You are given a permutation $A = (A_1,\dots,A_N)$ of $(1,2,\dots,N)$.
Transform A into $(1,2,\dots,N)$ by performing the following operation between 0 and $N-1$ times, inclusive:

- Operation: Choose any pair of integers (i, j) such that $1 \leq i < j \leq N$. Swap the elements at the i-th and j-th positions of A.

It can be proved that under the given constraints, it is always possible to transform A into $(1, 2, \dots, N)$.

Constraints

- $2 \leq N \leq 2\times100000$
- $(A_1,\dots, A_N)$ is a permutation of $(1,2,\dots,N)$.
- All input values are integers.

Input

The input is given from Standard Input in the following format:

```
N

A1  ......  AN
```

Output

Let K be the number of operations. Print $K+1$ lines.
The first line should contain K.
The $(l+1)$-th line ($1 \leq l \leq K$) should contain the integers i and j chosen for the l-th operation, separated by a space.
Any output that satisfies the conditions in the problem statement will be considered correct.

Sample 1:

Input	Output
5	2
3 4 1 2 5	1 3
	2 4

The operations change the sequence as follows:

- Initially, $A=(3,4,1,2,5)$.
- The first operation swaps the first and third elements, making $A=(1,4,3,2,5)$.
- The second operation swaps the second and fourth elements, making $A=(1,2,3,4,5)$.

Sample 2:

Input	Output
4	0
1 2 3 4	