B. Two Sets

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Little X has n distinct integers: $p_1, p_2, ..., p_n$. He wants to divide all of them into two sets A and B. The following two conditions must be satisfied:

- If number x belongs to set A, then number a - x must also belong to set A.
- If number x belongs to set B, then number b - x must also belong to set B.

Help Little X divide the numbers into two sets or determine that it's impossible.

Input

The first line contains three space-separated integers n, a, b ($1 \le n \le 10^5$; $1 \le a, b \le 10^9$). The next line contains n space-separated distinct integers $p_1, p_2, ..., p_n$ ($1 \le p_i \le 10^9$).

Output

If there is a way to divide the numbers into two sets, then print "YES" in the first line. Then print n integers: $b_1, b_2, ..., b_n$ (b_i equals either 0, or 1), describing the division. If b_i equals to 0, then p_i belongs to set A, otherwise it belongs to set B.

If it's impossible, print "NO" (without the quotes).

Examples

input
4 5 9 2 3 4 5

output
YES 0 0 1 1

input
3 3 4 1 2 4

output
NO

Note

It's OK if all the numbers are in the same set, and the other one is empty.