CodeVita
The TCS Global Coding Contest

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03 Hr 19 Min 50 Sec

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Coding Area

A B C D E F

ONLINE EDITOR (E)

Building Blocks

Problem Description

The Mathematics teacher wanted to introduce a new competition to the students to sharpen their skills in optimization. He drew a rectangular M ×N grid on the ground and filled it with some non-negative integers on each cell of the grid. The cell named (i,j) is at the intersection of i th row and j th column. He gave the following challenge to the students:

1. On each cell of the grid, you can pile any number of cube blocks.

2. Each layer must be rectangular (with no gaps) and rest p supported completely by the immediate below layer.

3. The number of blocks on each cell should not exceed the number written on the cell on the ground.

4. In each layer, the cell above (1,1) must be covered.

The challenge is to pile up the maximum number of blocks subject to the above conditions.

For example if the bottom grid was as follows:

1	1	0
1	1	1
1	1	0

the maximum number of blocks you can pile is 6 with one layer covering all the cells from (1,1) to (3,2).

Constraints

1 <= M,N <= 50

Maximum value in each cell is 50

Input Format

The first line will contain two comma separated integers M,N giving the size of the grid, where M is the number of rows and N is the number of columns.

The next M lines will each contain comma separated N non-negative integers giving the numbers in the grid cells.

Output

One line containing the number of blocks that can be piled according to the rules.

Explanation

Example 1:

Input:

3,4

5,4,9,3

4,3,5,6

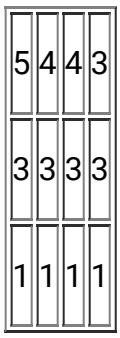
2,2,1,1

Output:

32

Explanation:

One example of the maximum number of blocks that could be piled on the grid is shown below:



The total number of blocks is 32. Hence the output is 32.

Example 2:

Input

4,7

27,26,28,14,15,38,0

38,40,35,2,20,43,39

18,48,43,2,47,18,26

38,2,29,23,14,31,32

Output

242

Explanation

The number of rows is 4. The number of columns is 7. The values in the cells of the grid are

27	26	28	14	15	38	0
38	40	35	2	20	43	39
18	48	43	2	47	18	26
38	2	29	23	14	31	32

One possible maximal placing of the blocks is

27	26	26	2	2	2	0
27	26	26	2	2	2	0
18	18	18	2	2	2	0
2	2	2	2	2	2	0

As there are 242 blocks in this maximal placing, the output is 242.

Upload Solution [Question : E]

☐ I, **AKASH KANDPAL** confirm that the answer submitted is my own.

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