

Tug of War

Tug of War is a contest of brute strength where two teams of people pull in opposite directions on a rope. The team that succeeds in pulling the rope in their direction is declared the winner.

A tug of war is to be arranged at the local office picnic. For the tug of war, the picnickers must be divided into two teams. Each person must be on one team or the other; the number of people on the two teams must not differ by more than 1; the total weight of the people on each team should be as nearly equal as possible.

Input

The first line of input gives the number of people, N . Following that are N lines each giving the weight of one person.

Output

Output should consist of a single line with two integers, separated by a space. These give the combined weights of the two teams. If they are different values, they should be printed in ascending order.

Sample Input

```
5
109
183
148
205
164
```

Sample Output

```
388 421
```