COMP 3059 – Capstone Project I

Software Requirements Analysis and Design Assignment

Sprint 3

Team 03

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1.0 Introduction

1.1 Purpose:

The following document will outline the software requirements for a MyGame, a recreational sports league statistic and scorekeeping platform designed to provide real-time scorekeeping, user profiles, team and league management, and a social feed feature.

1.2 Scope:

The platform will enable scorekeeping, statistical tracking and analysis, player and team profile management and display, league and team organization, and social interaction through a user feed. It will not handle e-commerce transactions or professional sports league management such as transactions including but not limited to, trades, free agent acquisitions et al.

2.0 System Overview

2.1 Project Perspective:

This is a new, self-contained system that has been developed to meet the specific needs of users who participate in one or multiple recreational leagues and want a unified platform in which to keep statistics on their own recreational sports accomplishments but also follow the activities of other users such as teammates, friends or social media figures.

2.2 System Context:

The system's context is within the recreational sports industry where statistics are seldom accurately kept and relies heavily on the work of either participants or volunteers to either navigate poor digital user experiences or keep statistics by hand. MyGame also aims to address the lack of integrated management and social interaction among players and teams.

2.3 General Constraints:

The system will be designed to operate within the limits of standard web application technology and will have a heavily curated mobile version (rather than standalone mobile application) to allow users who are on site at a sporting event to easily and efficiently track statistics and keep scores. It's main resource constraint is the time allocated for development, testing, deployment and maintenance.

2.4 Assumptions and Dependencies:

It is assumed that users will have internet access, basic web navigation skills and understanding of sports statistics and how to track them in general. MyGame's success depends on timely API integration from third-party video hosting services.

3.0 Functional Requirements

The functional requirements for the software platform are detailed below. These requirements are designed to enable the platform to meet its stated goals, as outlined in the project scope (Section 1.2).

3.1.1 Scorekeeping and Statistical Tracking:

• Introduction: The software shall provide a feature for scorekeeping and statistical tracking of sports events. This includes capturing and displaying scores, player statistics, team statistics, and other relevant game data.

• Inputs: User input for score updates, player statistics, and game-related information.

• Processing: The system will process and update the scores and statistics in real-time during the game.

• Outputs: The software will display updated scores, player stats, and team stats to users in real-time.

3.1.2 Player and Team Profile Management:

• Introduction: The platform will offer functionality for managing player and team profiles. Users can create and update their profiles with personal and team-related information.

• Inputs: User-provided data for player and team profiles.

• Processing: The system will validate and store profile information, allowing users to access and update it.

• Outputs: Users will be able to view and edit their player and team profiles as necessary.

3.1.3 League and Team Organization:

• Introduction: The software will support the organization of leagues and teams, including the creation of new leagues, teams, and the management of team rosters.

• Inputs: User inputs for league and team creation, roster management, and scheduling.

• Processing: The system will facilitate the creation of leagues and teams, allow roster modifications, and generate schedules.

• Outputs: Users will be able to view and manage leagues, teams, and schedules within the platform.

3.1.4 Social Interaction Through User Feed:

• Introduction: The platform will include a user feed feature for social interaction, allowing users to post updates, comments, and interact with other users.

• Inputs: User-generated content such as posts, comments, and likes.

• Processing: The system will handle the creation and display of user-generated content in a feed format.

• Outputs: Users will be able to view and engage with posts, comments, and interactions in their user feeds.

3.2 Use Cases:

3.2.1 Use Case Title: Record Recreational Sports Game Statistics

- Primary Actor: User
- Level: Kite (Summary)
- Stakeholders: User, Other Players, MyGame Platform
- Precondition: User participates in a recreational sports game
- Minimal Guarantee: User records their game statistics
- Success Guarantee: User's game statistics are accurately recorded
- Trigger: User participates in a recreational sports game

Main Success Scenario:

- User participates in a recreational sports game.
- User accesses the MyGame platform.
- User selects the specific game they participated in.
- User provides input for game statistics, including score updates, player statistics, and other relevant game data.
- The MyGame platform processes and updates the statistics in real-time.
- The updated game statistics are displayed to the user.

Extensions:

- 4a) User encounters difficulties inputting game statistics.
- 4a1) User seeks help from other players or support.

- 4a2) User persists and successfully enters the data.

- 5a) MyGame platform experiences technical issues.
- 5a1) User reports the issue to the platform support team.
- 5a2) User attempts to enter the data later.

- 6a) User discovers inaccuracies in the recorded statistics.
- 6a1) User edits the statistics to correct inaccuracies.
- 6a2) User reports the issue to the platform support team.

3.2.2 Use Case Title: Create and Manage Player and Team Profiles

- Primary Actor: User
- Level: Kite (Summary)
- Stakeholders: User, Other Users, MyGame Platform
- Precondition: User wants to create or update their player or team profile
- Minimal Guarantee: User's profile information is stored
- Success Guarantee: User can access and update their player or team profile
- Trigger: User wants to create or update their player or team profile

Main Success Scenario:

- User accesses the MyGame platform.
- User navigates to the profile management section.
- User provides input to create or update their player or team profile, including personal and team-related information.
- The MyGame platform validates and stores the profile information.
- Users can view and edit their player and team profiles as necessary.

Extensions:

- 3a) User encounters difficulties creating or updating their profile.
- 3a1) User seeks help from other users or support.
- 3a2) User persists and successfully creates or updates the profile.

- 4a) MyGame platform experiences technical issues with profile management.
- 4a1) User reports the issue to the platform support team.
- 4a2) User attempts to create or update the profile later.

3.2.3 Use Case Title: Organize Recreational Leagues and Teams

- Primary Actor: League Organizer
- Level: Kite (Summary)
- Stakeholders: League Organizer, Team Managers, MyGame Platform

- Precondition: League organizer wants to create or manage leagues and teams
- Minimal Guarantee: Leagues and teams are created or managed
- Success Guarantee: Leagues, teams, and schedules are efficiently organized
- Trigger: League organizer wants to create or manage leagues and teams

Main Success Scenario:
- League organizer accesses the MyGame platform.
- League organizer navigates to the league and team organization section.
- League organizer provides input for creating new leagues and teams, including roster management and scheduling.
- The MyGame platform facilitates the creation of leagues and teams and generates schedules.

Extensions:
- 3a) League organizer encounters difficulties creating or managing leagues and teams.
- 3a1) League organizer seeks help from other team managers or support.
- 3a2) League organizer persists and successfully creates or manages leagues and teams.

- 4a) MyGame platform experiences technical issues with league and team organization.
- 4a1) League organizer reports the issue to the platform support team.
- 4a2) League organizer attempts to create or manage leagues and teams later.

3.2.4 Use Case Title: Engage in Social Interaction Through User Feed
- Primary Actor: User
- Level: Kite (Summary)
- Stakeholders: User, Other Users, MyGame Platform
- Precondition: User wants to engage in social interaction on the platform
- Minimal Guarantee: User can view user-generated content
- Success Guarantee: User can post updates, comments, and interact with other users
- Trigger: User wants to engage in social interaction on the platform

Main Success Scenario:
- User accesses the MyGame platform.
- User navigates to the user feed section.
- User creates and posts updates, comments, and interacts with other users by liking or responding to posts.

- The MyGame platform processes and displays user-generated content in a feed format.
- Users can view and engage with posts, comments, and interactions in their user feeds.

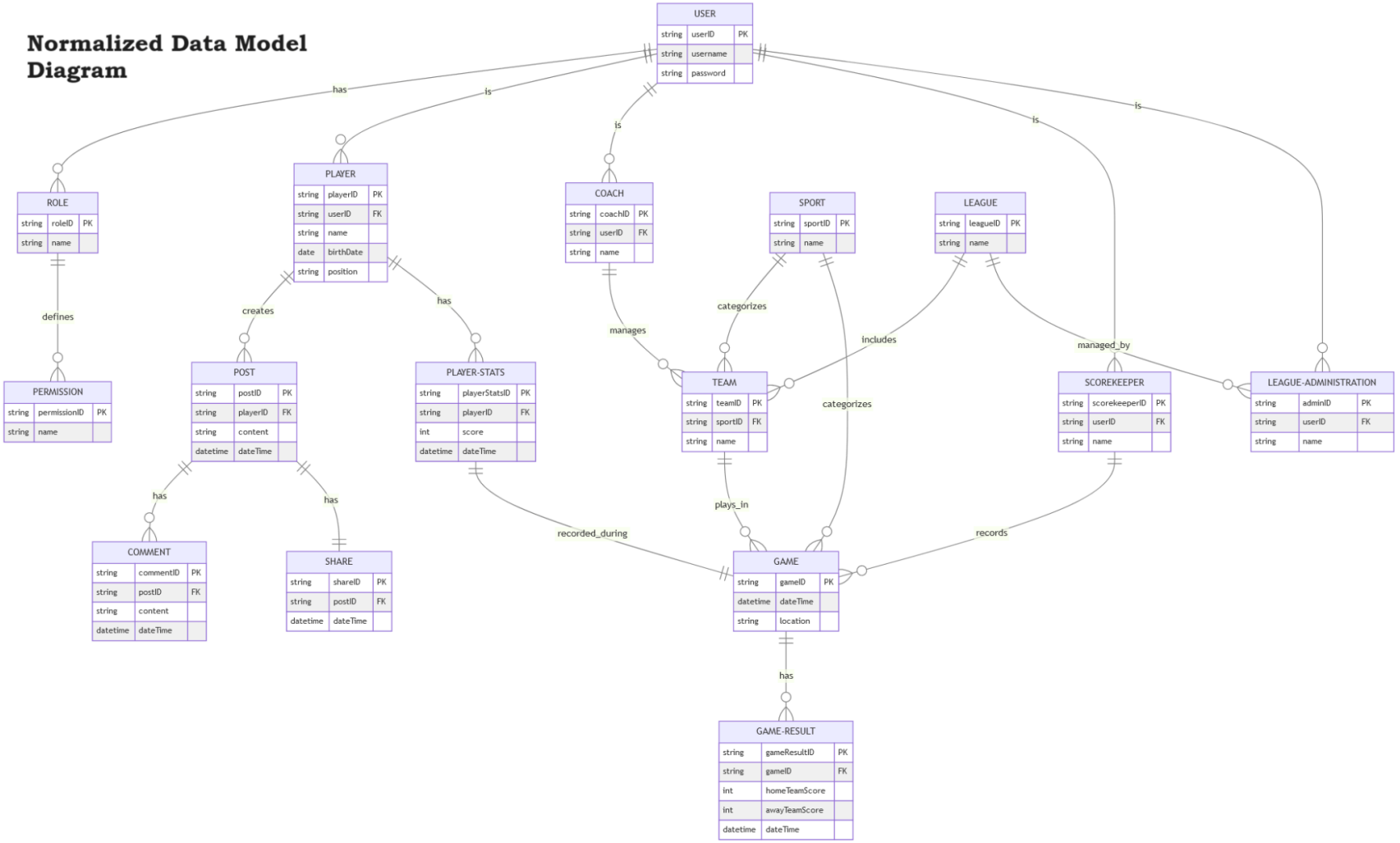
Extensions:

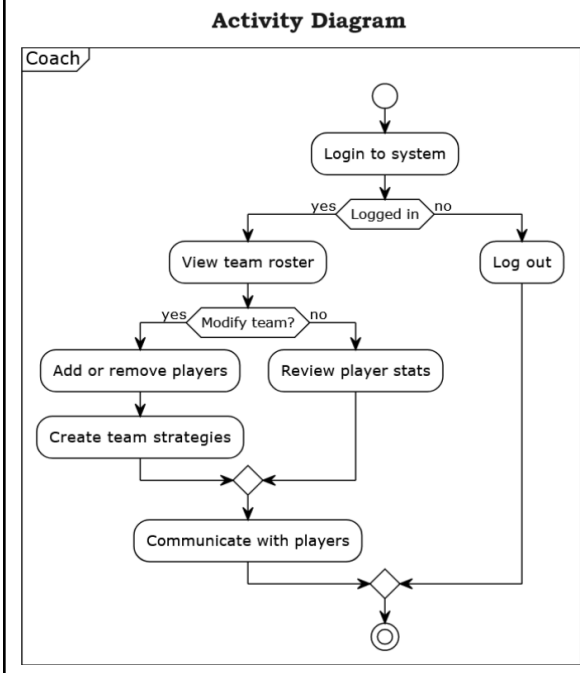
- 3a) User encounters difficulties posting updates or engaging in social interaction.
- 3a1) User seeks help from other users or support.
- 3a2) User persists and successfully engages in social interaction.

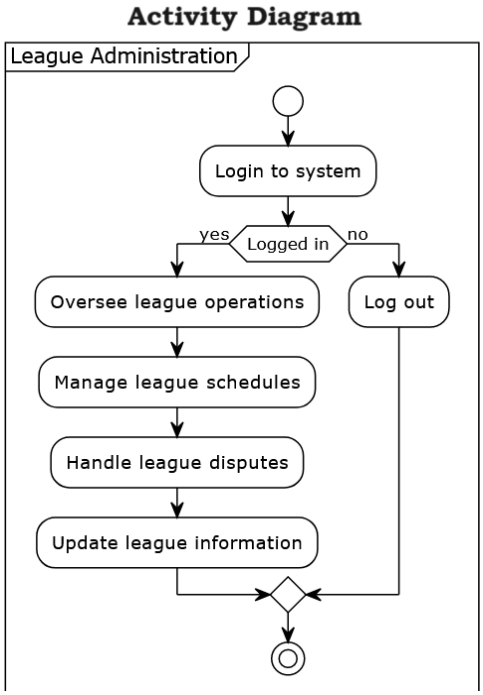
- 4a) MyGame platform experiences technical issues with the user feed.
- 4a1) User reports the issue to the platform support team.
- 4a2) User attempts to engage in social interaction later.

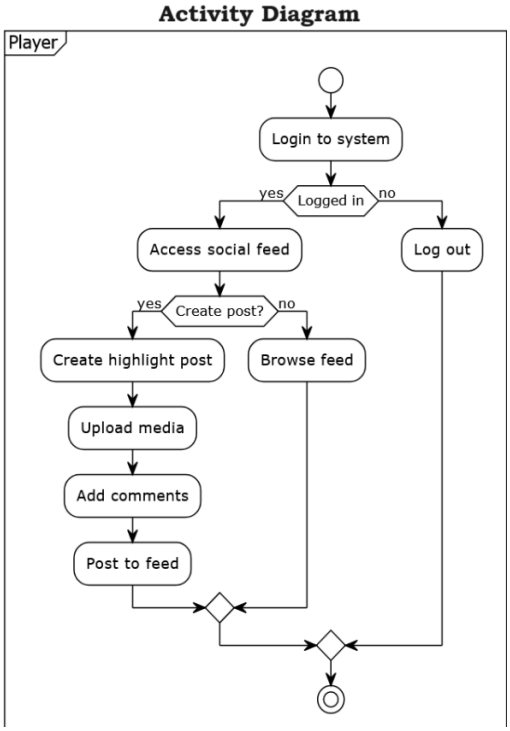
3.3 Data Modelling and Analysis

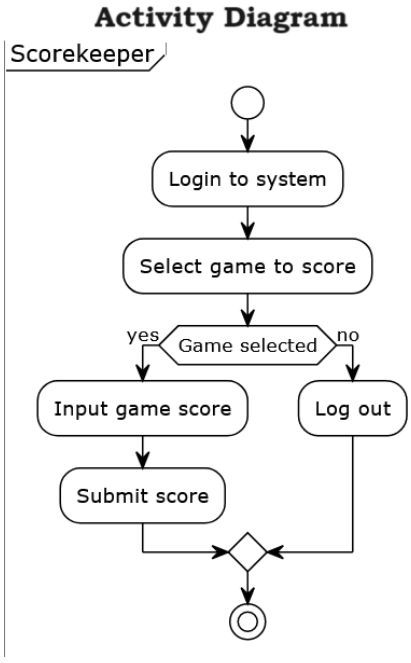
Normalized Data Model Diagram



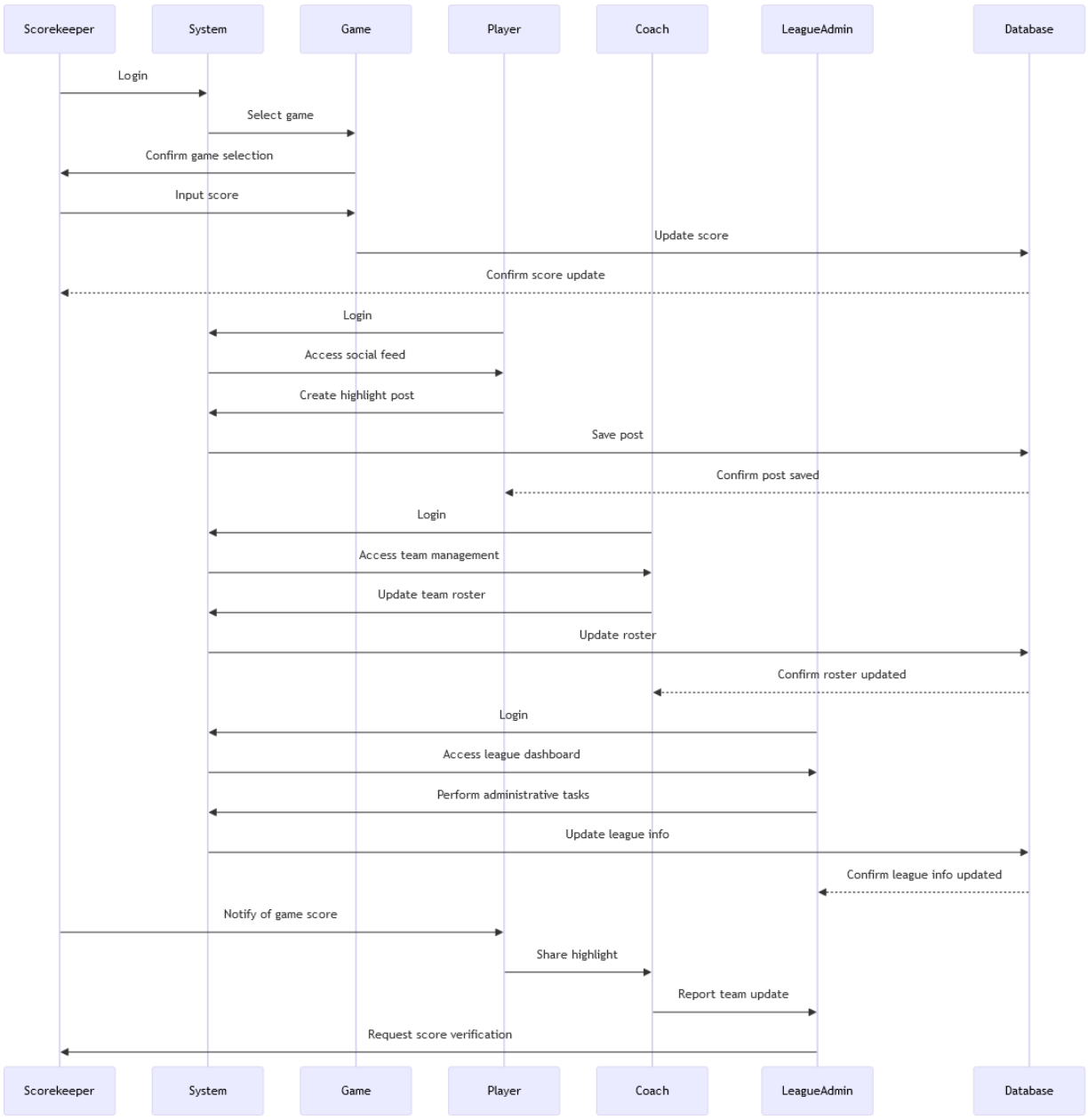

Activity Diagram
Coach
Login to system
yes
Logged in
no
View team roster
Log out
yes
Modify team?
no
Add or remove players
Review player stats
Create team strategies
Communicate with players

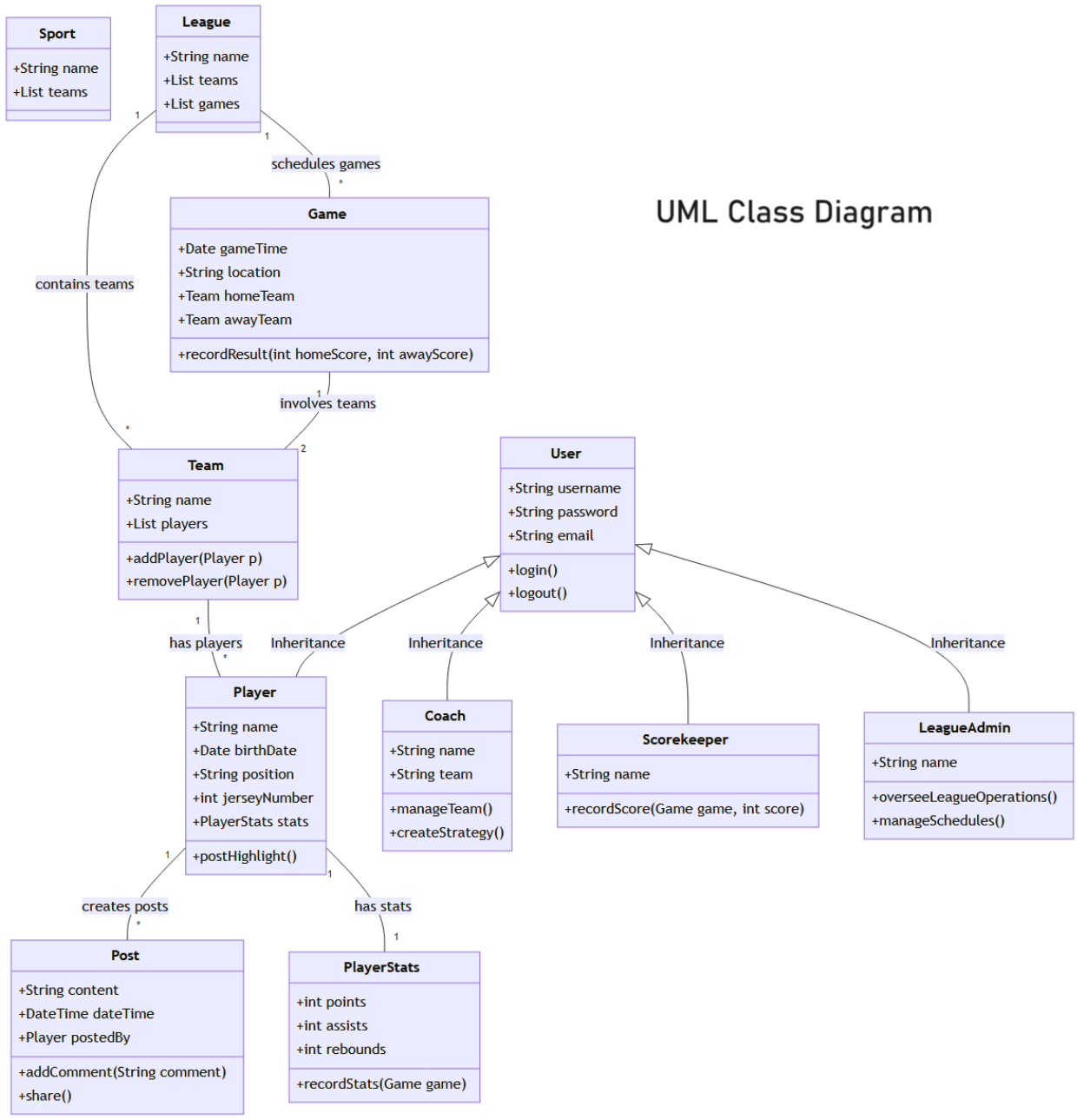

Activity Diagram
League Administration
Login to system
yes
Logged in
no
Oversee league operations
Log out
Manage league schedules
Handle league disputes
Update league information


Activity Diagram
Player
Login to system
yes
Logged in
no
Access social feed
Log out
yes
Create post?
no
Create highlight post
Browse feed
Upload media
Add comments
Post to feed

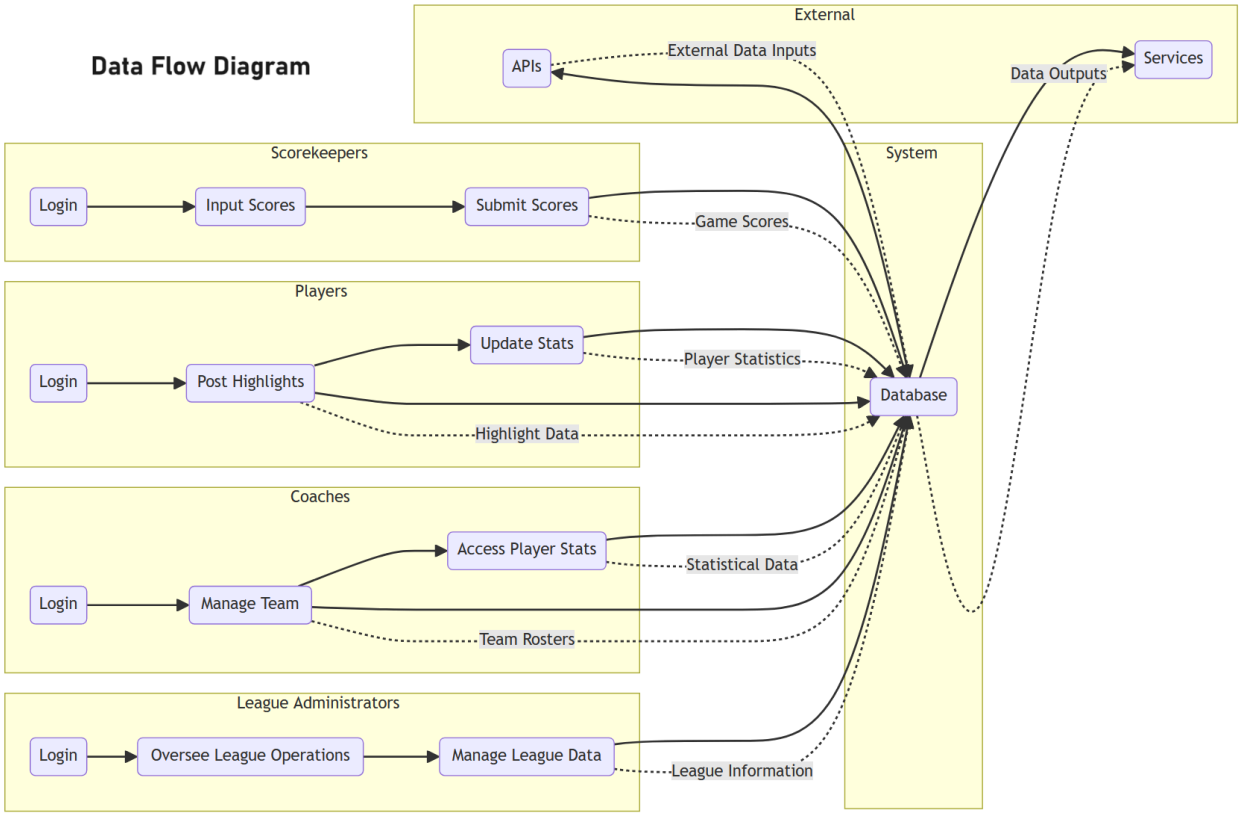

Activity Diagram
Scorekeeper
Login to system
Select game to score
yes
Game selected
no
Input game score
Log out
Submit score

Sequence Diagram




UML Class Diagram
Sport
+String name
+List teams
League
+String name
+List teams
+List games
schedules games
Game
+Date gameTime
+String location
+Team homeTeam
+Team awayTeam
+recordResult(int homeScore, int awayScore)
contains teams
involves teams
Team
+String name
+List players
+addPlayer(Player p)
+removePlayer(Player p)
User
+String username
+String password
+String email
+login()
+logout()
has players
Inheritance
Inheritance
Inheritance
Inheritance
Player
+String name
+Date birthDate
+String position
+int jerseyNumber
+PlayerStats stats
+postHighlight()
Coach
+String name
+String team
+manageTeam()
+createStrategy()
Scorekeeper
+String name
+recordScore(Game game, int score)
LeagueAdmin
+String name
+overseeLeagueOperations()
+manageSchedules()
creates posts
has stats
Post
+String content
+DateTime dateTime
+Player postedBy
+addComment(String comment)
+share()
PlayerStats
+int points
+int assists
+int rebounds
+recordStats(Game game)

3.4 Process Modelling



4.0 Non-Functional Requirements

4.1 Performance:

The app should load on the user's device within 5 seconds. 95% of user interactions with the app, such as registering, logging in, opening their profile, or viewing another profile, should take less than 5 seconds to process. The real-time scoreboard should update within 1 second of the scorekeepers updating the scores from the game.

4.2 Reliability:

The app should have an uptime of at least 99% over the course of a month, allowing for maintenance. The system should be able to recover from a system failure within 5 minutes without data loss due to communication with the database server. User data should be backed up daily, with a retention period of at least 30 days.

4.3 Availability:

The app should be available 24/7, with planned maintenance windows communicated to users in advance. These planned maintenance periods should correspond with all timezones in the Americas, between eastern standard time and pacific standard time for example, a good maintenance window would be 4am-7am EST, as that would translate to 1am-4am PST, likely hours when no teams would be playing. In the event of server maintenance or updates, the app downtime may not exceed 1 minute per day on average, excluding planned maintenance days.

4.4 Security:

User data should be encrypted both while being transmitted to the database, and when in the database. Only authorized referees and scorekeepers should have access to inputting game statistics. User data must not be accessible to unauthorized parties, requiring registration to view profiles. The app should follow industry-standard security best practices and undergo regular security audits, in order to reduce the chance of a data breach.

4.5 Maintainability:

The app's codebase should follow best coding practices to ensure ease of maintenance and scalability. This includes clear variable names, commenting, following consistent casing, and following a format such as MVC. Updates or feature enhancements should not disrupt the normal operation of the app, and backward compatibility should be maintained. Bug fixes and minor updates should be deployed within 48 hours of the code being updated, and within one work week (5 days) of being discovered.

4.6 Portability:

The app should be compatible with popular mobile platforms such as iOS and Android, with consistent functionality and performance. The website should be accessible on all modern web browsing platforms, such as FireFox, Google Chrome, Opera, and Microsoft Edge. Users should be able to access the app from a device, whether it be a personal computer, laptop, cellphone, or tablet without a loss in usability.

5.0 Logical Database Requirements

In terms of user information, the database will store user profiles including information like username, email, password, which will all be encrypted in the database. Profile picture, sports statistics, clips, and personal bio will also be stored. The game data which will be stored will include sport type, location, date, time, and the list of participants. The statistics from these games will be linked directly to the players, including points scored, assists, penalties, and injuries. For each game, a player will have statistics tied to them which must be filled in by the end of the game and updated to their profile, such as the points scored. This will be achieved by user id's being entered in the game data prior to the game beginning.

6.0 Other Requirements

Some additional requirements may include many features, including but not limited to, offline capabilities, multi language support, and third party integrations. Offline capabilities include the ability for referees to save data from their most recent game, until online capabilities are restored. Multi language support includes any language other than english. Third party integration would allow for users to attach their other social media platforms to their MyGame account. This may include YouTube, Instagram, Twitter (X), or Reddit.

7.0 Approval

Project Role	Name	Signature	Date
Project Leader	Raleigh Desmond	RD	2023-11-05
Lead Programmer	Harlan Ferguson	HF	2023-11-05
Front End Designer	Richard Wilson	RW	2023-11-05
Database Designer	Owen Beattie	OB	2023-11-05