# The Moss Trouble

## Assignment 2

Data Structures & Algorithms Due date: xx February, 2020

**Problem Statement:** Molly's class has N students with each student having a grace score of A[i]. Seeing the moss results of the previous assignment Molly decided to reduce the grace score of some students. The new grace scores for all students are given as the array B where B[i] denotes the new grace score and  $B[i] \leq A[i]$  for all  $1 \leq i \leq N$ . However Molly can reduce the scores by performing the following operation multiple times. In each operation :

- Choose two indices L and  $R(1 \le L \le R \le N)$  and a new score S such that  $S \le A[i]$  for  $L \le i \le R$ .
- Reduce the score of all students from L through R to score S. i.e. A[i] becomes equal to S for  $L \leq i \leq R$ .

Since Molly is a busy person she wants to do the above task in minimum number of operations.

## Input

- The first line consists of a single integer N denoting the number of students.
- The second line contains N space-separated integers  $A_1, A_2, \dots, A_N$  denoting initial grace scores of students.
- The third line contains N space-separated integers  $B_1, B_2, \dots, B_N$  denoting final grace scores of students.

#### Output

Print 1 integer - the minimum number of operations needed to obtain the desired scores.

#### Constraints

 $1 \le N \le 10^5$   $1 \le A_i \le 10^9$  **Time Limit**: 2 secs **Memory Limit**: 256 MB

# Sample Test Case

Input	Output
3	2
313	
212	
7	3
$1\ 3\ 4\ 5\ 1\ 2\ 3$	
$1\ 2\ 1\ 2\ 1\ 1\ 1$	