ALCoding Challenge - Summer 2019

Jul 12, 2019, 11:30 AM EDT - Jul 12, 2019, 02:30 PM EDT

Book Cricket

Max. Marks: 50

This problem is no longer available for practice. Apology for any inconvenience!

Pruthvish and ALguru are best friends and huge fans of cricket. They watch every World Cup match but because of heavy rain, the match was abandoned. Out of boredom, ALguru challenged Pruthvish to a game of Book Cricket.

There are **N** pages in the book, where every page has two numbers written on it, one on the front and one on the back of the page. The numbers are between 1 and N (both inclusive). Every number is written on the front of exactly one page, and on the back of exactly one page as well.

ALguru challenges Pruthvish to re-arrange the pages to form the longest common adjacent sub-sequence. This sub-sequence is formed by the numbers written on the front of the page and formed by the numbers written on the back of the page.

Pruthvish can't modify the numbers written on any page and can't flip the page, ie. for any page, the number written on the front remains at the front and the number written on the back stays at the back. They cannot be interchanged. Find out the maximum possible length of the common sub-sequence.

Input:-

The first line of input contains an integer T denoting the number of test cases.

The first line of each test case contains an integer N.
The next line contains N space separated integers f1, f2, ... , fN, where fi ($1 \le i \le N$) is the number written on the front of the i-th page.
The next line contains N space separated integers b1, b2, ... , bN, where bi ($1 \le i \le N$) is the number written at the back of the i-th page.

Output:-

For each test case, output a single line containing an integer, the maximum length of the longest common adjacent sub-sequence.

Constraints:-

1 ≤ T ≤ 100
1 ≤ N ≤ 2000
1 ≤ fi, bi ≤ N
All the elements in both arrays f and b are distinct.

Note:-

Let **L** be the answer. Let t_i be the value written on the top of the page at i^{th} position and D_i be the value written on the back of the page at i^{th} position after rearranging. Then, there should be a pair **(p, q)** (**1 ≤ p,q ≤ N-L+1**) such that the condition $t_{p+j} = D_{q+j}$ is satisfied for all **j**, where **0 ≤ j < L**.

SAMPLE INPUT

```
2
3
1 3 2
2 1 3
8
3 8 4 2 6 1 5 7
5 2 4 3 8 7 6 1
```

SAMPLE OUTPUT

```
2
4
```

Explanation

Case_1:-

One of the possible page arrangements is:
1 2 3
2 3 1

Length of the longest common adjacent subsequence between [1, 2, 3] and [2, 3, 1] is 2, ie. [2, 3]. And that's the maximum possible, so answer is 2.

Case_2:-

One of the possible page arrangements is :

7 3 2 8 6 5 4 1

1 5 3 2 8 6 4 7

The longest common adjacent subsequence has length 4, ie [3, 2, 8, 6] here. There is no way to arrang these pages such that it's more than 4.

Time Limit:	0.5 sec(s) for each input file.
Memory Limit:	256 MB
Source Limit:	1024 KB
Marking Scheme:	Marks are awarded if any testcase passes.
Allowed Languages:	C, C++, C++14, Java, Python, Python 3

CODE EDITOR

Enter your code or Upload your code as file. Save C (gcc 5.4.0)

```c
/*
// Sample code to perform I/O:
#include <stdio.h>

int main(){
    int num;
    scanf("%d", &num);                          // Reading input from STDIN
    printf("Input number is %d.\n", num);       // Writing output to STDOUT
}

// Warning: Printing unwanted or ill-formatted data to output will cause the test cases t
*/

// Write your code here

```

1:1

Press Ctrl/Command+Spacebar for autocomplete suggestions (accuracy dependent on connection stability).

Provide custom input

COMPILE & TEST SUBMIT

Your Rating:

View all comments