C. Mike and gcd problem

Mike has a sequence $A = [a_1, a_2, ..., a_n]$ of length n. He considers the sequence $B = [b_1, b_2, ..., b_n]$ beautiful if the gcd of all its elements is bigger than 1, i.e. $\gcd(b_1, b_2, \ldots, b_n) > 1$.

Mike wants to change his sequence in order to make it beautiful. In one move he can choose an index i ($1 \leq i < n$), delete numbers a_i, a_{i+1} and put numbers $a_i - a_{i+1}, a_i + a_{i+1}$ in their place instead, in this order. He wants perform as few operations as possible. Find the minimal number of operations to make sequence A beautiful if it's possible, or tell him that it is impossible to do so.

$\gcd(b_1, b_2, \ldots, b_n)$ is the biggest non-negative number d such that d divides b_i for every i ($1 \leq i \leq n$).

Input

The first line contains a single integer n ($2 \leq n \leq 100\,000$) — length of sequence A.

The second line contains n space-separated integers $a_1, a_2, ..., a_n$ ($1 \leq a_i \leq 10^9$) — elements of sequence A.

Output

Output on the first line "YES" (without quotes) if it is possible to make sequence A beautiful by performing operations described above, and "NO" (without quotes) otherwise.

If the answer was "YES", output the minimal number of moves needed to make sequence A beautiful.

Examples

input
2
1 1

output
YES
1

input
3
6 2 4

output
YES
0

input
2
1 3

output
YES
1

Note

In the first example you can simply make one move to obtain sequence $[0, 2]$ with $\gcd(0, 2) = 2$.

In the second example the gcd of the sequence is already greater than 1.