

Problem C. Stones

Time limit 1000 ms
Memory limit 256MB

Problem Description

Tomorin likes collecting stones. One day, she found n stones arranged in a row, numbered from 1 to n . The weight of the i -th stone is w_i .

Tomorin wants to take all these stones back, but before that, she must merge them into a single pile first. She can repeatedly perform the following operation:

- Choose two adjacent piles and merge them into one pile.
- The time of this operation is equal to the weight of the new pile.

Find the minimum total time required to merge all these stones into one pile.

Input format

The first line contains one integers n ($1 \leq n \leq 500$) — the number of stones.

The second line contains n integers w_i ($1 \leq w_i \leq 10^9$) — the weights of stones.

Output format

Output a single integer — the minimum total time required to merge all these stones.

Subtask score

Subtask	Score	Additional Constraints
0	0	Sample testcases
1	8	$n \leq 8$
2	23	$n \leq 100$
3	69	No additional constraints

Sample

Sample Input 1

```
6
3 1 4 1 5 9
```

Sample Output 1

```
55
```

Sample Input 2

```
8
9 9 8 2 4 4 3 5
```

Sample Output 2

127

Sample Input 3

1 1000000000

Sample Output 3

0
