

B. Cosmic Tables

time limit per test: 3 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

The Free Meteor Association (FMA) has got a problem: as meteors are moving, the Universal Cosmic Descriptive Humorous Program (UCDHP) needs to add a special module that would analyze this movement.

UCDHP stores some secret information about meteors as an $n \times m$ table with integers in its cells. The order of meteors in the Universe is changing. That's why the main UCDHP module receives the following queries:

- The query to swap two table rows;
- The query to swap two table columns;
- The query to obtain a secret number in a particular table cell.

As the main UCDHP module is critical, writing the functional of working with the table has been commissioned to you.

Input

The first line contains three space-separated integers n , m and k ($1 \leq n, m \leq 1000$, $1 \leq k \leq 500000$) — the number of table columns and rows and the number of queries, correspondingly.

Next n lines contain m space-separated numbers each — the initial state of the table. Each number p in the table is an integer and satisfies the inequality $0 \leq p \leq 10^6$.

Next k lines contain queries in the format " $s_i x_i y_i$ ", where s_i is one of the characters "c", "r" or "g", and x_i, y_i are two integers.

- If $s_i = \text{"c"}$, then the current query is the query to swap columns with indexes x_i and y_i ($1 \leq x, y \leq m, x \neq y$);
- If $s_i = \text{"r"}$, then the current query is the query to swap rows with indexes x_i and y_i ($1 \leq x, y \leq n, x \neq y$);
- If $s_i = \text{"g"}$, then the current query is the query to obtain the number that located in the x_i -th row and in the y_i -th column ($1 \leq x \leq n, 1 \leq y \leq m$).

The table rows are considered to be indexed from top to bottom from 1 to n , and the table columns — from left to right from 1 to m .

Output

For each query to obtain a number ($s_i = \text{"g"}$) print the required number. Print the answers to the queries in the order of the queries in the input.

Examples

input
3 3 5 1 2 3 4 5 6 7 8 9 g 3 2 r 3 2 c 2 3 g 2 2 g 3 2
output
8 9 6

input
2 3 3 1 2 4 3 1 5 c 2 1 r 1 2 g 1 3
output
5

Note

Let's see how the table changes in the second test case.

After the first operation is fulfilled, the table looks like that:

2 1 4

1 3 5

After the second operation is fulfilled, the table looks like that:

1 3 5

2 1 4

So the answer to the third query (the number located in the first row and in the third column) will be 5.