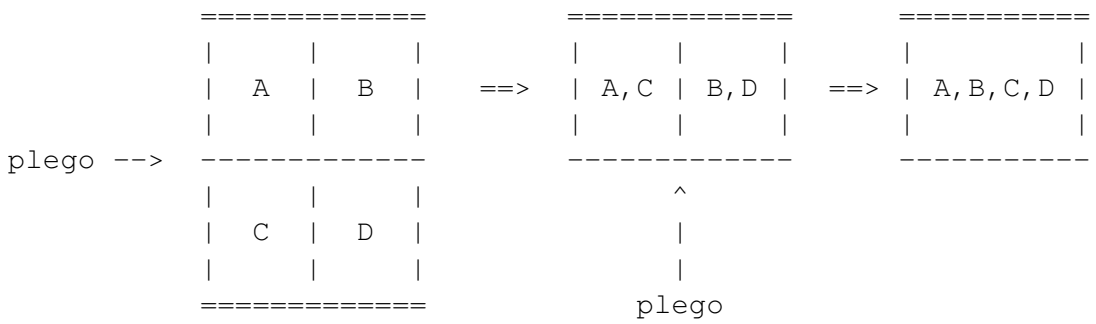
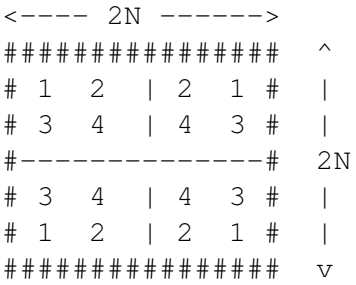
Fold Matrix T34357_en

Let M be a square matrix $2N \times 2N$. The **folding** of a matrix consists of folding the matrix of integers first along the horizontal line that divides the matrix, and then along the vertical line.
For example, let the following matrix have four quadrants A, B, C, D, the folding causes the top part (A, B) to overlap the bottom part (C, D), and the second folding causes the right part (B, D) to overlap the left part (A,C).



Notice that in this case, the matrix goes from being $2N \times 2N$ to a matrix $N \times N$ in which each position has 4 numbers from the original matrix **overlapped**.
The following example shows which positions overlap with others according to the number. This means that all four positions that have the number 1 overlap, those that have the number 2 also, etc.



You have to implement the action `void plegaMatriu(const Matriu& m, Matriu& r)` with the following specification:

`PRE:` m a matrix $2N \times 2N$ of integers.

`POST:` r is a matrix $N \times N$ in which in each position it has the **sum** of the elements of m superimposed by the **fold** of m.

Observation

IMPORTANT: You only need to submit the requested function, and possibly other necessary actions and functions. However, you must keep the type definitions and `#include`s.

Input

A matrix $2N \times 2N$.

Output

A $N \times N$ matrix where at each position it has the **sum** of the elements of m superimposed by the **fold** of m.

Sample input 1

```
4
1  2  2  1
3  4  4  3
3  4  4  3
1  2  2  1

8
1 1 1 1 1 1 1 1
2 2 2 2 2 2 2 2
1 1 1 1 1 1 1 1
2 2 2 2 2 2 2 2
1 1 1 1 1 1 1 1
2 2 2 2 2 2 2 2
1 1 1 1 1 1 1 1
2 2 2 2 2 2 2 2

2
1  3
2  4
```

Sample output 1

```
4 8
12 16
--------------------------
6 6 6 6
6 6 6 6
6 6 6 6
6 6 6 6
--------------------------
10
--------------------------
```

Problem information

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Generation: 2026-01-25T12:52:00.777Z