

Cheerio Contest 3 P4 - Bit Flips

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

You have an array a of length N . In one operation, you can choose a number in the array and flip one of its bits, as long as the resultant number is non-negative and strictly less than 2^{30} . What is the minimum number of operations required to turn the array into a non-decreasing sequence?

Constraints

For all subtasks:

$$2 \leq N \leq 100$$

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

Input Specification

The first line contains a single integer N .

The second line contains N integers a_i .

Output Specification

Output the minimum number of operations required to turn the array into a non-decreasing sequence.

Sample Input

```
5
10 7 8 3 4
```

Sample Output

```
3
```

Explanation for Sample Output

A possible final array could be $[2, 7, 8, 11, 12]$, which takes 3 moves to transition to.