

# Box

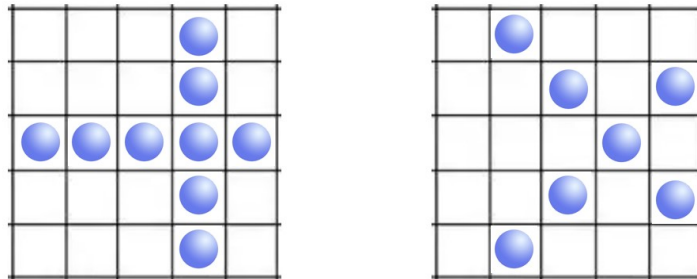
Input file:            **standard input**  
Output file:           **standard output**  
Time limit:            1 second  
Memory limit:         512 megabytes

Little-L has a box divided into an  $n \times m$  grid of cells.

Initially, all cells are empty. You can perform several operations, each of which can be one of the following two types:

1. Choose a cell and place a small ball in every empty cell in the same row and the same column as the chosen cell.
2. Choose a cell and place a small ball in every empty cell on the two diagonals passing through the chosen cell.

For example, in a  $5 \times 5$  box, choosing cell  $(3, 4)$  for either the first or the second operation would yield the following results:



The left figure shows the first operation, and the right figure shows the second operation.

Little-L wants to know: what is the minimum number of operations needed to fill all cells in the box with balls?

**Note:** You can perform an operation on a cell that already contains a ball.

## Input

Each test file contains multiple test cases. The first line contains the number of test cases  $T$  ( $1 \leq T \leq 10^4$ ). The description of the test cases follows.

The first line contains two integers  $n$  and  $m$  ( $1 \leq n, m \leq 10^3$ ), representing the number of rows and columns of the box.

In each test file, it is guaranteed that the sum of  $n \times m$  across all test cases does not exceed  $10^6$ .

## Output

For each test case:

The first line should contain a single integer  $p$  ( $1 \leq p \leq n \times m$ ), representing the minimum number of operations.

The next  $p$  lines each contain three integers  $op, x, y$  ( $op \in \{1, 2\}, 1 \leq x \leq n, 1 \leq y \leq m$ ), indicating one operation. If  $op = 1$ , perform the first type of operation at cell  $(x, y)$ ; if  $op = 2$ , perform the second type of operation at cell  $(x, y)$ .

## Example

standard input	standard output
2	3
3 4	2 2 2
2 2	2 2 3
	1 2 4
	2
	1 1 1
	1 2 2