Problem Statement for **DHOOM**

Problem Statement :

There is a famous gang of theives called the DHOOM BOYS. They are known for the tricks and action they involve in their thefts.

The national police has tried hard to catch these theives but they are unsuccessful. A police officer named Jai has got some details regarding their thefts which can help them to catch the thieves. The details are as follows:

For the last N thefts DHOOM BOYS have made at N places, each theft is of the amount 1 to N (in some unit) and no two thefts are of the same amount. For example, for the last three thefts, one should have been of 1 unit money, one should of 2 units of money and one should of 3 units of money. The thefts take place in a particular order starting from place 1, then place 2 and so on to place N. Also, the thefts are made in an order such that there are never three consecutive thefts of decreasing theft amount i.e. thefts in an order of 3 units, 2 units and 1 unit never take place. Jai also knows the BOYS leave an important clue to identify them in the place where the lowest amount theft has been held. So, Jai has to identify this place.

But there is a problem. If Jai identifies this place after visiting to all other N-1 places, the clue is of no importance (the clue is an electronic circuit which gets to know how many places had the police been and if that equals N-1, the clue damages itself. This shows the shrewdness of the DHOOM BOYS).

Now, Jai starts with a particular place and if that place turns to have had the theft of amount 1 unit, Jai is able to decipher the clue. Otherwise, Jai uses all that he knows about the ordering of the theft amounts and visits another place.

At the end, it was found that Jai was unable to decipher the clue. Given the order in which Jai visited the places, find the order in which thefts would have taken place. If there are multiple possibilities, choose the lexicographically greatest one.
An order A is lexicographically greater than an order B if and only if, at the first index at which they differ, the theft in A has a value greater than the value in B.

Example: N = 3, and Jai tried the thefts in order 2, 1, 3 (i.e. Jai first visted place 2, then place 1 and then place 3). The amount of the thefts must have been: 2, 3, 1 i.e theft at place 1 would be of 2 units, at place 2 would be of 3 units and at place 3 would be of 1 unit.

Explanation: If theft #2 had value 1, then Jai would have succeeded immediately. If theft #2 had value 2, then Jai would have known the first place must have been the 1, because the ordering (3, 2, 1) is a decreasing subsequence of length 3, and thus could not have been the ordering. In either case, Jai would not have needed 3 visits. Therefore, we can deduce place #2 have had value 3. Similarly, place #1 could not have had value 1, or Jai could have succeeded early. Therefore, the theft values must have been 2, 3, 1.

Input:

The first line of the input gives the number of test cases, T. T test cases follow. Each test case begins with a line containing one integer N, the number of places. The next line will contain N integers separated by single spaces, describing the order in which Jai examined the places: the first integer denotes the place of the first theft he examined, the second integer denotes the place of the second theft he examined, and so on.

Output:

For each test case, output one line containing the sequence of thefts' values, separated by single spaces.

Constraints:
1 <= T <= 10
1 <= N <= 8
Compilation time: 10 seconds,
Execution time: 5 seconds.
Memory usage: 256 MB.

Examples:

Input:
3
3
2 1 3
1
1
3
3 2 1

Output:
2 3 1
1
1 3 2