

## Problem C. Longest Common Subsequence

### Problem Description

Given two **permutations**  $a$  and  $b$  of  $1, 2, \dots, n$ , please find **any** subsequence  $a' \subseteq a$  and  $b' \subseteq b$  such that

1.  $|a'| = |b'| = m$ ,
2.  $a'_i \neq b'_i$  for  $i = 1, 2, \dots, m$ ,
3.  $m$  is maximized, i.e., there does not exist any answer with length  $m + 1$ .

There are  $t$  test cases.

### Input Format

- line 1:  $t$

$t$  blocks:

- line 1:  $n$
- line 2:  $a_1 \ a_2 \ \dots \ a_n$
- line 3:  $b_1 \ b_2 \ \dots \ b_n$

### Output Format

$t$  blocks:

- line 1:  $m$
- line 2:  $a'_1 \ a'_1 \ \dots \ a'_m$
- line 3:  $b'_1 \ b'_2 \ \dots \ b'_m$

### Constraints

- $1 \leq t \leq 10$ .
- $2 \leq n \leq 1\,000\,000$ .
  - Sum of  $n$  across all test cases  $\leq 1\,000\,000$ .
- $a_1, a_2, \dots, a_n$  is a permutation of  $1, 2, \dots, n$ .
- $b_1, b_2, \dots, b_n$  is a permutation of  $1, 2, \dots, n$ .
- All inputs values are integers.

## Subtasks

1. (20 points)  $n \leq 16$ .
  2. (60 points)  $n \leq 1000$ .
  3. (10 points)  $n \leq 40\,000$ .
  4. (10 points) No additional constraints.
- If you answered the optimal length  $m$  correctly, you can get 50% of a subtask's score;
  - furthermore, if your construction is correct, you can get the other 50% of the score.
  - Note: The second and third line should not be left blank. You can simply print  $m$  1s in both line if you are not able to construct the answer.

No.	Testdata Range	Time Limit (ms)	Memory Limit (KiB)
Samples	1	1500	262144
1	1-7	1500	262144
2	1-12	1500	262144
3	1-18	1500	262144
4	1-32	1500	262144

## Samples

### Sample Input 1

```
3
5
3 5 4 1 2
3 4 5 1 2
9
3 1 4 5 9 2 6 8 7
2 7 1 8 4 5 9 3 6
2
1 2
1 2
```

This sample input satisfies the constraints of all the subtasks.

### Sample Output 1

```
3
3 4 1
5 1 2
9
3 1 4 5 9 2 6 8 7
2 7 1 8 4 5 9 3 6
1
1
2
```

In the first test case,  $a' = [3, 4, 1]$  is a subsequence of  $a = [3, 5, 4, 1, 2]$ , and  $b' = [5, 1, 2]$  is a subsequence of  $b = [3, 4, 5, 1, 2]$ . The length of  $a'$  and  $b'$  is 3, which is the maximum possible length.

Choosing  $a' = [1, 2, 3, 4]$  and  $b' = [2, 3, 4, 5]$  is not a valid answer, since  $a'$  and  $b'$  are not subsequences of  $a$  and  $b$ , respectively.

Choosing  $a' = [3, 5, 1]$  and  $b' = [4, 5, 2]$  is also not a valid answer, since  $a'_2 = b'_2$ .