Game of Life

A maze in Game of Life is represented as a grid of n rows and m columns. Rahul wants to navigate himself to successfully leave the maze.

The entry to the maze is in the top-left corner, the exit is in the bottom right corner. He can either move down or right from each square of the grid.

Each square of the grid (maze) has some monsters, obstacles to make Rahul's life difficult. He has to spend A_{ij} units of energy to defeat a monster in the **ith** row and **jth** column.

Find a way out of the maze with minimum energy drain.

Input

N M

Where N is the number of rows, M is number of columns

$A_{11}….A_{1m}$

.

.

$A_{n1}….A_{nm}$

A_{ij} represents the energy drain in the ith row, jth column

Constraints

1 <= N <= 1000

1 <= M <= 1000

1 <= A_{ij} <= 1000000000

Output

The minimum energy drain after entering and exiting the maze.

Sample Input

2 2

1 2

1 1

Output

3

Explanation

He can go from (1,1) -> (2,1) -> (2,2) = 1 + 1 + 1 = 3