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# Day 9: Morty has an exam



Problem Submissions Leaderboard Discussions

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 ( $1 \le n \le 1000$ ). The second line contains 2\*n integers m\_i (the permutation of numbers from 1 to 2\*n)

#### Constraints

•  $(1 \le n \le 1000)$ 

### **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

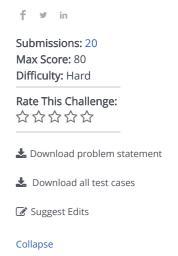
3 6 3 2 5 4 1

## 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.



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