You are given an unordered array consisting of consecutive integers ∈ [1, 2, 3, ..., n] without any duplicates. You are allowed to swap any two elements. Find the minimum number of swaps required to sort the array in ascending order.

Example

$arr = [7, 1, 3, 2, 4, 5, 6]$

Perform the following steps:

i	arr	swap (indices)
0	[7, 1, 3, 2, 4, 5, 6]	swap (0,3)
1	[2, 1, 3, 7, 4, 5, 6]	swap (0,1)
2	[1, 2, 3, 7, 4, 5, 6]	swap (3,4)
3	[1, 2, 3, 4, 7, 5, 6]	swap (4,5)
4	[1, 2, 3, 4, 5, 7, 6]	swap (5,6)
5	[1, 2, 3, 4, 5, 6, 7]	

It took 5 swaps to sort the array.

Function Description

Complete the function minimumSwaps in the editor below.

minimumSwaps has the following parameter(s):

- int arr[n]: an unordered array of integers

Returns

- int: the minimum number of swaps to sort the array

Input Format

The first line contains an integer, n, the size of arr.

The second line contains n space-separated integers $arr[i]$.

Constraints

- $1 \leq n \leq 10^5$
- $1 \leq arr[i] \leq n$

Sample Input 0

```
4
4 3 1 2
```

Sample Output 0

```
3
```

Explanation 0

Given array $arr : [4, 3, 1, 2]$

After swapping $(0, 2)$ we get $arr : [1, 3, 4, 2]$

After swapping $(1, 2)$ we get $arr : [1, 4, 3, 2]$

After swapping $(1, 3)$ we get $arr : [1, 2, 3, 4]$

So, we need a minimum of 3 swaps to sort the array in ascending order.

Sample Input 1

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

Sample Output 1

```
3
```

Explanation 1

Given array $arr : [2, 3, 4, 1, 5]$

After swapping $(2, 3)$ we get $arr : [2, 3, 1, 4, 5]$

After swapping $(0, 1)$ we get $arr : [3, 2, 1, 4, 5]$

After swapping $(0, 2)$ we get $arr : [1, 2, 3, 4, 5]$

So, we need a minimum of 3 swaps to sort the array in ascending order.

Sample Input 2

```
7
1 3 5 2 4 6 7
```

Sample Output 2

```
3
```

Explanation 2

Given array $arr : [1, 3, 5, 2, 4, 6, 7]$

After swapping $(1, 3)$ we get $arr : [1, 2, 5, 3, 4, 6, 7]$

After swapping $(2, 3)$ we get $arr : [1, 2, 3, 5, 4, 6, 7]$

After swapping $(3, 4)$ we get $arr : [1, 2, 3, 4, 5, 6, 7]$

So, we need a minimum of 3 swaps to sort the array in ascending order.