# Football Score & Player Stats Tracker - UML Diagram Documentation

## Project Overview

This document outlines the UML class diagram for the Football Score & Player Stats Tracker, a Java-based terminal application. The application provides functionalities to track live football match scores and manage individual player statistics. Key features include:  
- Match Score Tracking  
- Player Statistics Management  
- Real-Time Notifications  
- Basic Analysis and Filtering

## UML Diagram - Class Boxes and Relationships

The following section illustrates the UML diagram in box format with entities connected by their relationships. Each entity is shown as a box with its attributes and methods, and connections are labeled with relationship types (1:1, 1:M, M:N).

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| **Match** |
| Attributes: matchID, date, location, team1Score, team2Score |
| Methods: addEvent(), getSummary() |

Relationships: 1:M with Team, M:N with Event

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| **Team** |
| Attributes: teamID, name |
| Methods: addPlayer(), getPlayers() |

Relationships: 1:M with Player, 1:M with Match

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| **Player** |
| Attributes: playerID, name, position, goals, assists, appearances |
| Methods: updateStats(), compareTo(Player other) |

Relationships: 1:1 with PlayerStats

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| **Event** |
| Attributes: eventID, type (Goal, Card, Substitution), time |
| Methods: getEventInfo() |

Relationships: M:N with Match

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| **PlayerStats** |
| Attributes: statsID, gamesPlayed, averageGoalsPerGame, averageAssistsPerGame |
| Methods: calculateAverages() |

Relationships: 1:1 with Player

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| **League** |
| Attributes: leagueID, name, country |
| Methods: addTeam(), getStandings() |

Relationships: 1:M with Team

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| **ScoreTracker** |
| Attributes: trackerID |
| Methods: addMatch(), filterMatches() |

Relationships: 1:M with Match

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| **Notification** |
| Attributes: notificationID, message, time |
| Methods: sendNotification() |

Relationships: 1:M with Match

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| **User** |
| Attributes: userID, username, favoriteTeams |
| Methods: setFavoriteTeams(), getFavoriteMatches() |

Relationships: M:N with Team via FavoriteTeam

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| **FavoriteTeam** |
| Attributes: favoriteID |
| Methods: |

Relationships: Associative entity for M:N relationship between User and Team

## Relationships Summary

The relationships among the entities are represented as follows:  
- 1:1 between Player and PlayerStats.  
- 1:M between League and Team, Team and Player, Match and Event, and ScoreTracker and Match.  
- M:N relationship between User and Team via FavoriteTeam entity.  
This structure ensures that each aspect of the Football Score & Player Stats Tracker is logically connected.