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Badge Progress (Details)

Points: 126   Rank: 270332

Manipulative Numbers

by HackerRank

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Suppose that A is a list of n numbers $\{A_1, A_2, A_3, \ldots, A_n\}$ and $B = \{B_1, B_2, B_3, \ldots, B_n\}$ is a permutation of these numbers, we say B is *K-Manipulative* if and only if:

$M(B) = minimum(B_1 \oplus B_2, B_2 \oplus B_3, B_3 \oplus B_4, \ldots, B_{n-1} \oplus B_n, B_n \oplus B_1)$ is not less than 2^K, where $\oplus$ represents the *XOR* operator.

You are given A. Find the largest K such that there exists a *K-manipulative* permutation B.

Input:

The first line is an integer N. The second line contains N space separated integers - $A_1\ A_2\ \ldots\ A_n$.

Output:
The largest possible K, or -1 if there is no solution.

Constraints:

- $1 < n <= 100$
- $0 \le A_i \le 10^9, where\ i \in [1, n]$

Sample Input #00

```
3
13 3 10
```

Sample Output #00

```
2
```

Explanation

Here the list A is $\{13, 3, 10\}$. One possible permutation $B = \{10, 3, 13\}$. Here $M(B) = minimum\{B_1 \oplus B_2, B_2 \oplus B_3, B_3 \oplus B_1\} = minimum\{10 \oplus 3, 3 \oplus 13, 13 \oplus 10\} = minimum\{9, 14, 7\} = 7$.
So there exists a permutation B of A such that $M(B)$ is not less than $4 = 2^2$. However there does not exist any permutation B of A such that $M(B)$ is not less than $8 = 2^3$. So the maximum possible value of K is 2.

Sample Input #01

```
4
1 2 3 4
```

Sample Output #01

```
1
```

Submissions:1359

Max Score:55
Difficulty: Hard

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Current Buffer (saved locally, editable)   ⑂ ⏱   [Java 7   ⌄]   ⤢ ⚙

```java
1 ▾ import java.io.*;
2   import java.util.*;
3   import java.text.*;
4   import java.math.*;
5   import java.util.regex.*;
6
7 ▾ public class Solution {
8
9 ▾     public static void main(String[] args) {
10 ▾        /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution. */
11          }
12  }
```

Line: 1 Col: 1

⬆ Upload Code as File   ☐ Test against custom input   [Run Code]   [Submit Code]

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