# C. Crazy Diamond

time limit per test: 3 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are given a permutation $p$ of integers from $1$ to $n$, where $n$ is an even number.

Your goal is to sort the permutation. To do so, you can perform zero or more operations of the following type:

- take two indices $i$ and $j$ such that $2 \cdot |i - j| \geq n$ and swap $p_i$ and $p_j$.

There is **no need to minimize** the number of operations, however you should use no more than $5 \cdot n$ operations. One can show that it is always possible to do that.

## Input

The first line contains a single integer $n$ ($2 \leq n \leq 3 \cdot 10^5$, $n$ is even) — the length of the permutation.

The second line contains $n$ distinct integers $p_1, p_2, \ldots, p_n$ ($1 \leq p_i \leq n$) — the given permutation.

## Output

On the first line print $m$ ($0 \leq m \leq 5 \cdot n$) — the number of swaps to perform.

Each of the following $m$ lines should contain integers $a_i, b_i$ ($1 \leq a_i, b_i \leq n$, $|a_i - b_i| \geq \frac{n}{2}$) — the indices that should be swapped in the corresponding swap.

Note that there is no need to minimize the number of operations. We can show that an answer always exists.

## Examples

**input** Copy

```
2
2 1
```

**output** Copy

```
1
1 2
```

**input** Copy

```
4
3 4 1 2
```

**output** Copy

```
4
1 4
1 4
1 3
2 4
```

**input** Copy

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

**output** Copy

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

## Note

In the first example, when one swap elements on positions $1$ and $2$, the array becomes sorted.

In the second example, pay attention that there is no need to minimize number of swaps.

In the third example, after swapping elements on positions $1$ and $5$ the array becomes: $[4, 5, 3, 1, 2, 6]$. After swapping elements on positions $2$ and $5$ the array becomes $[4, 2, 3, 1, 5, 6]$ and finally after swapping elements on positions $1$ and $4$ the array becomes sorted: $[1, 2, 3, 4, 5, 6]$.

→ Contest materials

- Announcement #1 (en)
- Announcement #2 (ru)