Day 9: Morty has an exam

locked

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Morty again has an exam coming up and Rick wants to make sure he doesn't forget things The problem goes like this - Rick gives Morty a permutation m_i of numbers from 1 to 2*n and asks Morty to find the minimal number of operations required to sort the given permutation. Morty is only allowed to perform two types of operations: - Swap m_1 and m_2, m_3 and m_4, ..., m_{2n−1} and m_{2n}, and, - Swap m_1 and m_{n+1}, m_2 and m_{n+2}, ..., m_n and m_{2n}.

Morty is super confused and is asking you for help.

Input Format

The first line contains the integer n (1 ≤ n ≤ 1000). The second line contains 2*n integers m_i (the permutation of numbers from 1 to 2*n)

Constraints

- (1 ≤ n ≤ 1000)

Output Format

Print the minimal number of operations required to sort the permutation. If it is impossible to sort the permutation using these operations, print −1.

Sample Input 0

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

Sample Output 0

```
3
```

Explanation 0

In the first example, you can sort the permutation in three types of operations: input1: 3,6,5,2,1,4. input2: 2,1,4,3,6,5. input3: 1,2,3,4,5,6.

Submissions: 20
Max Score: 80
Difficulty: Hard

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Current Buffer (saved locally, editable) Python 3

```
1
```