C. Big Secret

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Vitya has learned that the answer for The Ultimate Question of Life, the Universe, and Everything is not the integer ~~54~~ 42, but an increasing integer sequence $a_1, \ldots, a_n$. In order to not reveal the secret earlier than needed, Vitya encrypted the answer and obtained the sequence $b_1, \ldots, b_n$ using the following rules:

- $b_1 = a_1$;
- $b_i = a_i \oplus a_{i-1}$ for all i from 2 to n, where $x \oplus y$ is the bitwise XOR of x and y.

It is easy to see that the original sequence can be obtained using the rule $a_i = b_1 \oplus \ldots \oplus b_i$.

However, some time later Vitya discovered that the integers b_i in the cypher got shuffled, and it can happen that when decrypted using the rule mentioned above, it can produce a sequence that is not increasing. In order to save his reputation in the scientific community, Vasya decided to find some permutation of integers b_i so that the sequence $a_i = b_1 \oplus \ldots \oplus b_i$ is strictly increasing. Help him find such a permutation or determine that it is impossible.

Input

The first line contains a single integer n ($1 \le n \le 10^5$).

The second line contains n integers $b_1, \ldots, b_n$ ($1 \le b_i < 2^{60}$).

Output

If there are no valid permutations, print a single line containing "No".

Otherwise in the first line print the word "Yes", and in the second line print integers $b'_1, \ldots, b'_n$ — a valid permutation of integers b_i. The unordered multisets $\{b_1, \ldots, b_n\}$ and $\{b'_1, \ldots, b'_n\}$ should be equal, i. e. for each integer x the number of occurrences of x in the first multiset should be equal to the number of occurrences of x in the second multiset. Apart from this, the sequence $a_i = b'_1 \oplus \ldots \oplus b'_i$ should be strictly increasing.

If there are multiple answers, print any of them.

Examples

input
3 1 2 3

output
No

input
6 4 7 7 12 31 61

output
Yes 4 12 7 31 7 61

Note

In the first example no permutation is valid.

In the second example the given answer lead to the sequence $a_1 = 4$, $a_2 = 8$, $a_3 = 15$, $a_4 = 16$, $a_5 = 23$, $a_6 = 42$.