

## 4 Longest Common Subsequence of Two Sequences

### Problem Introduction

Compute the length of a longest common subsequence of three sequences.

### Problem Description

**Task.** Given two sequences  $A = (a_1, a_2, \dots, a_n)$  and  $B = (b_1, b_2, \dots, b_m)$ , find the length of their longest common subsequence, i.e., the largest non-negative integer  $p$  such that there exist indices  $1 \leq i_1 < i_2 < \dots < i_p \leq n$  and  $1 \leq j_1 < j_2 < \dots < j_p \leq m$ , such that  $a_{i_1} = b_{j_1}, \dots, a_{i_p} = b_{j_p}$ .

**Input Format.** First line:  $n$ . Second line:  $a_1, a_2, \dots, a_n$ . Third line:  $m$ . Fourth line:  $b_1, b_2, \dots, b_m$ .

**Constraints.**  $1 \leq n, m \leq 100$ ;  $-10^9 < a_i, b_i < 10^9$ .

**Output Format.** Output  $p$ .

#### Sample 1.

Input:

```
3
2 7 5
2
2 5
```

Output:

```
2
```

A common subsequence of length 2 is (2, 5).

#### Sample 2.

Input:

```
1
7
4
1 2 3 4
```

Output:

```
0
```

The two sequences do not share elements.

#### Sample 3.

Input:

```
4
2 7 8 3
4
5 2 8 7
```

Output:

```
2
```

One common subsequence is (2, 7). Another one is (2, 8).

### Need Help?

Ask a question or see the questions asked by other learners at [this forum thread](#).