

A. LRC and VIP

time limit per test: 1 second
memory limit per test: 256 megabytes

You have an array a of size n — $a_1, a_2, \dots a_n$.

You need to divide the n elements into 2 sequences B and C , satisfying the following conditions:

- Each element belongs to exactly one sequence.
- Both sequences B and C contain at least one element.
- $\gcd(B_1, B_2, \dots, B_{|B|}) \neq \gcd(C_1, C_2, \dots, C_{|C|})$ *

* $\gcd(x, y)$ denotes the [greatest common divisor \(GCD\)](#) of integers x and y .

Input

Each test contains multiple test cases. The first line contains the number of test cases t ($1 \leq t \leq 500$). The description of the test cases follows.

The first line of each test case contains an integer n ($2 \leq n \leq 100$).

The second line of each test case contains n integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 10^4$).

Output

For each test case, first output **Yes** if a solution exists or **No** if no solution exists. You may print each character in either case, for example **YES** and **yEs** will also be accepted.

Only when there is a solution, output n integers on the second line. The i -th number should be either 1 or 2. 1 represents that the element belongs to sequence B and 2 represents that the element belongs to sequence C .

You should guarantee that 1 and 2 both appear at least once.

Example

input	Copy
3	
4	
1 20 51 9	
4	
5 5 5 5	
3	
1 2 2	
output	Copy
Yes	
2 2 1 1	
No	
Yes	
1 2 2	

Note

In the first test case, $B = [51, 9]$ and $C = [1, 20]$. You can verify $\gcd(B_1, B_2) = 3 \neq 1 = \gcd(C_1, C_2)$.

In the second test case, it is impossible to find a solution. For example, suppose you distributed the first 3 elements to array B and then the last element to array C . You have $B = [5, 5, 5]$ and $C = [5]$, but $\gcd(B_1, B_2, B_3) = 5 = \gcd(C_1)$. Hence it is invalid.

Codeforces Round 1023 (Div. 2)

Contest is running

02:06:12

Contestant



→ Submit?

Language: GNU G++23 14.2 (64 bit, ms) ▼

Choose file: No file chosen

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.

→ Last submissions

Submission	Time	Verdict
318459026	May/05/2025 17:40	Pretests passed

→ Score table

	Score
Problem A	245
Problem B	735
Problem C	1470
Problem D	1960
Problem E	2695
Problem F1	2205
Problem F2	2450
Successful hack	100
Unsuccessful hack	-50
Unsuccessful submission	-50
Resubmission	-50

* If you solve problem on 00:05 from the first attempt

