Problem G. Expanding Array

Time limit: 2 seconds
Memory limit: 1024 megabytes

Given an integer array $a_1, a_2, \ldots, a_n$ of length n, you can perform any number of operations on this array. In each operation, you can choose two adjacent elements a_i and a_{i+1} ($1 \le i < n$), and insert one of the following three values between them: a_i `and` a_{i+1}, a_i `or` a_{i+1}, or $a_i \oplus a_{i+1}$. Your task is to determine the maximum number of distinct values that can exist in the array after performing any number of operations.

Note: x `and` y represents the bitwise AND of x and y. x `or` y represents the bitwise OR of x and y. $x \oplus y$ represents the bitwise XOR (exclusive OR) of x and y.

Input

The first line contains a single integer n ($2 \le n \le 10^5$), representing the length of the array.

The second line contains n integers $a_1, a_2, \ldots, a_n$ ($0 \le a_i \le 10^9$), representing the elements of the array.

Output

Output a single integer, representing the maximum number of distinct values that can be obtained in the array after performing any number of operations.

Examples

standard input	standard output
2 2 3	4
2 3 4	4