Meow Planet

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Meow and Miau are the leaders on a planet, Mplanet, which has N cities. The astrologists foresaw that there will be a meteoroid crash towards Mplanet and destroy Mplanet. To avoid it happening, Meow and Miau started to invest their money in protective devices. One day, a scientist successfully invented a protective barrier device that could protect only one city from being destroyed. Unfortunately, there are only two such devices invented due to high cost and each device could only protect one city. Both Meow and Miau are glad, they will choose one city each from the N cities and the two chosen cities must be different from each other.

Each city in Mplanet has a strength value. Denote s_i as the strength value of i^{th} city. Meow, being an extremist, wishes that the absolute difference between the strength value of the cities they chose to be as large as possible. Miau, being a moderate, wishes that the absolute difference between the strength value of the cities they chose to be as small as possible. None of them want to negotiate and wish to follow their way of doing. Since the first player that chooses the city will affect the final results so they can't negotiate who to go first.

Assume that both Meow and Miau choose optimally. What is the absolute difference between the strength values of the cities they have chosen (if Meow chooses first and if Miau chooses first)?

Input

The first line contains an integer N ($2 \leq N \leq 10^5$) — the number of cities on Mplanet.

The second line contains N space-separated integers $s_1, s_2, s_3, \ldots, s_N$ ($1 \leq s_i \leq 10^9$) — the strength values of the cities on Mplanet.

Output

Output a line contains two space-separated integers.

The first integer is the absolute difference between the strengths of the cities they have chosen when Meow chooses first.

The second integer is the absolute difference between the strengths of the cities they have chosen when Miau chooses first.

Assume both Meow and Miau choose optimally.

Examples

standard input	standard output
5 3 2 1 10 5	5 5
2 5 7	2 2

Note

Sample test case 1: The optimal choice if Meow chooses first is Meow chooses 10, Miau chooses 5. The optimal choice if Miau chooses first is Miau chooses 5, Meow chooses 10.

Sample test case 2: Since there are two cities only, therefore no matter how they choose, both answers are the same.