Problem 3322: Premier League Table Ranking III

Problem Information

Difficulty: Medium
Acceptance Rate: 0.00%
Paid Only: No

Problem Description

Table:

SeasonStats

+------------------+---------+ | Column Name | Type | +------------------+---------+ | season_id | int | | team_id | int | | team_name | varchar | | matches_played | int | | wins | int | | draws | int | | losses | int | | goals_for | int | | goals_against | int | +------------------+---------+ (season_id, team_id) is the unique key for this table. This table contains season id, team id, team name, matches played, wins, draws, losses, goals scored (goals_for), and goals conceded (goals_against) for each team in each season.

Write a solution to calculate the

points

,

goal difference

, and

position

for

each team

in

each season

. The position ranking should be determined as follows:

Teams are first ranked by their total points (highest to lowest)

If points are tied, teams are then ranked by their goal difference (highest to lowest)

If goal difference is also tied, teams are then ranked alphabetically by team name

Points are calculated as follows:

3

points for a

win

1

point for a

draw

0

points for a

loss

Goal difference is calculated as:

goals_for - goals_against

Return

the result table ordered by

season_id

in

ascending

order, then by

position

in

ascending

order, and finally by

team_name

in

ascending

order.

The query result format is in the following example.

Example:

Input:

SeasonStats

table:

+------------+---------+------------------+----------------+------+-------+--------+-----------+---------------+ | season_id | team_id | team_name | matches_played | wins | draws | losses | goals_for | goals_against |

+------------+---------+------------------+----------------+------+-------+--------+-----------+---------------+ | 2021 | 1 | Manchester City | 38 | 29 | 6 | 3 | 99 | 26 | | 2021 | 2 | Liverpool | 38 | 28 | 8 | 2 | 94 | 26 | | 2021 | 3 | Chelsea | 38 | 21 | 11 | 6 | 76 | 33 | | 2021 | 4 | Tottenham | 38 | 22 | 5 | 11 | 69 | 40 | | 2021 | 5 | Arsenal | 38 | 22 | 3 | 13 | 61 | 48 | | 2022 | 1 | Manchester City | 38 | 28 | 5 | 5 | 94 | 33 | | 2022 | 2 | Arsenal | 38 | 26 | 6 | 6 | 88 | 43 | | 2022 | 3 | Manchester United | 38 | 23 | 6 | 9 | 58 | 43 | | 2022 | 4 | Newcastle | 38 | 19 | 14 | 5 | 68 | 33 | | 2022 | 5 | Liverpool | 38 | 19 | 10 | 9 | 75 | 47 |
+------------+---------+------------------+----------------+------+-------+--------+-----------+---------------+

Output:

+------------+---------+------------------+--------+-----------------+----------+ | season_id | team_id | team_name | points | goal_difference | position |
+------------+---------+------------------+--------+-----------------+----------+ | 2021 | 1 | Manchester City | 93 | 73 | 1 | | 2021 | 2 | Liverpool | 92 | 68 | 2 | | 2021 | 3 | Chelsea | 74 | 43 | 3 | | 2021 | 4 | Tottenham | 71 | 29 | 4 | | 2021 | 5 | Arsenal | 69 | 13 | 5 | | 2022 | 1 | Manchester City | 89 | 61 | 1 | | 2022 | 2 | Arsenal | 84 | 45 | 2 | | 2022 | 3 | Manchester United | 75 | 15 | 3 | | 2022 | 4 | Newcastle | 71 | 35 | 4 | | 2022 | 5 | Liverpool | 67 | 28 | 5 |
+------------+---------+------------------+--------+-----------------+----------+

Explanation:

For the 2021 season:

Manchester City has 93 points (29 * 3 + 6 * 1) and a goal difference of 73 (99 - 26).

Liverpool has 92 points (28 * 3 + 8 * 1) and a goal difference of 68 (94 - 26).

Chelsea has 74 points (21 * 3 + 11 * 1) and a goal difference of 43 (76 - 33).

Tottenham has 71 points (22 * 3 + 5 * 1) and a goal difference of 29 (69 - 40).

Arsenal has 69 points (22 * 3 + 3 * 1) and a goal difference of 13 (61 - 48).

For the 2022 season:

Manchester City has 89 points (28 * 3 + 5 * 1) and a goal difference of 61 (94 - 33).

Arsenal has 84 points (26 * 3 + 6 * 1) and a goal difference of 45 (88 - 43).

Manchester United has 75 points (23 * 3 + 6 * 1) and a goal difference of 15 (58 - 43).

Newcastle has 71 points (19 * 3 + 14 * 1) and a goal difference of 35 (68 - 33).

Liverpool has 67 points (19 * 3 + 10 * 1) and a goal difference of 28 (75 - 47).

The teams are ranked first by points, then by goal difference, and finally by team name.

The output is ordered by season_id ascending, then by rank ascending, and finally by team_name ascending.

Code Snippets

MySQL:

```
# Write your MySQL query statement below
```

MS SQL Server:

```
/* Write your T-SQL query statement below */
```

PostgreSQL:

```
-- Write your PostgreSQL query statement below
```

Oracle:

```
/* Write your PL/SQL query statement below */
```

Pandas:

```
import pandas as pd

def process_team_standings(season_stats: pd.DataFrame) -> pd.DataFrame:
```

Solutions

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