

Building Block Competition

Problem Description

Chunchun Kindergarten held an annual “Building block Contest”. This year’s competition is to build a building of width n . The building can be seen as consisting of n blocks of width 1, and the final height of the i_{th} block needs to be h_i .

Before the building starts, there are no blocks (think of it as n blocks of height 0). In each operation, the children can choose a continuous interval $[l, r]$, and then increase the height of all blocks between the L and R block (including the block L and block R) by 1.

M is a smart kid, and she quickly comes up with the best strategy for building the building, which requires the least number of operations. However, she is not a hands-on child, so she would like to ask you to help implement this strategy and find the minimum number of operations.

Input

There are two lines. The first line contains an integer n representing the width of the building.

The second line contains n integers, with the i_{th} integer being h_i .

Output

The minimum number of operations required.

Sample Input

```
5
2 3 4 1 2
```

Sample Output

```
5
```

Hint

[Explanation of Sample]

One of the best possible solutions is to use these blocks in order: $[1,5]$, $[1,3]$, $[2,3]$, $[3,3]$, $[5,5]$.

[Data Range]

For 30% of the data, $1 \leq n \leq 10$;

For 70% of the data, $1 \leq n \leq 1000$;

For 100% of the data, $1 \leq n \leq 100000$ and $0 \leq h_i \leq 10000$.