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The Virtual Learning Environment for Computer Programming

Basketball League V18998_en

After many setbacks, the Catalan Basketball Federation has succeeded in organizing the Catalan National Basketball League and has asked the FIB to help them with the management of the season's results data.

Specifically, you must write a **program** such that given an integer $n \geq 2$ and n **different** names of Catalan basketball teams and then an indeterminate number of results in the form of quadruples:

$$team_1 \;\; baskets_1 \;\; team_2 \;\; baskets_2$$

which represent the result of a match, calculate the final classification taking into account that the order is given by:

1. The number of points (match won: 1 point). Note that in basketball there are no ties.
2. In case of a tie on points, the one with the better basketball average (difference between points made and points received) goes first.
3. In case of a tie in both previous cases, who has the team name **larger** in lexicographical order.

To make this program **you** need to use this structure:

```
struct Equip
{
    string nom;
    int punts_favor;
    int punts_contra;
    int guanyats;
};
```

Observation

The number $n \geq 2$ of teams does not necessarily have to be even. Similarly, the matches that will be played do not necessarily have to be all possible (that is, all against all at home and away).

Although it is irrelevant to your program, a match cannot appear more than once, not even with different results.

Only teams that appeared in the initial list of n teams will appear in a match.

You cannot use the `sort` operation from the `stl` library. If you need to sort any vector, you have to program it yourself. And if so, any sorting method you have studied is valid.

Look at the second example: all teams have won the same number of matches and all have the same basketball average. The teams are sorted in reverse lexicographical order in this case.

Input

An integer $n > 1$ and n basketball team names followed by an undetermined number of results in the form of quadruplets:

$$team_1 \; baskets_1 \; team_2 \; baskets_2$$

representing the result of a match.

Output

The final classification in the format indicated in the examples, and with the sorting criteria mentioned in the statement.

Sample input 1

```
4
Joventut
FCBarcelona
Girona
Lleida

Lleida 98 FCBarcelona 88
Lleida 80 Girona 75
Lleida 99 Joventut 56
FCBarcelona 90 Lleida 89
FCBarcelona 110 Girona 90
FCBarcelona 100 Joventut 54
Girona 56 Lleida 68
Girona 67 FCBarcelona 70
Girona 70 Joventut 63
Joventut 93 Lleida 89
Joventut 87 FCBarcelona 79
Joventut 76 Girona 80
```

Sample output 1

```
Lleida PUNTS: 4 PF: 523 PC: 458
FCBarcelona PUNTS: 4 PF: 537 PC: 485
Girona PUNTS: 2 PF: 438 PC: 467
Joventut PUNTS: 2 PF: 429 PC: 517
```

Sample input 2

```
4
Joventut
FCBarcelona
Girona
Lleida

Lleida 80 FCBarcelona 78
Lleida 80 Girona 78
Lleida 80 Joventut 78
FCBarcelona 80 Lleida 78
FCBarcelona 80 Girona 78
FCBarcelona 80 Joventut 78
Girona 80 Lleida 78
Girona 80 FCBarcelona 78
Girona 80 Joventut 78
Joventut 80 Lleida 78
Joventut 80 FCBarcelona 78
Joventut 80 Girona 78
```

Sample output 2

```
Lleida PUNTS: 3 PF: 474 PC: 474
Joventut PUNTS: 3 PF: 474 PC: 474
Girona PUNTS: 3 PF: 474 PC: 474
FCBarcelona PUNTS: 3 PF: 474 PC: 474
```

Sample input 3

```
3
FCBarcelona
Girona
Lleida

Lleida 98 FCBarcelona 88
Lleida 99 Girona 56
FCBarcelona 90 Lleida 89
Girona 67 FCBarcelona 70
```

Sample output 3

```
Lleida PUNTS: 2 PF: 286 PC: 234
FCBarcelona PUNTS: 2 PF: 248 PC: 254
Girona PUNTS: 0 PF: 123 PC: 169
```

Problem information

Author: PRO1

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