

## D. 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:  $p_1, p_2, \dots, p_n$ . 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  $n, a, b$  ( $1 \leq n \leq 10^5$ ;  $1 \leq a, b \leq 10^9$ ). The next line contains  $n$  space-separated distinct integers  $p_1, p_2, \dots, p_n$  ( $1 \leq p_i \leq 10^9$ ).

### Output

If there is a way to divide the numbers into two sets, then print "YES" in the first line. Then print  $n$  integers:  $b_1, b_2, \dots, b_n$  ( $b_i$  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.