Problem List

Description | Editorial | Solutions | Accepted | Submissions

3322. Premier League Table Ranking III

Solved

Premium

Medium | Topics

SQL Schema | Pandas Schema

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).

Submit

Code

Pandas • Auto

```python
import pandas as pd

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

    season_stats['points'] = 3*season_stats.wins + season_stats.draws
    season_stats['goal_difference'] = season_stats.goals_for - season_stats.goals_against

    # sort to determine ranks
    season_stats = season_stats.sort_values(by=['season_id', 'points', 'goal_difference', 'team_name'],
                                            ascending=[True, False, False, True])

    #  assign ranks
    season_stats['position'] = season_stats.groupby('season_id').cumcount() + 1

    # return the required columns from the dataframe
    return season_stats.iloc[:,[0,1,2,9,10,11]]

```

Saved

Ln 10, Col 65

Testcase | Test Result

Accepted Runtime: 248 ms

Case 1

Input

SeasonStats =

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

- 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.

Seen this question in a real interview before? 1/5

Yes No

Accepted **1,823** /2.6K | Acceptance Rate **70.1** %

Topics

Discussion (2)

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4 2 0 Online

| 2021 | 4 | Tottenham | 38 | 22 | 5 | 11 | 69 | 40 |