Problem D. Dividing Sequence

Alice got a sequence A constructed by her neighbors. Since Alice doesn't like long sequences, she decides to divide the sequence into two (possibly empty) sequences B and C and give them back to her neighbors. Her division should meet the following constraints:

- B and C are both subsequences of sequence A.
- Each element of A belongs to exactly one of the sequences B or C.
- $B \leq C$ in lexicographical order.

Here we define a sequence $P = p_1, p_2, \cdots, p_u$ of length u to be lexicographically smaller than a sequence $Q = q_1, q_2, \cdots, q_v$ of length v if one of the following constraints is true:

- $u < v$ and P is a prefix of Q.
- There exists an integer $1 \leq k \leq \min(u, v)$ such that $p_i = q_i$ for all $1 \leq i < k$ and $p_k < q_k$.

As a fair girl, Alice hopes to divide fairly such that the lexicographical order of C is as small as possible. Please tell Alice the minimum possible C.

Input

There are multiple test cases. The first line of the input contains an integer T ($1 \leq T \leq 10^4$) indicating the number of test cases. For each test case:

The first line contains an integer n ($1 \leq n \leq 5 \times 10^3$) indicating the length of the sequence A.

The second line contains n integers $a_1, a_2, \cdots, a_n$ ($1 \leq a_i \leq 10^5$), where a_i is the i-th element of sequence A.

It is guaranteed that the sum of n of all test cases does not exceed 10^4.

Output

For each test case output two lines. First output one line containing one integer m indicating the length of the optimal C. Then output a second line containing m integers $c_1, c_2, \cdots, c_m$ separated by a space, where c_i is the i-th element of the optimal C.

Example

standard input	standard output
5 5 3 1 2 3 2 3 1 1 2 3 3 3 3 5 1 3 1 3 1 5 2 2 1 3 3	1 3 3 1 1 2 2 3 3 3 1 3 1 4 2 1 3 3