

## F. GCD Groups 2

time limit per test: 0.5 seconds  
memory limit per test: 256 megabytes  
input: standard input  
output: standard output

You are given an array of  $n$  integers. You need to split all integers into two groups so that the GCD of all integers in the first group is equal to one and the GCD of all integers in the second group is equal to one.

The GCD of a group of integers is the largest non-negative integer that divides all the integers in the group.

Both groups have to be non-empty.

### Input

The first line contains a single integer  $n$  ( $2 \leq n \leq 10^5$ ).

The second line contains  $n$  integers  $a_1, a_2, \dots, a_n$  ( $1 \leq a_i \leq 10^9$ ) — the elements of the array.

### Output

In the first line print "YES" (without quotes), if it is possible to split the integers into two groups as required, and "NO" (without quotes) otherwise.

If it is possible to split the integers, in the second line print  $n$  integers, where the  $i$ -th integer is equal to 1 if the integer  $a_i$  should be in the first group, and 2 otherwise.

If there are multiple solutions, print any.

### Examples

input	Copy
4 2 3 6 7	
output	Copy
YES 2 2 1 1	
input	Copy
5 6 15 35 77 22	
output	Copy
YES 2 1 2 1 1	
input	Copy
5 6 10 15 1000 75	
output	Copy
NO	

### Codeforces Round #576 (Div. 1)

Finished

Practice



### → Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

### → Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

### → Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

### → Submit?

Language: GNU G++11 5.1.0

Choose file: 

选择文件

 未选择任何文件

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.

Submit

### → Problem tags

greedy number theory probabilities  
No tag edit access

### → Contest materials

- Announcement (en) ×

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