DAMG6210 – Database Management & Database Design

P3. Final ERD (Logical Model)

Title:- Sports Information & Analytics System

Semester- Spring 2024

Group- 12

Team Members:

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Introduction

Description:
The Sports Analytics Database System aims at building the management and analysis of player statistics and performance data for sports (cricket) tournaments. The system provides tools for collecting, storing, and analyzing data related to player performance, team participation, match hosting, and fan engagement. The primary goal is to enable sports analysts to derive insights, make predictions, and enhance decision-making processes in the realm of sports management.

EER-Diagram
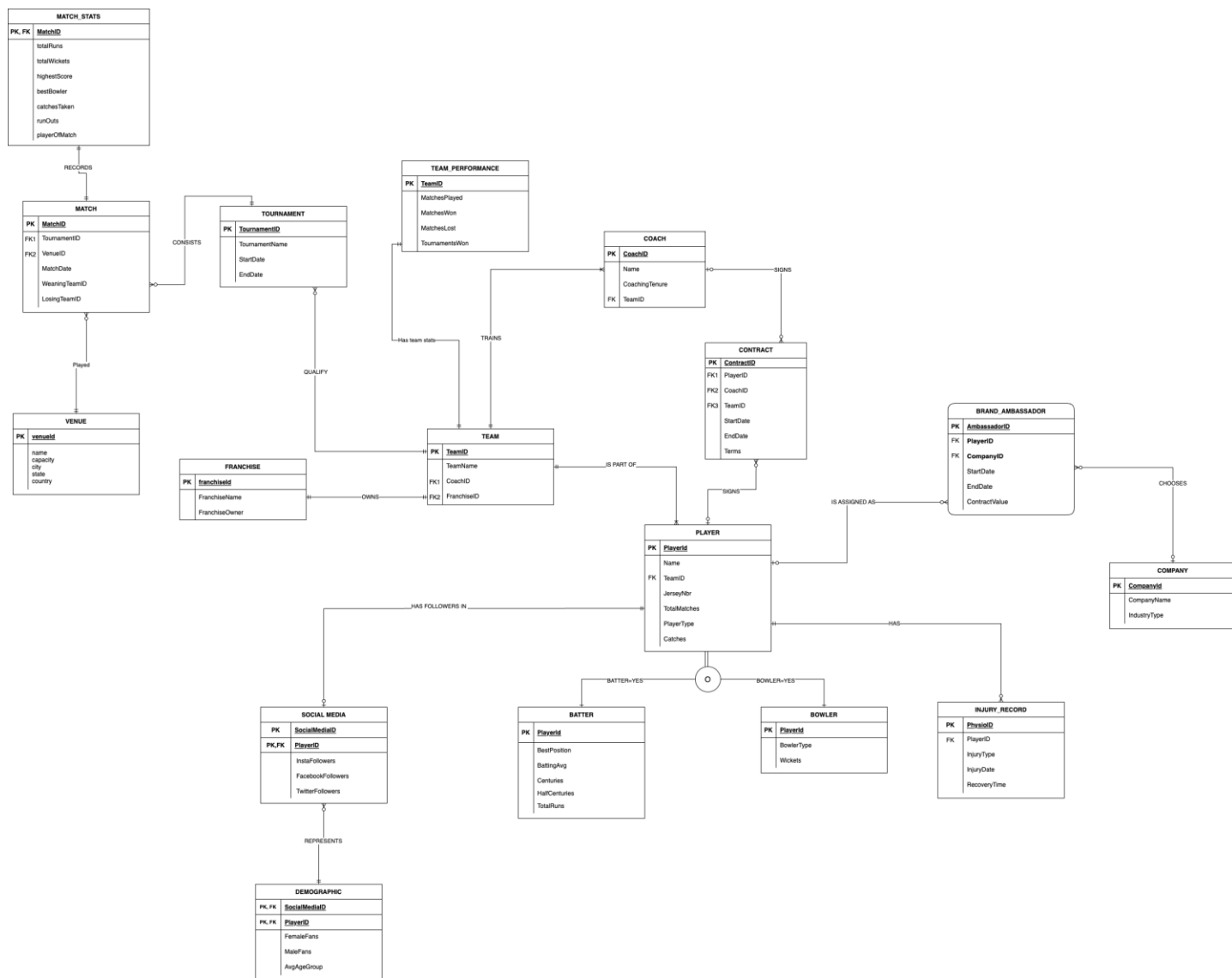
Feedback Incorporation:

1. Losing Team of the match has been captured by adding an attribute of the losing team ID in Match entity.
2. Brand ambassadors is now an associative entity, handling many-to-many relationship type. It can endorse multiple companies, and companies can have multiple brand ambassadors.
3. Players may have Social Media following which also represents their fanbase along with their demographic and the popularity of the player among various age groups and genders.
4. Each contract is unique to a player or coach and is associated with one team.
5. Player is a super entity and it has 2 sub entities Batter and Bowler which can overlap and specifies total specialization rule
6. Foreign Keys have been added to the entities to establish relationship which would be necessary for relational schema and further database design.
7. All the entities are in 3 normal Forms with no partial or transitive dependencies

Entities:

1. **Player**: Contains details about individual cricket players.
2. **Team**: Represents cricket teams.
3. **Franchise**: Entities that own one cricket team.
4. **Coach**: Individuals responsible for training and leading the teams.
5. **Contract**: Legal agreements between players or coaches with teams.
6. **Match**: Specific instances of cricket games.
7. **Tournament**: Competitions comprising multiple matches.
8. **Venue**: Locations where matches are played.
9. **Brand Ambassador**: Public figures who represent and promote companies.
10. **Company**: Corporations hires players for brand promotion.
11. **Social Media**: Platforms used for fan engagement metrics.
12. **Demographic**: Details about the audience demographics.
13. **Batter**: Specialized entity for players who are batters, with specific performance metrics.
14. **Bowler**: Specialized entity for players who are bowlers, with specific performance metrics.
15. **Injury Record**: Records of injuries sustained by players.
16. **Match Stats**: Statistical details of each match played.
17. **Team Performance**: Aggregate performance data for teams.

Relationships:

1. **Part Of**: Teams are part of Franchises.
2. **Owns**: Franchises own one Team.

3. **Trains**: Coaches train Teams.
4. **Is Part Of**: Players play for Teams.
5. **Under Contract**: Players and Coaches have contracts with Teams.
6. **Participates In**: Teams participate in Tournaments.
7. **Consists Of**: Tournaments consist of Matches.
8. **Hosted In**: Matches are hosted in Venues.
9. **Endorses**: Brand Ambassadors endorse Companies.
10. **Followed On**: Fans engage with Players on social media.
11. **Has**: Players have Injury Records.
12. **Records:** Each match stat is tracked in Match_Stats.
13. **Has_team_stats:** Each team performance is tracked in TEAM_PERFORMANCE.

Business Rules:

8. Each player is associated with exactly one team in the context of a tournament but can change teams across different tournaments.
9. A franchise can own one team, and a team can only belong to one franchise.
10. A coach can train one team, but a team can have multiple coaches.
11. Each contract is unique to a player or coach and is associated with one team.
12. Matches are unique events with specific outcomes and are part of a tournament. A tournament comprises multiple matches.
13. Venues may host multiple matches but are not exclusive to any one tournament.
14. Brand ambassadors can endorse multiple companies, and companies can have multiple brand ambassadors.
15. Players may have multiple injury records, and injury records are specific to individual players.
16. Social media engagement is tracked per player, with platforms capturing different metrics.
17. A player's stats are recorded separately for batters and bowlers.
18. Team performance is an aggregate of various matches and can be tracked across multiple tournaments.

---Thank You---