Chess Tournament

Just a week ago Lea read about the local school chess tournament. A lot of schools participated, but sadly Lea's former school did not win (probably due to her, master of chess, not being on the team anymore).

The tournament is held in the following fashion: Each school sends a team of five players together with an ordering of those players according to their skill. Each team plays one match against each other team. A match consists of five games, one per player, where the best players of each team play each other, the second-best players of each team play each other and so on.

Right now, a team wins a match if it wins more games than it loses (remember that in chess there are draws), but this has always bugged Lea because there are so many ways to cheat. You could send your three best players to play on position three, four and five and get easy wins! So she has thought up a new scoring system: The game between the best players is most important, so if one team wins this game, it wins the match. If this game is a draw, the games between the second-best players is the most important of the remaining games, and so on. Only if all five games are tied, the match is a draw.

Lea has estimated the skill of all players of all schools. For each school, she gives you five numbers, the skill values of the players of that school's team. If two players play each other, the one with higher skill value wins. Equal skill values will result in a draw. You are to determine a ranking of the schools, that is, you should order the schools such that the first school wins all its games, the second one loses only to the first school and so on.

Input

The first line of the input contains an integer t. t test cases follow, each of them separated by a blank line.

Each test case starts with an integer n, the number of schools. n lines follow each containing five integers $a_{i,1}, \ldots, a_{i,5}$, the skill values of the team members of the i-th school.

Output

For each test case, output one line containing "Case #i:" where i is its number, starting at 1. Output n more lines, each containing the five skill values of a school's team members such that (a) the team members' skill values are listed in decreasing order and (b) if a school wins the match against another school, it appears before that other school. Each line of the output should end with a line break.

Constraints

- $1 \leq t \leq 20$
- $2 \leq n \leq 1000$
- $1 \leq a_{i,j} \leq 1000$ for all $1 \leq i \leq n, 1 \leq j \leq 5$

Sample Input 1

```
2
3
1 2 5 4 3
2 5 3 5 8
1 1 1 1 1

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

Sample Output 1

```
Case #1:
8 5 5 3 2
5 4 3 2 1
1 1 1 1 1
Case #2:
8 5 5 3 2
8 5 4 3 2
```