C - Lexicographic constraints

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Time Limit: 2 sec / Memory Limit: 1024 MB

Score : 700 points

Problem Statement

There are N strings arranged in a row. It is known that, for any two adjacent strings, the string to the left is lexicographically smaller than the string to the right. That is, $S_1 < S_2 < \ldots < S_N$ holds lexicographically, where S_i is the i-th string from the left.

At least how many different characters are contained in $S_1, S_2, \ldots, S_N$, if the length of S_i is known to be A_i?

Constraints

- $1 \leq N \leq 2 \times 10^5$
- $1 \leq A_i \leq 10^9$
- A_i is an integer.

Note

The strings do not necessarily consist of English alphabet; there can be arbitrarily many different characters (and the lexicographic order is defined for those characters).

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Input

Input is given from Standard Input in the following format:

N
$A_1 \quad A_2 \quad \ldots \quad A_N$

Output

Print the minimum possible number of different characters contained in the strings.

Sample Input 1 Copy

Copy

```
3
3 2 1
```

Sample Output 1 Copy

Copy

```
2
```

The number of different characters contained in $S_1, S_2, \ldots, S_N$ would be 3 when, for example, $S_1 =$ ' abc ', $S_2 =$ ' bb ' and $S_3 =$ ' c '.

However, if we choose the strings properly, the number of different characters can be 2.

Sample Input 2 Copy

Copy

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

Sample Output 2 Copy

Copy

```
2
```

#telegram)

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