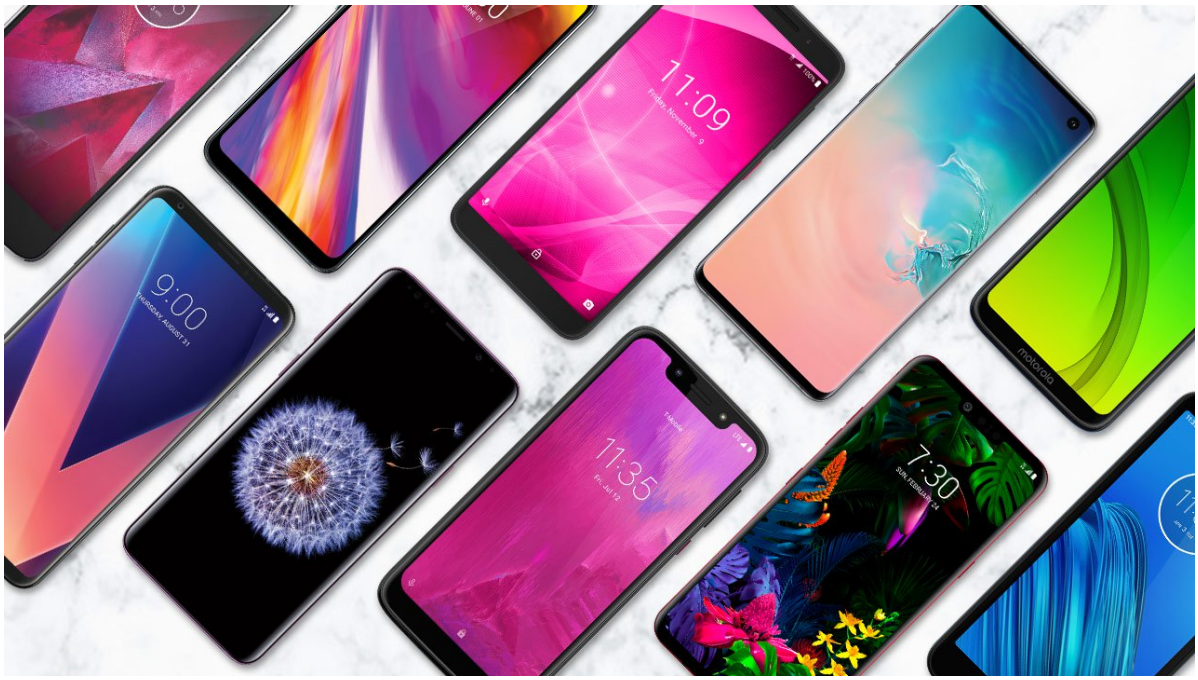
Compulsive Smartphone Shopping (smartphone)

Edoardo is very passionate about technology, especially about smartphones. Unfortunately, he just dropped his phone and the screen shattered, so he needs to buy another one as soon as possible!



Edoardo is going to visit N shops in order. Every time he enters a new shop, he looks for the phone with the highest price and, if it is strictly more valuable than all of the smartphones he currently has, he buys it. Edoardo doesn't skip any shop, even if he has already purchased a smartphone elsewhere (he wants only the very best!).

You know that the most valuable smartphone in the i-th shop costs P_i. You also know that the initial smartphone has no value, since it is broken. How much will Edoardo spend in total?

> ☞ Among the attachments of this task you may find a template file `smartphone.*` with a sample incomplete implementation.

Input

The first line contains the only integer N. The second line contains N integers P_i.

Output

You need to write a single line with an integer: the total cost paid by Edoardo.

Constraints

- $1 \leq N \leq 100\,000$.
- $1 \leq P_i \leq 10^9$ for each $i = 0 \ldots N-1$.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points) Examples.

– **Subtask 2** (10 points) $N \leq 10$, $P_i \leq 1000$.

– **Subtask 3** (20 points) $N \leq 1000$, $P_i \leq 1000$.

– **Subtask 4** (30 points) $P_i < P_{i+1}$ for every $i = 0 \ldots N-2$.

– **Subtask 5** (40 points) No additional limitations.

Examples

input	output
5 1 3 2 2 5	9
4 1 3 5 7	16

Explanation

In the **first sample case** Edoardo buys a smartphone in the first, second and fifth shop, paying 9 in total.

In the **second sample case** Edoardo buys a smartphone in every shop, paying a total of 16.