# Warm Up

Problem Code: WARMUP

Tue, Oct 7 - Thu, Oct 9

* Note that time for this problem is 3 days instead of one week.

Task Description

You have n cards on your desk, arranged in a row from left to right. Each card has a distinct positive integer written on it. You look from left to right and read the numbers. The numbers you read may not be in increasing order.

So you wonder, if you swap two adjacent cards at a time, what is the minimum number of swaps you need so that you can read the numbers in increasing order?
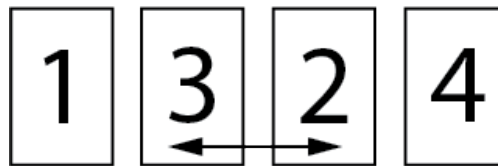
See the above illustration as an example. You are given 4 cards as [1, 3, 2, 4] from left to right. You may swap the cards numbered 2 and 3 (as they are adjacent) and obtain [1, 2, 3, 4]. After the swap you can read the numbers in increasing order from left to right. So the minimum number of swaps you need is 1.

Examples

Case 1: [1, 3, 2, 4]

Answer: 1

Swap 2 and 3.

Case 2: [3, 2, 1]

Answer: 3

Swap 1 with 2, then 1 with 3, and finally 2 with 3.

Case 3: $[1, 7, 2, 9, 3, 4, 5]$

Answer: 7

Requirements

Time: $O(n^2)$ **Space:** $O(n)$