Territory Wars

Problem Statement:

San Andreas area witnesses frequent gang wars between its Ballas, Vagos and Homies gangs. But this time, Ballas and Homies have teamed-up and collectively defeated the Vagos once and for all. Now, it's time to divide the territories between the Ballas and Homies which is quite a complicated task because the territory of Vagos is divided into various sub-territories.

The way they decide who gets which sub-territory is as follows: First, the order in which the sub-territories are to be allotted is decided, There is a special token, initially held by Homies. Until all the sub-territories are allotted, whoever has the special token will allot the next sub-territory to one of the gangs, and the special token to the other gang. This will continue until no sub-territories are left.

Assuming both gangs make their decisions optimally, how much territory will each gang receive?

Input Format:

The first line contains a single integer *n* — the number of sub-territories.

The second line contains n integers (a1, a2, …, an) indicating the areas (in hundreds square feet) of the territories in the order that they are to be handed out.

Output Format:

Print two integers, first the area of territory allotted to Ballas and then the area of the territory allotted to Homies, assuming they make their decisions optimally..

Constraints:

- $1 \leq n \leq 50$
- $1 \leq a_i \leq 1,00,000$

Sample Input:

3
141 592 653

Sample Output:

653 733