

The Longest Common Subsequence

Problem Statement

A subsequence is a sequence that can be derived from another sequence by deleting some elements without changing the order of the remaining elements. Longest common subsequence (*LCS*) of 2 sequences is a subsequence, with maximal length, which is common to both the sequences.

Given two sequence of integers, $A = [a_1, a_2, \dots, a_n]$ and $B = [b_1, b_2, \dots, b_m]$, find **any one** longest common subsequence.

In case multiple solutions exist, print any of them. It is guaranteed that at least one non-empty common subsequence will exist.

Recommended References

This Youtube video tutorial explains the problem and its solution quite well.

Input Format

First line contains two space separated integers, n and m , where n is the size of sequence A , while m is size of sequence B . In next line there are n space separated integers representing sequence A , and in third line there are m space separated integers representing sequence B .

```
n m
A1 A2 ... An
B1 B2 ... Bm
```

Constraints

$$1 \leq n \leq 100$$

$$1 \leq m \leq 100$$

$$0 \leq a_i < 1000, \text{ where } i \in [1, n]$$

$$0 \leq b_j < 1000, \text{ where } j \in [1, m]$$

Output Format

Print the longest common subsequence and each element should be separated by at least one white-space. In case of multiple answers, print any one of them.

Sample Input

```
5 6
1 2 3 4 1
3 4 1 2 1 3
```

Sample Output

```
1 2 3
```

Explanation

There is no common subsequence with length larger than 3. And "1 2 3", "1 2 1", "3 4 1" are all correct answers.

Tested by [Khongor](#)