DMOPC '22 Contest 5 P3 - Sorted XOR

Time limit: 1.0s **Memory limit:** 256M

Anthony is obsessed with sorting algorithms. After mastering a couple different sorting algorithms, he is now learning how to solve more unconventional sorting problems. Initially, there is an array A of size N. Anthony can perform the following operation any number of times: change an element of A to any arbitrarily large non-negative integer. Let the array B be the prefix bitwise XOR array of A. Formally, $B_i = A_1 \oplus A_2 \oplus \cdots \oplus A_i$. Please tell Anthony the minimum number of operations to sort B in non-decreasing order.

Constraints

$1 \leq N \leq 10^6$

$0 \leq A_i < 2^{30}$

Subtask 1 [20%]

$1 \leq N \leq 10^3$

$0 \leq A_i < 2^8$

Subtask 2 [80%]

No additional constraints.

Input Specification

The first line contains the integer N.

The next line contains N space-separated integers, representing the array A.

Output Specification

Output the minimum number of operations to make B nondecreasing.

Sample Input

```
3
2 2 4
```

Sample Output

```
1
```

Explanation for Sample

1 operation can be performed by changing the first element to 0, making B nondecreasing.