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SUBMIT CODE MY SUBMISSIONS STATUS HACKS ROOM STANDINGS **CUSTOM INVOCATION PROBLEMS** 

### B. Dreamoon Likes Permutations

time limit per test: 2 seconds memory limit per test: 256 megabytes

The sequence of m integers is called the *permutation* if it contains all integers from 1 to m exactly once. The number m is called the length of the permutation.

Dreamoon has two permutations  $p_1$  and  $p_2$  of non-zero lengths  $l_1$  and  $l_2$ .

Now Dreamoon concatenates these two permutations into another sequence a of length  $l_1+l_2$ . First  $l_1$  elements of a is the permutation  $p_1$  and next  $l_2$  elements of a is the permutation  $p_2$  .

You are given the sequence a, and you need to find two permutations  $p_1$  and  $p_2$ . If there are several possible ways to restore them, you should find all of them. (Note that it is also possible that there will be no ways.)

#### Input

The first line contains an integer t ( $1 \le t \le 10\,000$ ) denoting the number of test cases in the input.

Each test case contains two lines. The first line contains one integer n ( $2 \le n \le 200\,000$ ): the length of a. The second line contains n integers  $a_1, a_2, \ldots, a_n$   $(1 \le a_i \le n-1)$ .

The total sum of n is less than  $200\,000$ .

#### Output

For each test case, the first line of output should contain one integer k: the number of ways to divide a into permutations  $p_1$  and  $p_2$  .

Each of the next k lines should contain two integers  $l_1$  and  $l_2$  ( $1 \le l_1, l_2 \le n, l_1 + l_2 = n$ ), denoting, that it is possible to divide a into two permutations of length  $l_1$  and  $l_2$  ( $p_1$  is the first  $l_1$  elements of a, and  $p_2$  is the last  $l_2$ elements of a). You can print solutions in any order.

#### Example

```
input
                                                                                                    Сору
1 4 3 2 1
2 4 1 3 2 1
2 1 1 3
1 3 3 1
12
2 1 3 4 5 6 7 8 9 1 10 2
1 1 1
output
                                                                                                    Copy
1 4
4 1
4 2
0
0
2 10
0
```

# Note

In the first example, two possible ways to divide a into permutations are  $\{1\} + \{4, 3, 2, 1\}$  and  $\{1,4,3,2\}+\{1\}.$ 

In the second example, the only way to divide a into permutations is  $\{2,4,1,3\}+\{2,1\}$ .

In the third example, there are no possible ways.

#### Codeforces Round 631 (Div. 2) -**Thanks, Denis aramis Shitov!**

## **Finished**

## **Practice**



### → Virtual participation

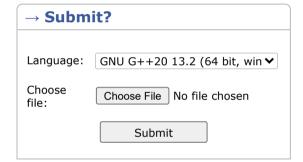
Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

#### → Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest



ightarrow Last submissions		
Submission	Time	Verdict
281379473	Sep/15/2024 18:55	Accepted
281301578	Sep/15/2024 07:07	Accepted
281301429	Sep/15/2024 07:05	Accepted
281300586	Sep/15/2024 06:52	Wrong answer on test 2
281300521	Sep/15/2024 06:50	Wrong answer on test 2



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## **Contest materials**

- Announcement (en)
- Tutorial (en)