No More Threes

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

You are given an array a of length n.

Find **any** array b of length n which satisfies all of the following conditions:

- $[b_1, b_2, \ldots, b_n]$ is a permutation[1] of $[a_1, a_2, \ldots, a_n]$;

- b_1 is not divisibile by 3;

- $b_1 + b_2$ is not divisibile by 3;

- $b_1 + b_2 + b_3$ is not divisibile by 3;

- $\ldots$

- $b_1 + b_2 + b_3 + \ldots + b_n$ is not divisibile by 3;

If no such array exists, print `-1` instead.

[1]An array $[b_1, b_2, \ldots, b_n]$ is a permutation of another array $[a_1, a_2, \ldots, a_n]$ if b contains the same elements as a, but potentially in another order. For example, $[1, 2, 3, 3]$ is a permutation of $[3, 2, 3, 1]$, but $[3, 2, 3, 1]$ is not a permutation of $[2, 2, 3, 1]$.

Input

Each test contains multiple test cases. The first line of input contains a single integer t ($1 \leq t \leq 10^4$) — the number of test cases. The next lines contain the descriptions of the test cases.

The first line of each test case contains a single integer n ($1 \leq n \leq 10^5$) — the length of array a.

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

It is guaranteed that the sum of n across all test cases does not exceed $5 \cdot 10^5$.

Output

For each test case, print **any** array $[b_1, b_2, \ldots, b_n]$ which satisfies all of the conditions from the statement.

If no such arrays exist, print `-1` instead.

Example

standard input	standard output
7	1
1	-1
1	-1
4	4 7 8 7 8 9
2 2 2 2	8 2 4 5 7 3 6
5	10 1 8 7 2 7 9 6
1 2 3 1 2	11 11 4 5 4 8 6 9 3
6	
8 7 8 9 7 4	
7	
2 3 4 5 6 7 8	
8	
8 1 2 7 7 9 6 10	
9	
6 11 4 5 8 9 11 3 4	