

Consider a number maze represented as a two dimensional array of numbers comprehended between 0 and 9, as exemplified on the right side. The maze can be traversed following any orthogonal direction (i.e., north, south, east and west). Considering that each cell represents a cost, then finding the minimum cost to travel the maze from one entry point to an exit point may pose a reasonable challenge. The task is to find the minimum cost value to go from the top-left corner to the bottom-right corner of a given number maze of size  $N \times M$  where  $1 \leq N, M \leq 999$ . Note that the solution for the given example is 24.

#### Input

The input file contains several mazes. The first input line contains a positive integer defining the number of mazes that follow. Each maze is defined by: one line with the number of rows,  $N$  ; one line with the number of columns,  $M$  ; and  $N$  lines, one per each row of the maze, containing the maze numbers separated by spaces.

#### Output

For each maze, output one line with the required minimum value.

0	3	1	2	9
7	3	4	9	9
1	7	5	5	3
2	3	4	2	5

**Figure 1:** Given Example.