

## PROBLEM 2

# Level Ground

**Input File:** groundin.txt  
**Output File:** groundout.txt

**Time and Memory Limits:** 1 second, 1 GB

The Australian Marathon Team is planning a race in the Great Dividing Range. The range is divided into  $N$  segments. The  $i$ th segment has an altitude of  $A_i$  kilometres.

The race must take place over a single connected block of segments. Each segment of the race **must have the same altitude**.

Longer races and races at high altitude are more intense. The *intensity* of a race is the product of its length and altitude. For example, a race with 3 segments each with an altitude of 2 kilometres has an intensity of  $3 \times 2 = 6$ . What is the highest intensity that can be achieved?

## Input

- The first line of input contains the integer  $N$ .
- The second line of input contains  $N$  integers describing the altitudes. The  $i$ th of these is  $A_i$ .

## Output

Your program must output one integer: the highest intensity that can be achieved.

### Sample Input 1

```
7
3 2 1 2 2 2 1
```

### Sample Input 2

```
3
10 10 10
```

### Sample Input 3

```
4
1 1 1 4
```

### Sample Output 1

```
6
```

### Sample Output 2

```
30
```

### Sample Output 3

```
4
```

## Explanation

In the first sample input, the highlighted race has an intensity of  $3 \times 2 = 6$ .

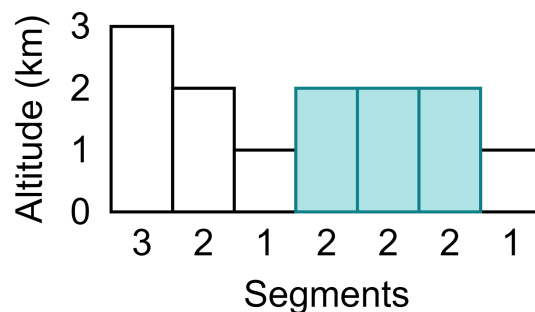


Figure 1: Sample Input 1.

In the second sample input, the highlighted race has an intensity of  $3 \times 10 = 30$ .

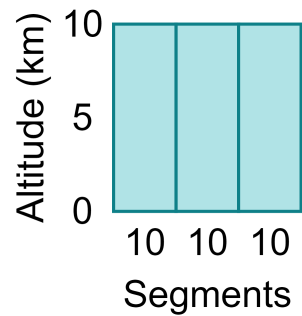


Figure 2: Sample Input 2.

In the third sample input, the highlighted race has an intensity of  $1 \times 4 = 4$ .

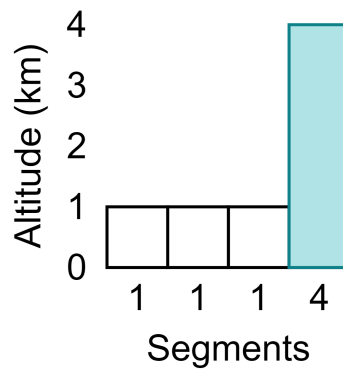


Figure 3: Sample Input 3.

### Subtasks & Constraints

For all subtasks:

- $2 \leq N \leq 100\,000$ .
- $1 \leq A_i \leq 10\,000$  for all  $i$ .

Additionally:

- For Subtask 1 (50 marks),  $N \leq 1000$ .
- For Subtask 2 (50 marks), no special constraints apply.