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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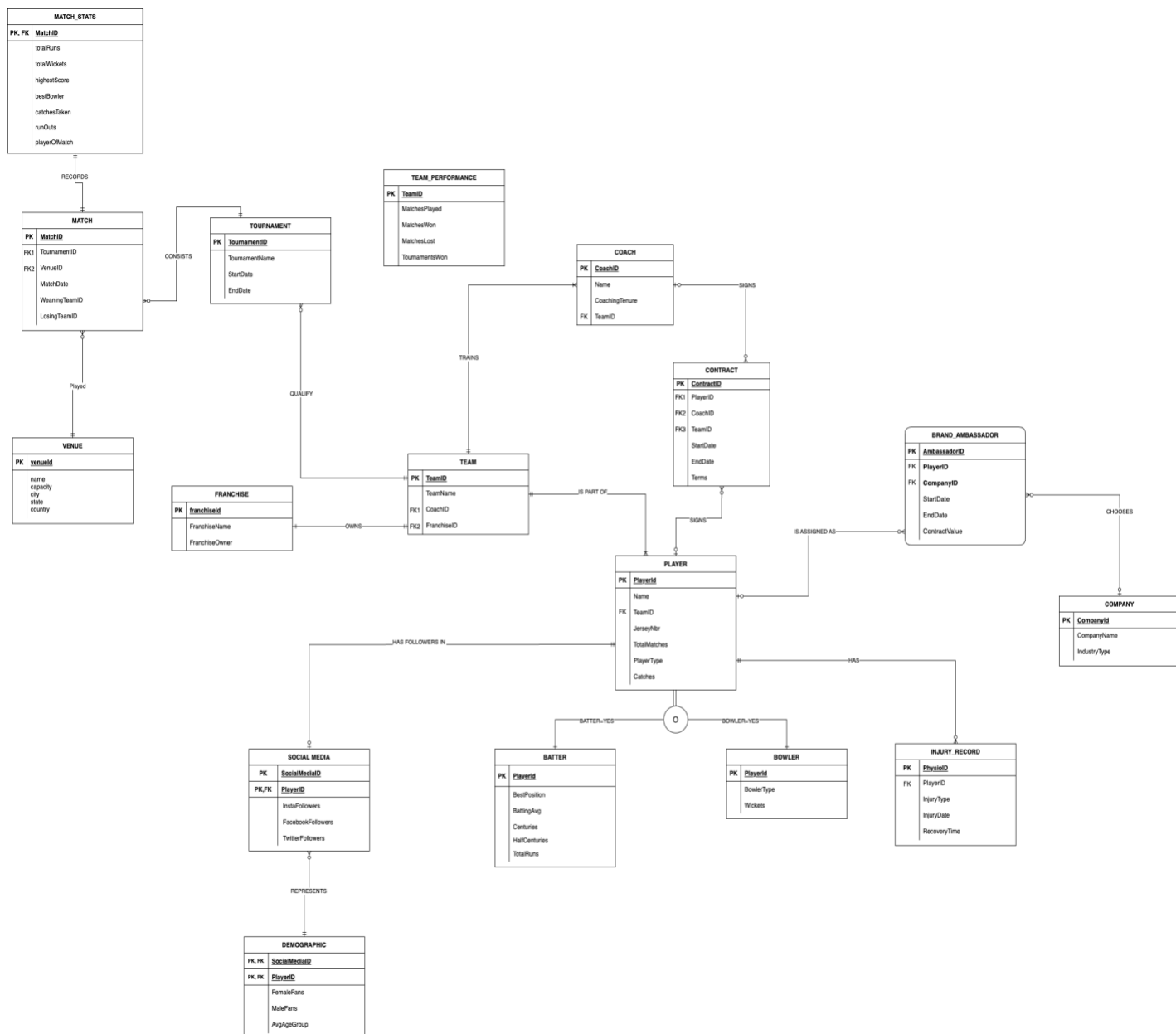*Manish Dinesh Kumar Vanitha*
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Introduction

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

MATCH_STATS
PK, FK	MatchID
	totalRuns
	totalWickets
	highestScore
	bestBowler
	catchesTaken
	runOuts
	playerOfMatch

RECORDS

MATCH
PK	MatchID
FK1	TournamentID
FK2	VenueID
	MatchDate
	WeaningTeamID
	LosingTeamID

CONSISTS

TOURNAMENT
PK	TournamentID
	TournamentName
	StartDate
	EndDate

TEAM_PERFORMANCE
PK	TeamID
	MatchesPlayed
	MatchesWon
	MatchesLost
	TournamentsWon

COACH
PK	CoachID
	Name
	CoachingTenure
FK	TeamID

SIGNS

TRAINS

CONTRACT
PK	ContractID
FK1	PlayerID
FK2	CoachID
FK3	TeamID
	StartDate
	EndDate
	Terms

BRAND_AMBASSADOR
PK	AmbassadorID
FK	PlayerID
FK	CompanyID
	StartDate
	EndDate
	ContractValue

CHOOSES

QUALIFY

Played

VENUE
PK	venueId
	name
	capacity
	city
	state
	country

FRANCHISE
PK	franchiseId
	FranchiseName
	FranchiseOwner

OWNS

TEAM
PK	TeamID
	TeamName
FK1	CoachID
FK2	FranchiseID

IS PART OF

SIGNS

IS ASSIGNED AS

COMPANY
PK	CompanyId
	CompanyName
	IndustryType

PLAYER
PK	PlayerId
	Name
FK	TeamID
	JerseyNbr
	TotalMatches
	PlayerType
	Catches

HAS FOLLOWERS IN

HAS

BATTER=YES

BOWLER=YES

SOCIAL MEDIA
PK	SocialMediaID
PK,FK	PlayerID
	InstaFollowers
	FacebookFollowers
	TwitterFollowers

BATTER
PK	PlayerId
	BestPosition
	BattingAvg
	Centuries
	HalfCenturies
	TotalRuns

BOWLER
PK	PlayerId
	BowlerType
	Wickets

INJURY_RECORD
PK	PhysioID
FK	PlayerID
	InjuryType
	InjuryDate
	RecoveryTime

REPRESENTS

DEMOGRAPHIC
PK, FK	SocialMediaID
PK, FK	PlayerID
	FemaleFans
	MaleFans
	AvgAgeGroup

Entities:

1. **Player**: Contains details about individual cricket players.
2. **Team**: Represents cricket teams.
3. **Franchise**: Entities that own one or more cricket teams.
4. **Coach**: Individuals responsible for training and leading the teams.
5. **Contract**: Legal agreements between players, teams, and coaches.
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 teams or companies.
10. **Company**: Corporations associated with teams, often as sponsors.
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 players' performances in matches.
17. **Team Performance**: Aggregate performance data for teams.

Relationships:

1. **Part Of**: Teams are part of Franchises.
2. **Owns**: Franchises own one or more Teams.
3. **Trains**: Coaches train Teams.
4. **Plays For**: 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 Teams or Companies.
10. **Followed On**: Fans engage with Teams and Players on social media.
11. **Has**: Players have Injury Records.
12. **Performs In (Batter/Bowler)**: Players, as Batters or Bowlers, have performance metrics in Matches.

Business Rules:

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

---Thank You---