

Problem 2: quickstack

3+1=4 Points

Problem ID: `quickstack`

Rank: 1+2

Introduction

As a heroic knight, you head into town, heroically taking anything and everything from the townsfolk for the greater good. Questions from the townsfolk started to pile up on you.

Why did you take all my food? Why did you take all my gold? Why did you take my baby?

It didn't matter, because you would heroically put all this equipment into good use. At the end of the day, you find yourself bogged down by all the things you heroically "borrowed". Luckily, you find a nearby chest (which may or may not be yours) and decide it's time to heroically organize all of your new belongings.

Better do it fast because there's an angry mob chasing you down. No pressure.

Problem Statement

Given N items in the player's inventory P_1, P_2, \dots, P_N and M items in a chest C_1, C_2, \dots, C_M , find the result of performing quickstack on the contents of both.

Quickstacking involves:

1. Combining the contents of the player's inventory and the chest, and
2. Arranging the result such that matching items are grouped together.

If there are multiple possible results of carrying out quickstack, you may output any of them.

*Note: This problem—alongside **all other problems in this contest**—has templates available in Python, Java, and C++! You can find them in the [contest.zip provided at the start of the contest](#). Templates parse the input into a neat function to fill out, so you can jump right into problem solving!*

Input Format

The first line of the input contains a positive integer T denoting the number of test cases that follow. For each test case:

- The first line contains two space-separated integers N M , where:
 - N denotes the number of items the player has.
 - M denotes the number of items the chest has.
- The second line contains a sequence of N space-separated characters $P_1 P_2 \dots P_N$ denoting the individual items in the player's inventory.
- The third line contains a sequence of M space-separated characters $C_1 C_2 \dots C_M$ denoting the individual items in the chest.

Output Format

For each test case, output the result of carrying out quickstack with the contents of the player's inventory and the chest. If there are multiple possible results of carrying out quickstack, you may output any.

Constraints

All P_i and C_i are letters from the uppercase alphabet: ABCDEFGHIJKLMNOPQRSTUVWXYZ

Main Test Set

$$1 \leq T \leq 10$$

$$1 \leq N, M \leq 26$$

Bonus Test Set

$$1 \leq T \leq 100$$

$$1 \leq N, M \leq 10^5$$

The sum of N across all test cases in an input file does not exceed 10^5 .

The sum of M across all test cases in an input file does not exceed 10^5 .

Sample Test Cases

Sample Input

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```
5
3 4
A A B
C A B A
5 6
S U S S Y
M O N G U S
3 3
A B C
X Y Z
10 1
O O O O O O O O O O
N
4 11
X Y Z Y
A A B C A C B B A C A
```

Sample Output

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```
C A A A A B B
M O N G U U S S S S Y
X Y Z A B C
N O O O O O O O O O O
A A A A A B B B C C C X Y Y Z
```

Note that this is one of many possible correct outputs. If there are multiple solutions, you may output any of them.

Sample Explanations

Test Case #1:

The player has items `A A B` and the chest has items `C A B A`. Quickstacking all of the player's items and the chest's items causes the `A` items to be grouped together, as well as the `B` items. The single `C` item is also included in the final output due to it being in the chest beforehand. Note that there are multiple valid results from carrying out quickstack; another valid result could be `A A A A B B C`.

Test Case #3:

The player has items `A B C` and the chest has items `X Y Z`. Since the player and the chest share no items in common, there is no explicit "grouping" that needs to be done—rather, we just need to combine the contents of the two. In this case, the contents of the player's inventory and the chest can be ordered however you'd like.