OperationsJ

2024/2025 SEASON – SIXTH ROUND

Nasko made a great *kozunak* for Easter. There was only one rule – anyone who solves the task can taste the *kozunak*. The task is as follows: Given N integers - $a_1, a_2, \dots a_N$. The following operation is performed until no numbers are left in the sequence – the number with the smallest absolute value in the sequence is taken. If there are several such numbers, the one with the smallest index is taken. From the absolute value of each number in the sequence, we subtract the absolute value of the selected number in each iteration, meaning negative numbers increase and positive numbers decrease. If any number becomes 0, it is removed from the sequence.

The cost of one operation is the absolute value of the initially selected number in each iteration. Nasko asks for the total cost of all operations. Yoan managed to quickly devise a solution and confirmed that the *kozunak* is excellent. Give it a try!

Input

The first line of the file **operationsJ.in** consists of the integer N. The second line contains N integers - $a_1, a_2, \dots a_N$, describing the numbers in the sequence. The numbers are sorted by absolute value: $|a_1| \geq |a_2| \geq \cdots \geq |a_N|$.

Output

In the file **operationsJ.out** print the total cost.

Constraints

$N = 3 * 10^6$

$-10^2 \leq a_i \leq 10^2$

$|a_1| \geq |a_2| \geq \cdots \geq |a_N|$

Time limit: 0.05 sec.

Memory limit: 256 MB

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Sample test

Input (operationsJ.in)	Output (operationsJ.out)
4 5 -3 -2 -1	5

Sample test explanation

The operations on the sequence go as follows: 5 -3 -2 -1 $\overset{1}{\rightarrow}$ 4 -2 -1 $\overset{1}{\rightarrow}$ 3 -1 $\overset{1}{\rightarrow}$ 2 $\overset{2}{\rightarrow}$ end. Above the arrows are the costs of the operations. The sum of the costs is 1 + 1 + 1 + 2 = 5.