

Problem 148: Flip Flop

Difficulty: Medium

Author: Richard Green, Whiteley, Hampshire, United Kingdom

Originally Published: Code Quest 2021

Problem Background

Your coworker is... not great at his job. No matter how simple a task he's given, he always manages to make a mistake somehow. When asked to code something in Python, he went to the zoo. When asked to write a program in Java, he brewed coffee. When asked to sort something alphabetically, he sorted it numerically... which in hindsight was something of an achievement, since the list didn't contain any numbers.

Normally you'd simply try your best to avoid him, but whenever your coworker messes something up, it falls to somebody else to fix the problem. Unfortunately, you're so good at your own job that "somebody else" often ends up being you, since you're the only one with time to spare.

Problem Description

Today your confounding coworker was asked to put a bunch of data into a table. Fortunately, he didn't carve the numbers into the conference table this time, but it's still not correct. All of the data is transposed from where it should be. Each row in the table should actually be a column, and vice versa. Since you've already written a program to read in the data in the intended format, it'll all have to be flipped around.

$$\begin{bmatrix} 1 & 5 \\ 2 & 6 \\ 3 & 7 \\ 4 & 8 \end{bmatrix} \rightarrow \begin{bmatrix} 1 & 2 & 3 & 4 \\ 5 & 6 & 7 & 8 \end{bmatrix}$$

As shown above, each table with X rows and Y columns needs to be flipped so it has Y rows and X columns. Every data point's coordinates in the table need to be reversed as well; the '2' in row 2, column 1 needs to be moved so that it's in row 1, column 2.

You've already wasted enough time fixing your coworker's mistakes, and there's a lot of data to fix. Maybe you could write a program to do most of the work for you?

Sample Input

The first line of your program's input, received from the standard input channel, will contain a positive integer representing the number of test cases. Each test case will include:

- A line containing two positive integers, separated by spaces:

From Lockheed Martin Code Quest™ Academy - www.lmcodequestacademy.com

- R, representing the number of rows in your coworker's table
- C, representing the number of columns in your coworker's table
- R lines, each containing up to C table cells with integer values, separated by commas (.). Some cells in the table may be empty.

```
2
5 2
1,11
2,12
3,13
4,14
5,15
4 6
1,2,3,,5,6
11,12,13,14,15,16
21,,23,24,,26
,32,,,35,
```

Sample Output

For each test case, your program must print the transposed (correct) version of your coworker's table. Within each row, separate cells with commas (,) and keep empty cells empty.

```
1,2,3,4,5
11,12,13,14,15
1,11,21,
2,12,,32
3,13,23,
,14,24,
5,15,,35
6,16,26,
```