

The Cricket Players & Teams Database Management System

MC212 - Database Management System

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Problem Description :

- The Cricket Player and Team Statistics Management System is designed to address the need for a comprehensive and organized way to manage and analyze cricket - related data. The system will store detailed information about players, teams, matches, and individual performances. This will help coaches, analysts, and enthusiasts to access, manage, and interpret cricket data effectively. The main objectives are to :
 1. **Centralize Data Management:** Provide a single platform to store and manage all cricket - related data.
 2. **Facilitate Data Analysis:** Enable users to generate detailed statistics for better decision - making.
 3. **Enhance Accessibility:** Ensure data is easily accessible and updatable by authorized users.
 4. **Support Historical Data Tracking:** Maintain historical records of players, teams, and matches for future reference and analysis.

Database Requirements :

- **Entities (Entity based Requirements):**

1. Player
2. Team
3. Coach
4. Match
5. Venue
6. Governing Body
7. International Championship
8. Umpire
9. Sponsorships
10. Performance

- **Relationships and Constraints (Relationship based Requirements):**

1. Player - Team (IsAPartOf):
 - Cardinality: (N:1).
 - Participation: Total for player, Partial for team.
2. Team - Match (Plays):
 - Cardinality: (N:M).
 - Participation: Total for match, Partial for team.
3. Coach - Team (Coaches):
 - Cardinality: (1:1).
 - Participation: Partial for coach, Total for team.
4. Venue-Match (PlayedAt):
 - Cardinality: (1:N).
 - Participation: Total for match, Partial for venue.
5. Match - International championship (PartOf):
 - Cardinality: (N:1).
 - Participation: Partial for both.

6. Umpire - Match (Umpires):

- Cardinality: (M:N).
- Participation: Partial for both.

7. Sponsorship – Team (Sponsors):

- Cardinality: (M:N).
- Participation: Partial for both.

8. Sponsorship – Player (Sponsors):

- Cardinality (M:N):
- Participation: Partial for both.

9. Player – Performance (PerformedBy):

- Cardinality(1:N)
- Participation: Total for Performance , Partial for Player

10. Match – Performance (OccuredIn):

- Cardinality(1:N)
- Participation: Partial for Match, Total for Performance

11. Team- Governing Body(Governed by):

- Cardinality:(N:1)
- Participation:(Total for Team, Partial for Governing Body)

Queries and Questions:

- Find the player with the most wickets in a given series or tournament and their team information.
- List teams and players who share the same sponsor, showing the sponsor's name and sponsorship amount.
- Find umpires who have officiated in matches where a specific team (e.g., 'India', 'Australia') played)
- List venues where a specific team (e.g., 'India') has played atleast 1 match.
- Find players who have taken more than 2 wickets and have an average economy rate below 6.0 runs per over in the matches they played.
- Find teams that have an average number of matches won per year (since foundation) greater than 0. (Since we have inserted less number of rows in Match Table, we have to keep matches won per year > 0, but with enough number of rows, it could be kept a desired value)
- List the players who have won more than 1 "Player of the Match" awards and have an average of at least 1 wickets per match.
- List teams with an average player strike rate greater than 80, along with their average strike rate and number of players.
- Find the names and the number of matches of the stadiums that have hosted more number of matches than the average matches played at each stadium.
- Find the player with the most wickets in each team.
- Find umpires who have officiated more matches than the average number of matches officiated by all umpires.

- Find the matches where the total runs are greater than the average total runs in all matches
- Find the player with most runs in each team.
- Find teams with total sponsorship amount greater than the average sponsorship amount
- Find the coaches of the teams in the Top 3 for T20 Rankings.
- Find the players with more career Wickets and Runs than their team's average performance metrics.
- Find the number of distinct venues where players have played.
- Find teams that have participated in every international championship.
- Find coaches of the teams that have played in all international championships.
- Find players who have played more matches than the average number of matches played by all players.