E. Fox and Card Game

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Fox Ciel is playing a card game with her friend Fox Jiro. There are n piles of cards on the table. And there is a positive integer on each card.

The players take turns and Ciel takes the first turn. In Ciel's turn she takes a card from the top of any non-empty pile, and in Jiro's turn he takes a card from the bottom of any non-empty pile. Each player wants to maximize the total sum of the cards he took. The game ends when all piles become empty.

Suppose Ciel and Jiro play optimally, what is the score of the game?

Input

The first line contain an integer n ($1 \le n \le 100$). Each of the next n lines contains a description of the pile: the first integer in the line is s_i ($1 \le s_i \le 100$) — the number of cards in the i-th pile; then follow s_i positive integers c_1, c_2, ..., c_k, ..., c_{s_i} ($1 \le c_k \le 1000$) — the sequence of the numbers on the cards listed from top of the current pile to bottom of the pile.

Output

Print two integers: the sum of Ciel's cards and the sum of Jiro's cards if they play optimally.

Examples

input
2 1 100 2 1 10
output
101 10

input
1 9 2 8 6 5 9 4 7 1 3
output
30 15

input
3 3 1 3 2 3 5 4 6 2 8 7
output
18 18

input
3 3 1000 1000 1000 6 1000 1000 1000 1000 1000 1000 5 1000 1000 1000 1000 1000
output

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7000 7000
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Note

In the first example, Ciel will take the cards with number 100 and 1, Jiro will take the card with number 10.

In the second example, Ciel will take cards with numbers 2, 8, 6, 5, 9 and Jiro will take cards with numbers 4, 7, 1, 3.