

Find Maximum Index Product



You are given a list of N numbers a_1, a_2, \dots, a_n . For each element at position i ($1 \leq i \leq N$), we define $Left(i)$ and $Right(i)$ as:

$Left(i)$ = closest index j such that $j < i$ and $a_j > a_i$. If no such j exists then $Left(i) = 0$.

$Right(i)$ = closest index k such that $k > i$ and $a_k > a_i$. If no such k exists then $Right(i) = 0$.

We define $IndexProduct(i) = Left(i) * Right(i)$. You need to find out the maximum $IndexProduct(i)$ among all i .

Input Format

The first line contains an integer N , the number of integers. The next line contains the N integers describing the list $a[1..N]$.

Constraints

$$1 \leq N \leq 10^5$$

$$1 \leq a_i \leq 10^9$$

Output Format

Output the maximum $IndexProduct$ among all indices from 1 to N .

Sample Input

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5
5 4 3 4 5
```

Sample Output

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8
```

Explanation

We can compute the following:

$$IndexProduct(1) = 0$$

$$IndexProduct(2) = 1 \times 5 = 5$$

$$IndexProduct(3) = 2 \times 4 = 8$$

$$IndexProduct(4) = 1 \times 5 = 5$$

$$IndexProduct(5) = 0$$

The largest of these is 8, so it is the answer.