 1
1 1
2 2
2 2
1 1 4 1 1 2
```

output

```
2 2
1 1
```

```
2 2
1 1
```