B. Informatics in MAC

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

In the Master's Assistance Center, Nyam-Nyam was given a homework assignment in informatics.

There is an array a of length n, and you want to divide it into $k > 1$ subsegments[†] in such a way that the MEX[‡] on each subsegment is equal to the same integer.

Help Nyam-Nyam find any suitable division, or determine that it does not exist.

[†] A division of an array into k subsegments is defined as k pairs of integers $(l_1, r_1), (l_2, r_2), \ldots, (l_k, r_k)$ such that $l_i \le r_i$ and for each $1 \le j \le k-1$, $l_{j+1} = r_j + 1$, and also $l_1 = 1$ and $r_k = n$. These pairs represent the subsegments themselves.

[‡] MEX of an array is the smallest non-negative integer that does not belong to the array.

For example:

- MEX of the array $[2, 2, 1]$ is 0, because 0 does not belong to the array.
- MEX of the array $[3, 1, 0, 1]$ is 2, because 0 and 1 belong to the array, but 2 does not.
- MEX of the array $[0, 3, 1, 2]$ is 4, because 0, 1, 2, and 3 belong to the array, but 4 does not.

Input

Each test consists of multiple test cases. The first line contains a single integer t ($1 \le t \le 10^4$) — the number of test cases. The description of the test cases follows.

The first line of each test case contains a single integer n ($2 \le n \le 10^5$) — the length of the array a.

The second line of each test case contains n integers $a_1, a_2, \ldots, a_n$ ($0 \le a_i < n$) — the elements of the array a.

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

Output

For each test case, output a single integer -1 if a suitable division does not exist.

Otherwise, on the first line, output an integer k ($2 \le k \le n$) — the number of subsegments in the division.

Then output k lines — the division into subsegments. The i-th line should contain two integers l_i and r_i ($1 \le l_i \le r_i \le n$) — the boundaries of the i-th subsegment.

The following conditions must be satisfied:

- For all $1 \le j \le k-1$, $l_{j+1} = r_j + 1$;
- $l_1 = 1$, $r_k = n$.

If there are multiple possible solutions, output any of them.

Example

input Copy

```
5
2
0 0
5
0 1 2 3 4
8
```

```
0 1 7 1 0 1 0 3
3
2 2 2
4
0 1 2 0
```

output Copy

```
2
1 1
2 2
-1
3
1 3
4 5
6 8
3
1 1
2 2
3 3
-1
```

Note

In the first test case, the array a can be divided into 2 subsegments with boundaries $[1, 1]$ and $[2, 2]$:

- MEX of the first subsegment $[0]$ is 1, as 0 belongs to the subsegment, but 1 does not.
- MEX of the second subsegment $[0]$ is 1, as 0 belongs to the subsegment, but 1 does not.

In the second test case, it can be proven that the required division does not exist.

In the third test case, the array a can be divided into 3 subsegments with boundaries $[1, 3]$, $[4, 5]$, $[6, 8]$:

- MEX of the first subsegment $[0, 1, 7]$ is 2, as 0 and 1 belong to the subsegment, but 2 does not.
- MEX of the second subsegment $[1, 0]$ is 2, as 0 and 1 belong to the subsegment, but 2 does not.
- MEX of the third subsegment $[1, 0, 3]$ is 2, as 0 and 1 belong to the subsegment, but 2 does not.