



**Northeastern  
University**

## **FOOTBALL LEAGUE MANAGEMENT SYSTEM**

### **P2. Database Design, Conceptual Model**

**DAMG6210 - Database Management & Database Design**

**SPRING – 2024**

**GROUP – 7**

#### **TEAM MEMBERS**

Divya SV (002209320)

Sai Spandana Inaparthi (002874281)

SaiCharanTej Katteboina (002816043)

Shikhar Patel (002273502)

Sourabh Kumar (002820396)

**Under the guidance of**

Prof. Manuel Montrond

## The Business Problem:

- Optimizing resource allocation by managing team details and coaching staff in streamlined manner.
- Empowering coaches and administrators with comprehensive performance metrics and standings for informed decision-making.
- Simplifying sponsorship collaboration through efficient management of details, contracts, and benefits.
- Indirectly contributing to enhancing fan engagement by optimizing team performance and facilitating smoother interactions with fans.

## List of Various Entities:

### 1. User (Supertype)

It depicts people who interact with the entire system. The subtypes are:

- **Audience:** Users who primarily view matches and events.
- **Coach:** Users responsible for coaching teams, making strategic decisions, and managing players.
- **Player:** Users who actively participate in matches as part of a team.
- **Staff:** Users involved in the management and operation of teams, stadiums, or leagues.

### 2. Player (Supertype)

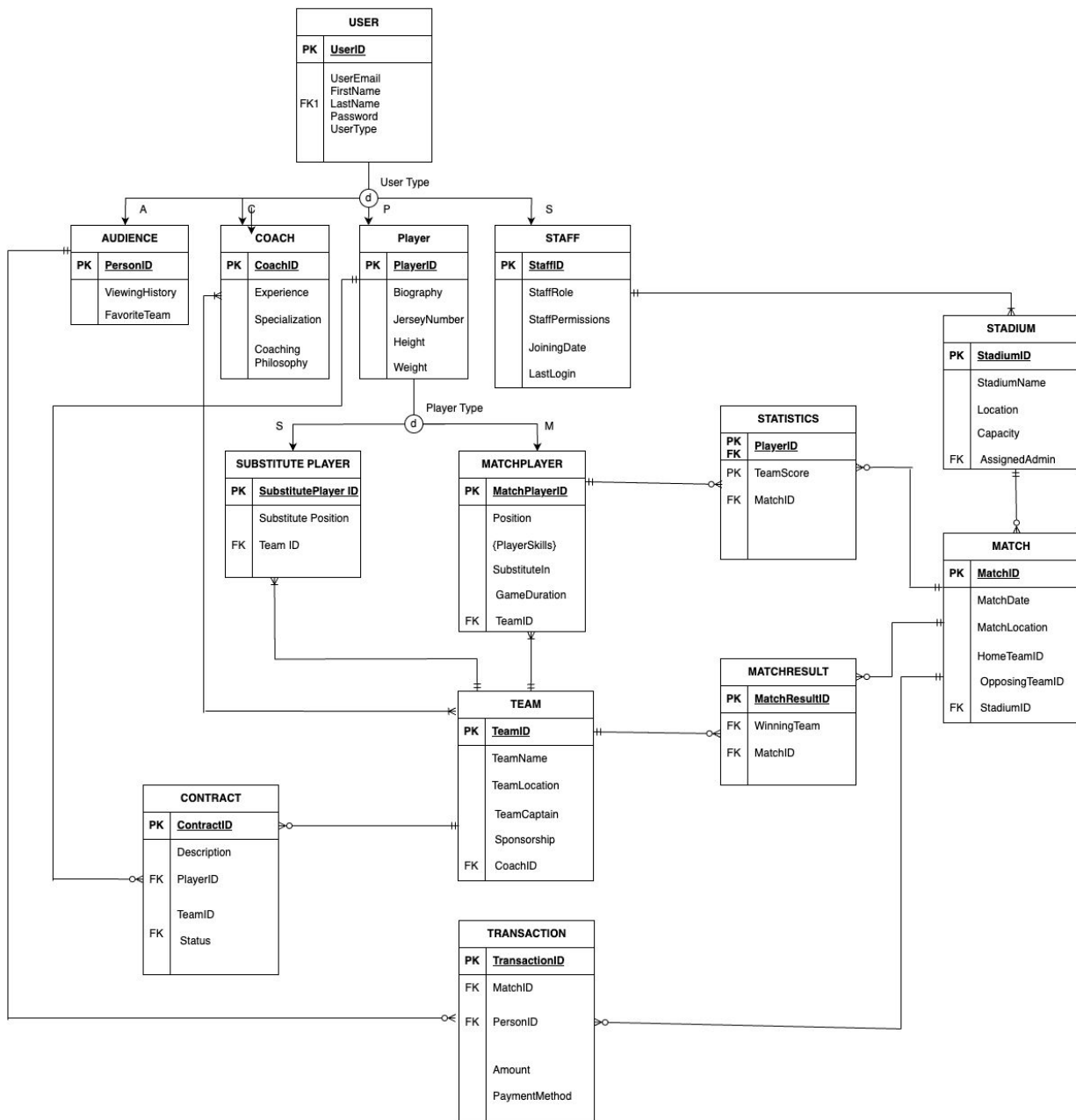
It depicts people who actively participate in matches. The subtypes are:

- **Substitute Player:** The Players who are substitutes and may enter the match during gameplay.
- **Match Player:** The Players who start the match and are part of the current lineup.

## Associative Entities:

1. **Player Statistics:** It keeps track record of performance statistics and metrics for each player, including details such as goals scored, assists, fouls committed, etc.
2. **Transaction:** It records various financial transactions within the system, such as payments for ticket sales.

- 3. Contract:** It represents contractual agreements between entities within the system, such as player contracts with teams, sponsorship agreements, or coaching contracts.
- 4. Match Outcome:** It stores the outcome of each match, including details such as the final score, goals scored by each team, and any additional match-specific information.



## Business Rules:

- A Super Type user exists, with Audience, Coach, Player, and Staff as its subtypes.
- A Super Type Player exists, with Match Player and Substitute Player as its subtypes.
- A match player is a member of only one team, yet each team includes one or more match player.
- A player may sign contracts with several teams, but each contract is exclusive to that team.
- A player may possess more than one statistics record, but each record is exclusive to that player during the match.
- A coach can be associated with more than one team, but there is only one coach per team.
- More than one Player Statistics record for a match is possible, but each record is linked to a single Match Player.
- Every audience has one or more Transactions linked with them, which list the matches they have paid to view.
- A Match may contain several Transactions, each of which represents an audience member's payment.

**GitHub Link:** [Football League Management System](#)