Matching Datasets (125 points)

Introduction

You've worked on a report for weeks and its all ready to submit, when all of a sudden your data is gone! Fortunately, you still have a hard copy of your charts, and you're able to estimate the approximate value of each datapoint.

When you regenerate your data, you know that the exact values of the data points will be close to what you eyeballed, but you don't know what order they'll be in. By finding the closest data elements, you'll be able to be confident in your report and the data as well.

Input Specifications

Your program will take

- The **number of elements K** that are in each dataset.**(0 ≤ K ≤ 100)**
- This will be followed by **K lines** representing the original dataset (which is comprised of points from the chart). Each line will be a comma separated list of values.
- The **final K lines** after that will be the new dataset. Each line will be a comma separated list of values here as well.

Output Specifications

Based on the input, print out K lines where each line consists of two values where

- The first value denotes the element (0,1,2...K-1) in the original dataset.
- The second value, comma separated, will be the index of the closest point in the new dataset.

Note that the output should be **sorted in ascending order** of element indices in the original dataset.

Sample Input/Output

Input

```
3
2,1,3,5
1,2,3,4
3,1,2,3
1,2,3,4
3,1,2,3
2,1,3,5
```

Output

```
0,2
1,0
2,1
```

Explanation

0,2 (row 0 in original dataset (2,1,3,5) matches row 2 in new dataset(2,1,3,5) exactly

1,0 (row 1 in original dataset (1,2,3,4) matches row 0 in new dataset(1,2,3,4) exactly

2,1 (row 2 in original dataset (3,1,2,3) matches row 1 in new dataset(3,1,2,3) exactly

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Input

```
5
288.70,7.62,22,19
770.15,78.71,20,89
977.11,10.75,19,22
900.54,89.79,28,19
256.83,14.76,44,82
256.83,14.66,44,82
900.54,89.77,28,19
770.15,78.71,20,88
288.71,7.62,22,19
977.10,10.74,19,22
```

Output

```
0,3
1,2
2,4
3,1
4,0
```

Explanation

0,3 (288.70,7.62,22,19 and 288.71,7.62,22,19)

1,2 (770.15,78.71,20,89 and 770.15,78.71,20,88)

2,4 (977.11,10.75,19,22 and 977.10,10.74,19,22)

3,1 (900.54,89.79,28,19 and 900.54,89.77,28,19)

4,0 (256.83,14.76,44,82 and 256.83,14.66,44,82)