

Math Mashup 7

Given a matrix of size $M \times N$, reduce the matrix to a 1×1 matrix by performing the following operations repeatedly, in the given order.

Operations:

1. Add the first row elements to the corresponding elements of the second row.
2. Subtract the first column elements from the corresponding elements of the second column.
3. Add the last row elements to the corresponding elements of the second-last row.
4. Subtract the last column elements from the corresponding elements of the second-last column.

Note:

In case of a single row(or column) skip the row(or column) operations.

Input:

4

3

1 2 3

4 5 6

4 5 6

1 2 3

Where,

First-line contains the row count M.

Second-line contains the column count N.

Following M lines contain space separated N values.

Output:

-14

Explanation:

Given a matrix of 4 x 3,

1 2 3

4 5 6

4 5 6

1 2 3

performing the 1st operation on the given matrix,

$(4+1) (5+2) (6+3)$ 5 7 9

4 5 6 --> 4 5 6

1 2 3 1 2 3

performing the 2nd operation on the above matrix,

$(7-5)$ 9 2 9

$(5-4)$ 6 --> 1 6

$(2-1)$ 3 1 3

performing the 3rd operation on the above matrix,

2 9 --> 2 9

$(1+1) (6+3)$ 2 9

performing the 4th operation on the above matrix,

$$(2-9) \rightarrow -7$$

$$(2-9) \quad -7$$

performing the 1st operation on the above matrix,

$$(-7+(-7)) \rightarrow -14$$

-14 is the final output.

Assumptions:

Row size and column size can be in the range 1 to 50.

Value of each matrix entry can be in the range -99999 to 99999.

+ Test Case(s)

Compiler:

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performing the 1st operation on the given matrix,

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1 2 3 1 2 3

performing the 2nd operation on the above matrix,

$(7-5)$ 9 2 9

$(5-4)$ 6 --> 1 6

$(2-1)$ 3 1 3

performing the 3rd operation on the above matrix,

$$\begin{array}{cc} 2 & 9 \end{array} \rightarrow \begin{array}{cc} 2 & 9 \\ (1+1) & (6+3) \end{array}$$

performing the 4th operation on the above matrix,

$$\begin{array}{cc} (2-9) & \rightarrow -7 \\ (2-9) & -7 \end{array}$$

performing the 1st operation on the above matrix,

$$(-7+(-7)) \rightarrow -14$$

-14 is the final output.

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