Project Analysis and Design

- Meaningful brand name for your project.
  - Model Teammate
- Describe business processes/transactions in sentences.
  - Our business will be focused on Football team management, in order to keep track of players, maximize performance and minimize cost. Clubs would contact us to help them improve the efficiency of management in order to better tend to their club. We will provide databases, tables and visuals of the stats necessary for the club to manage their players while also looking for other prospects. We will use data provided by Clubs, leagues and match day statistics in order to update and present necessary information for their teams.

ER Schema:

<u>Entities, Attributes and Primary Keys</u>

Club (**clbName**, clbDateEstablish, clbOwner, ~~lgName, cchID~~)
League (**lgName**, lgSeasonStart, lgSeasonEnd)
Matches (**mtcID**, mtcDate, mtcResults, mtcVenue, mtcOpponent, mtcPossession)
Coach (**cchID**, cchFirstName, cchLastName, cchSalary)
Player (**plrID**, plrFirstName, plrLastName, plrSalary, plrAge,
      plrNation, plrPosition, ~~clbName~~)
Statistics (**sttPlrID**, sttGoals, sttAssist, sttRed, sttYellow, sttShotPG, sttPassPercent,
      sttMatchPlayed)
Play (~~**clbName, mtcID**~~)
Acquire (~~**plrID, sttPlrID**~~)

<u>Relationships, Attributes, Degrees, Participating Entities and Constraints</u>

In: Binary Relationship Note: It is assumed that a Club must be in a league to exist.
      1 Club to 1 League
      1 League to 1 or more Club

Own: Binary Relationship Note: It is assumed that a Club must have a Team to exist.
      1 Club to 1 or more Team
      1 Team to 1 Club

Manage: Binary Relationship
      1 Team to 1 Manager
      1 Manager to 1 Team

Hire: Binary Relationship Note: It is assumed that if the Coach is fired, an Interim coach is used as a replacement and reported.
      1 Team to 1 Coach
      1 Coach to 1 Team

Play: Binary Relationship
      1 Team to 0 or more Match
      1 Match to 1 or more Team

Consist: Binary Relationship
      1 Team to or more Player
      1 Player to 1 Team
Acquire: Binary Relationship Note: It is assumed that a Player could be new and have no statistic.
      1 Player to 0 or more Statistic
      1 Statistic to 1 or more Player

ER Diagram:

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Mission Statement and Objective:

- **Mission Statement:** We strive to improve the management and performance of football teams through data-driven decision making and visualizations.

Mission Objective
- Our firm works with the football club Paris Saint Germain (PSG) to provide actionable insights and analysis about the players in order to optimize their performance for their star-studded front line of Neymar, Lionel Messi, and Kylian Mbappe as well as opposition analysis, as the Champions League season progresses into the round of 16.
- To find the country that provides the best statistics in a given position, to help the team in future transfers and pick ups. Using further analysis for recruitment and sustained success over time is also at the forefront of PSG's plan for growth
- To find the top three players on the team, in order to help the team better understand shooting percentages based on passing and assists.
- To find the teams that our client has the best games against in order to analyze assists, and percentages to better understand win conditions.

Relations:
Club (**clbName**, clbDateEstablish, clbOwner, *lgName, cchID*)
League (**lgName**, lgSeasonStart, lgSeasonEnd)
Matches (**mtcID**, mtcDate,mtcResults, mtcVenue, mtcOpponent, mtcPossession)
Coach (**cchID**, cchFirstName, cchLastName, cchSalary)
Player (**plrID**, plrFirstName, plrLastName, plrSalary, plrAge,
      plrNation, plrPosition, *clbName*)
Statistics (**sttPlrID**, sttGoals, sttAssist, sttRed, sttYellow, sttShotPG, sttPassPercent,
      sttMatchPlayed)
Play (***clbName, mtcID***)
Acquire (***plrID, sttPlrID***)

Business rules:

When a League is Deleted from the database, also delete the Club.
When the information of a League is changed, change the information for the employee as well.
When a Club is deleted from the database, delete the team also.
When a Club's information is changed, change the information for the team also.
When a Manager is deleted from the database, set null for the team.
When a Manager's information is changed, also change the information for the team.
When a Coach is deleted from the database, set null for the team.
When a Coach's information is changed, also change the information for the team.
When the Team is deleted from the database, set null for the player.
When the Team's information is changed, also change the information for the player.
When a Team is input in Play, it cannot be deleted.
When a Team is input in Play, it cannot be changed.
When a Match is input in Play, it cannot be deleted.
When a Match is input in Play, it cannot be changed.
When a Player is input in Acquire, it cannot be deleted.
When a Player is input in Acquire, it cannot be changed.

Referential integrities:

Relation	Foreign Key	Base Relation	Primary Key	Business Rule	Constraint: ON DELETE	Business Rule	Constraint: ON UPDATE
Club	lgName	League	clbName		NO ACTION		CASCADE
Club	cchID	Coach	cchID		SET NULL		CASCADE
Player	clbName	Club	clbName		SET NULL		CASCADE
Play	clbName	Club	clbName		NO ACTION		NO ACTION
Play	mtcID	Match	mtcID		NO ACTION		NO ACTION
Acquire	plrId	Player	plrId		NO ACTION		NO ACTION

Club Sample Input Data
('Manchester United','1878','Glazer','Premiere League','MUC0000001')

League Sample Input Data
('Premiere League','2022-08-06','2023-05-28')

Matches Sample Input Data
('MUM2223001','8/7/2022','Home','L','Brighton','62')

Coach Sample Input Data
('MUC0000001','Erik','ten Hag','9000000')

Player Sample Input Data
('MU00000001','David','de Gea','ESP','GK',32,14.0,'Manchester United',19500000)

Statistics Sample Input Data
('MUS0000001',0,0,0,0,0,0,0,0,14,68.4)

Play Sample Input Data
('Manchester United','MUM2223001')

Acquire Sample Input Data
('MU00000001','MUS0000001')