

The sum of the elements above, under and on the main diagonal

In a given two-dimensional array of whole numbers A , three amounts are required to be found and print: the sum of elements above the main diagonal, the sum of elements on the main diagonal, the sum of the elements under the main diagonal.

Input

From a standard input device, the first row introduces the number N ($1 \leq N \leq 100$) - the number of rows and columns of the two-dimensional A array. In the next N rows exactly N elements are entered, which are elements of the two-dimensional array A .

Output

It is required in the first row bring out the sum of the elements above the main diagonal, in the second row the sum of the elements on the main diagonal, in the third row the sum of the elements under the main diagonal. **No need to enter a space after each amount.**

Sample Input

```
3
1 2 3
4 5 6
7 8 9
```

Sample Output

```
11
15
19
```

Note

Explanation for example:

Sum of numbers above the main diagonal: $(2 + 3 + 6) = 11$,

The sum of the numbers on the main diagonal: $(1 + 5 + 9) = 15$,

The sum of the numbers under the main diagonal: $(4 + 7 + 8) = 19$.