Problem K - Increasing Subsequences

Given a permutation of 1 to n, what is the length of the longest increasing subsequence? This problem is quite easy nowadays.

Given a permutation π of 1 to n, if you are allowed to pick k disjoint increasing subsequences, what is the maximum number of numbers you can pick? Suppose the permutation π can be separated into at least L disjoint increasing subsequences, please answer the previous question for every $k = 1, 2, \cdots, L$.

Note

It is easy to show that L will be equal to the length of the longest decreasing subsequence of π.

Input

The first line contains an integer T ($1 \leq T \leq 100$), indicating the number of test cases.

For each test case, first line contains an integer n ($1 \leq n \leq 30000$). Then the following n integers $\pi_1, \pi_2, \cdots, \pi_n$ denote a permutation of 1 to n.

Output

For each test case, output L lines, where L is described in the description. For each $k = 1, 2, \cdots, L$ output the desired answer in a line.

Sample Input

```
2
6
2 6 5 3 1 4
6
4 3 5 1 6 2
```

Sample Output

```
3
4
5
6
```

```
3
5
6
```