

## PROBLEM G. PATH IN GRID

*Time limit: 1 second*

An and Nam are playing a game.

An gave Nam a grid of size  $n \times m$  with its rows enumerated from 1 to  $n$  from up to down and its columns enumerated from 1 to  $m$  from left to right. Cell at the intersection of row  $i$  and column  $j$  is represented as  $(i, j)$ . Each cell of the grid contains a non-negative integer smaller than 3.

An asked Nam to find a path from the top-left corner cell  $(1, 1)$  to the bottom-right corner cell  $(n, m)$  meeting the following constraints:

- Nam can only move down or right only. Formally, from cell  $(i, j)$  Nam can move to cell  $(i + 1, j)$  or  $(i, j + 1)$ . All cells on the path must be inside the grid.
- The sum of numbers on all cells on the path must be  $X$ .

An doesn't want the game take too long, so he will not choose a value  $X$  which no satisfied path exists. Help An determine all possible values of  $X$  that he can choose.

### Input

The first input line contains a positive integer  $T$ , the number of test cases.  $T$  groups of lines followed, each describes a test case. Each test case consists of:

- One line with two positive integers  $n, m$ .
- Then  $n$  lines followed, the  $i$ -th of them contains  $m$  numbers (without space separated) on row  $i$  of the grid.

The sum of all  $n$  and the sum of all  $m$  in all  $T$  test cases do not exceed 1000.

### Output

Output  $T$  lines, each line lists all possible value of  $X$  that An can choose in increasing order.

## Sample

INPUT	OUTPUT
1	1 2 3 4
3 3	
020	
100	
020	