Are you a bot?

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	1024 megabytes

"What does the heartbeat of a bot, arranged into a graph, look like?"

You have a competitive programming bot, whose heart beats n times per minute. The intensity of the i-th heartbeat is a_i. Here, $a_1 \sim a_n$ is a permutation of $1 \sim n$.

Let A_i be the sequence obtained by deleting the i-th element from the sequence a, i.e., $A_i = [a_1, \cdots, a_{i-1}, a_{i+1}, \cdots, a_n]$.

For a sequence p of distinct elements, let $G(p)$ be an undirected graph with $|p|$ vertices, numbered $1 \sim |p|$. For every pair of positive integers $1 \le i < j \le |p|$, if $\forall k \in [i, j] \cap \mathbb{Z}$, we have $p_k \in [\min(p_i, p_j), \max(p_i, p_j)]$, then in $G(p)$, there is an edge between vertices i and j. Let $F(p)$ be the shortest path length from vertex 1 to vertex $|p|$ in $G(p)$, where a path length is defined as its number of edges.

Let $f(a) = [F(A_1), F(A_2), \ldots, F(A_n)]$.

Given a sequence of length n as $[b_1, \cdots, b_n]$, your task is to find any permutation a of $1 \sim n$ such that $f(a) = b$.

It is guaranteed that at least one solution exists.

Input

There are multiple test cases in a single test file.

The first line of the input contains a single integer T ($1 \le T \le 40\,000$), indicating the number of the test cases.

For each of the test case:

- The first line contains a single integer n ($4 \le n \le 10^5$).
- The next line contains n integers $b_1, b_2, \cdots, b_n$.
- It is guaranteed that at least one solution exists.

It is guaranteed that the sum of n over all test cases does not exceed 5×10^5.

Output

For each test case, output a single line contains n integers $a_1, a_2, \cdots, a_n$, indicating the permutation you found.

If there are multiple solutions, you may print any of them.

Example

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