

## A. Karen and Game

time limit per test: 2 seconds  
memory limit per test: 512 megabytes  
input: standard input  
output: standard output

On the way to school, Karen became fixated on the puzzle game on her phone!

The game is played as follows. In each level, you have a grid with  $n$  rows and  $m$  columns. Each cell originally contains the number 0.

One move consists of choosing one row or column, and adding 1 to all of the cells in that row or column.

To win the level, after all the moves, the number in the cell at the  $i$ -th row and  $j$ -th column should be equal to  $g_{i,j}$ .

Karen is stuck on one level, and wants to know a way to beat this level using the minimum number of moves. Please, help her with this task!

### Input

The first line of input contains two integers,  $n$  and  $m$  ( $1 \leq n, m \leq 100$ ), the number of rows and the number of columns in the grid, respectively.

The next  $n$  lines each contain  $m$  integers. In particular, the  $j$ -th integer in the  $i$ -th of these rows contains  $g_{i,j}$  ( $0 \leq g_{i,j} \leq 500$ ).

### Output

If there is an error and it is actually not possible to beat the level, output a single integer  $-1$ .

Otherwise, on the first line, output a single integer  $k$ , the minimum number of moves necessary to beat the level.

The next  $k$  lines should each contain one of the following, describing the moves in the order they must be done:

- `row  $x$` , ( $1 \leq x \leq n$ ) describing a move of the form "choose the  $x$ -th row".
- `col  $x$` , ( $1 \leq x \leq m$ ) describing a move of the form "choose the  $x$ -th column".

If there are multiple optimal solutions, output any one of them.

### Examples

input
3 5 2 2 2 3 2 0 0 0 1 0 1 1 1 2 1
output
4 row 1 row 1 col 4 row 3

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

- 1
input
3 3 1 1 1 1 1 1 1 1 1
output
3 row 1 row 2 row 3

**Note**

In the first test case, Karen has a grid with 3 rows and 5 columns. She can perform the following 4 moves to beat the level:

In the second test case, Karen has a grid with 3 rows and 3 columns. It is clear that it is impossible to beat the level; performing any move will create three 1s on the grid, but it is required to only have one 1 in the center.

In the third test case, Karen has a grid with 3 rows and 3 columns. She can perform the following 3 moves to beat the level:

Note that this is not the only solution; another solution, among others, is col 1, col 2, col 3.