CSES Problem Set

Increasing Array

Time limit: 1.00 s **Memory limit:** 512 MB

You are given an array of n integers. You want to modify the array so that it is increasing, i.e., every element is at least as large as the previous element.

On each move, you may increase the value of any element by one. What is the minimum number of moves required?

Input

The first input line contains an integer n: the size of the array.

Then, the second line contains n integers $x_1, x_2, \ldots, x_n$: the contents of the array.

Output

Print the minimum number of moves.

Constraints

- $1 \le n \le 2 \cdot 10^5$
- $1 \le x_i \le 10^9$

Example

Input:
```
5
3 2 5 1 7
```

Output:
```
5
```

Introductory Problems

Weird Algorithm -
Missing Number -
Repetitions -
Increasing Array -
Permutations -
Number Spiral -
Two Knights -
Two Sets -
...