Even Circuit

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	1024 megabytes

Little Cyan Fish has a sequence of n positive integers $a_1, a_2, \ldots, a_n$. He wants to choose a *shortest non-empty subsequence* of the sequence a with *an even length*, such that the XOR-sum of the subsequence is zero.

Formally, Little Cyan Fish wants to find an array of indices $1 \le i_1 < i_2 < \ldots < i_k \le n$, such that:

- $k > 0$
- $k \equiv 0 \pmod 2$
- $a_{i_1} \oplus a_{i_2} \oplus \ldots \oplus a_{i_k} = 0$

Here, $\oplus$ denotes the bitwise exclusive OR operation (XOR). For example, $2 \oplus 3 = 1$, $5 \oplus 1 = 4$, $3 \oplus 3 = 0$.

Little Cyan Fish wants you to determine whether it is possible to choose such a subsequence, and if yes, what is the shortest length of that subsequence.

Input

The first line of the input contains a single integer n ($2 \le n \le 2 \times 10^5$).

The next line of the input contains n integers $a_1, a_2, \ldots, a_n$ ($0 \le a_i < 2^{22}$).

Output

If it is impossible to choose the subsequence, output a single line "`No`".

Otherwise, the first line of the output should contain the word "`Yes`". Then, the next line of the output should contains a single integer, indicating the smallest possible k.

Examples

standard input	standard output
3 1 2 1	Yes 2
5 7 4 3 1 2	Yes 4
6 40 63 64 9 6 1	No

Note

In the first test case, when $k = 2$ and $i_1 = 1, i_2 = 3$, the conditions in the problem are satisfied. Therefore, the answer is 2.