CSC 431 – Spring 2025

University Sports App

Software Requirements Specification (SRS)

Group 12

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Version History

Version	Date	Author(s)	Change Comments
1	2/12/2025	All	Completed Evolutionary Requirements
2	2/24/2025	All	Implemented System Requirements, System Constraints, Requirements Modeling, and Evolutionary Requirements

Table of Contents

System Requirements

Functional Requirements

1.1.1 Login

Title	Login
Description	Users should be able to log in with their UM credentials to save their data and preferences.
Priority	0
Precondition(s)	Database with user login information
Basic Flow	User opens app, if not signed in is prompted to sign in. Option to continue as guest.
Postconditions(s)	User is logged in and is presented with home screen
Use Case Diagram	3.1.1

1.1.2 Home Screen

Title	Home Screen
Description	A home screen to display all of the different offerings of the app. User is presented with tiles to direct to different sports and the option to change settings or update profile.
Priority	0
Precondition(s)	User must be logged in under account or guest.
Basic Flow	Once the user is logged in, they will have control over their next steps
Postconditions(s)	Once at the home screen the user will choose their desired next step
Use Case Diagram	3.1.2

1.1.3 Calendar

Title	Calendar
Description	A calendar listing all of the university sports matches and games that are known. Presented monthly, users can click on a day to expand as well as filter by sport.
Priority	1
Precondition(s)	User must navigate to calendar section from home screen of app
Basic Flow	User clicks on calendar tile. From there they can view the upcoming matches. If they wish, they can filter by sport by clicking on the icon
Postconditions(s)	Users will see all matches that are currently scheduled. When they click on a specific date, they will see a small window showing the scores if the game already happened.
Use Case Diagram	3.1.3

1.1.4 Archive of Sports Data

Title	Archive of Sports Data
Description	For each sport there should be data for the teams and individual players (where applicable) including wins, losses, box score information, etc. Data is updated with new matches
Priority	0
Precondition(s)	All of the data needs to be loaded into the database and available to be queried or accessed whenever called upon.
Basic Flow	Users will click on the sport tile of their choosing and be presented with a screen that includes an option to view past games. Users can view data for teams as a whole or individual players
Postconditions(s)	Users are able to see the results of games, points scored, and other stats in a data table format.
Use Case Diagram	3.1.4

1.1.5 Athlete Bios

Title	Athlete Bios
Description	Users will be able to view information about their favorite student-athletes that includes a profile picture, short description, and links to social media
Priority	3
Precondition(s)	Users can access athlete bios from home screen tile or when viewing a specific game
Basic Flow	When users click on the Athletes tile from the home screen they will be taken to another page where they can view athletes by sport or search by name. Once selected, they will see the desired information.
Postconditions(s)	Users see athlete information and are presented with a choice to return to home screen
Use Case Diagram	3.1.5

1.1.6 Student Tickets

Title	Student Tickets
Description	Users will be able to click on a link that redirects to the student ticket website
Priority	5
Precondition(s)	The website must be known and able to be clicked on as a link
Basic Flow	From the home screen, users are presented with a tile called Student Tickets that redirects to the website
Postconditions(s)	Once at the website, users can log in with their student credentials and get student tickets
Use Case Diagram	3.1.6

1.1.7 Notifications for Game Updates

Title	Notifications for game updates
Description	Users will receive push notifications from the app about current or upcoming games. Users can choose to receive notifications from specific players.
Priority	4
Precondition(s)	Compatibility with the push notification system
Basic Flow	Users will allow push notifications from the settings of the app and on a timely basis will receive updates about game information.
Postconditions(s)	Users are presented with a notification on their screen
Use Case Diagram	3.1.7

Non-Functional Requirements

1.2.1 Access to University Information

Title	
Description	The system will require permission from the University of Miami to use the archives of game and player data as well as school logos
Priority	0
Applicable FR(s)	Archive of Sports Data

1.2.2 Database Constraints

Title	Database Constraints
Description	The system shall at all times have access to the vast amount of data needed to serve its users. Databases will include game results, stats, and schedules
Priority	0
Applicable FR(s)	Archive to Sports Data, Athlete Bios, Calendar

1.2.3 User Information Protection

Title	User Information Protection
Description	The system shall protect the user's private information such as login credentials and data
Priority	0
Applicable FR(s)	Login

1.2.4 Speed of Service

Title	Speed of Service

Description	Users should not be presented with any delays when using the service. Access to game data should be within 5 ms
Priority	2
Applicable FR(s)	Home Screen, Archive of Sports Data

System Constraints

Tool Constraints

2.1.1 Development Framework

Title	Development Framework
Description	Appropriate frameworks such as Node.js, Flutter. Must be capable of handling real-time incoming sports data (Firebase)
Priority	5

2.1.2 User Engagement

Title	User Engagement
Description	The app should provide interactive elements such as athlete Q&A sessions, polls and fan forums for student engagement
Priority	1

2.1.3 Multi-Sport Coverage

Title	Multi-Sport Coverage
Description	Include all University of Miami sports teams, ensuring equal visibility and accessibility for every sport
Priority	2

2.1.4 User-Friendly Interface

Title	User-Friendly Interface
Description	The design should be intuitive, visually appealing, and easy to navigate, especially for students and sports fans.
Priority	2

2.1.5 Push Notifications & Alerts

Title	Push Notifications & Alerts
Description	Users should receive instant updates on game results, team news, and upcoming events.
Priority	1

2.1.6 Social Media & Community Integration

Title	Social Media & Community Integration
Description	The app should allow content sharing to social media platforms and possibly integrate team/athlete social media updates.

Priority	3

Language Constraints

2.2.1 Programming Languages

Title	Programming Languages
Description	The Sports app will be developed using JavaScript and reliable frontend backend framework (Node.js)
Priority	2

2.2.2 Primary Language

Title	Primary Language – English
Description	The default language will be English, since it is the primary language spoken by students
Priority	0

2.2.3 Sports Terminology Standardization

Title	Sports Terminology Standardization
Description	All sports-related terms should be consistent and accurate, using official NCAA and team-specific language.
Priority	1

2.2.4 User-Generated Content Moderation

Title	User-Generated Content Moderation
Description	Any user-generated comments, posts, or interactions must be filtered for offensive language and inappropriate content.
Priority	1

2.2.5 Localized Date & Time Formats

Title	Localized Date & Time Formats
Description	The app should display dates and times based on the user's location and preferences (12-hour vs. 24-hour).
Priority	4

Platform Constraints

2.3.1 Cross-Platform support

Title	Cross-Platform support
Description	App availability for iOS (Apple Store) and Android devices. Optimize a web-based version
Priority	1

2.3.2 Offline Mode

Title	Offline mode
Description	The app should allow users to access past scores and schedules even without an internet connection.
Priority	4

2.3.3 Third-Party API Integration

Title	Third-Party API Integration
Description	The platform must support integration with sports data APIs, social media, and ticketing systems.
Priority	2

2.3.4 Push Notification Support

Title	Push Notification Support
Description	The app must support push notifications for both iOS and Android to alert users about game updates, scores, and team news.
Priority	2

2.3.5 Cloud Based Backend

Title	Cloud Based Backend
Description	The app should leverage cloud services for real-time data updates, user authentication, and storage scalability
Priority	1

Hardware Constraints

2.4.1 Device Management

Title	Device Management, Storage Usage, Battery Efficiency

Description	Updates to ensure app runs efficiently and has smooth performance. Optimized storage – minimize storage while including offline access to scores and schedules. Consume minimal battery while running live games and background processes.
Priority	4

2.4.2 Smartphone Compatibility

Title	Smartphone compatibility
Description	The app must function on modern smartphones with at least 2GB RAM and Android 8.0+ / iOS 13+
Priority	0

2.4.3 Internet Connectivity

Title	Internet Connectivity
Description	A stable internet connection (Wi-Fi or mobile data) is required for real-time updates, live scores, and notifications.
Priority	1

2.4.4 Tablet Support

Title	Tablet support
Description	The app should be optimized for tablets, ensuring proper UI scaling and usability
Priority	2

Network Constraints

2.5.1 Internet Connectivity

Title	Reliable network
Description	Sport's app must have a strong reliable stable internet connection to retrieve live updates. Should be capable of showing past scores in case of offline connectivity.
Priority	2

2.5.2 Data Usage

Title	Efficient bandwidth

Description	Efficient bandwidth so it optimizes data consumption for loading data and fetching live scores
Priority	2

Deployment Constraints

2.6.1 App Distribution

Title	App Distribution
Description	Should be deployable on Google Play Store and Apple Store.
Priority	1

2.6.2 Update Mechanism

Title	Updates
Description	Updates should not disturb or disrupt user experience. Consistent updates.
Priority	2

Transition & Support Constraints

2.7.1 User Support System

Title	Documentation and Help/Service desk
Description	Implement FAQs, help section (troubleshooting guides), live support. Possibly a ticketing system for support.
Priority	3

2.7.2 Maintenance (Long-Term & Short-term)

Title	Maintenance and updates
Description	Apple needs bug fixes, security updates, features enhanced by user-feedback. A resourceful and time-manageable team should handle long-term development
Priority	3

Budget & Schedule Constraints

2.8.1 Resource Allocation

Title	Workload distribution

Description	Efficiently workload distribution amongst team members to avoid outsourcing.
Priority	2

2.8.2 Development Costs

Title	Development Costs
Description	Project budget will cover software tools, hosting, and third-party API costs for sports data. Open-source technologies are prioritized to minimize costs.
Priority	3

2.8.3 Roadmap

Title	Project Timeline
Description	Roadmap should include UI design, backend development, testing, and development. Delays minimized using risk management and planning. Must have predefined goals.
Priority	4

Miscellaneous Constraints

2.9.1 Compliance with UM policies

Title	UM policies
Description	App must follow University of Miami policies (protection if student data, services, sport related brands). Proper authorization and legal use of sports-related info. From the University. Follow's Copyright Laws.
Priority	3

2.9.2 API limitations

Title	API limitations
Description	If APIs or AI are used to retrieve sport statistics, its usage limits should be complied with.
Priority	3

2.9.3 Data Privacy & Security

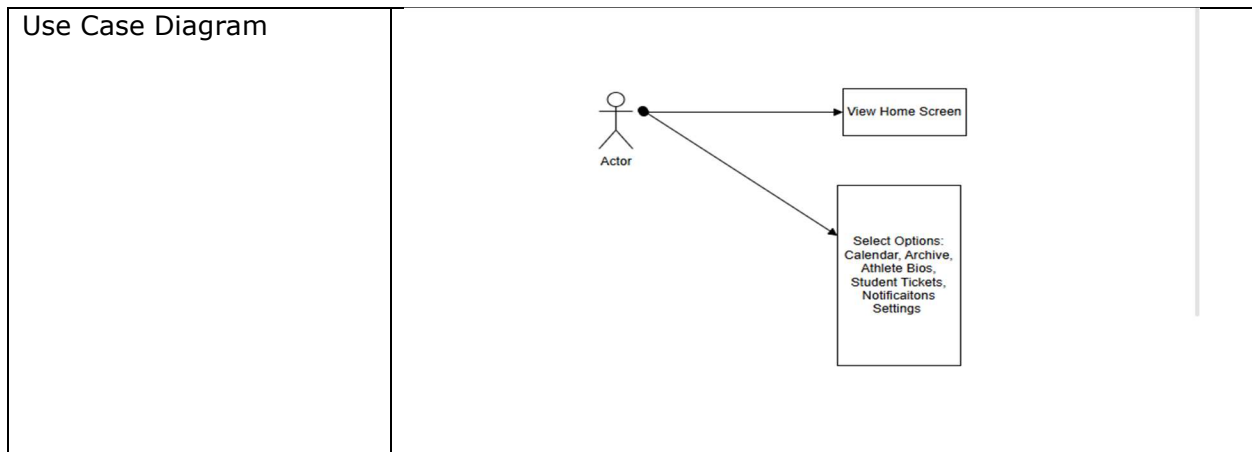| Title	Protection of user info.
Description	App should include encrypted authentication, secure API communication. App should follow the best security practices: follow privacy laws.
Priority	3

2.9.3 Scalability

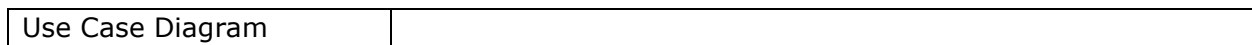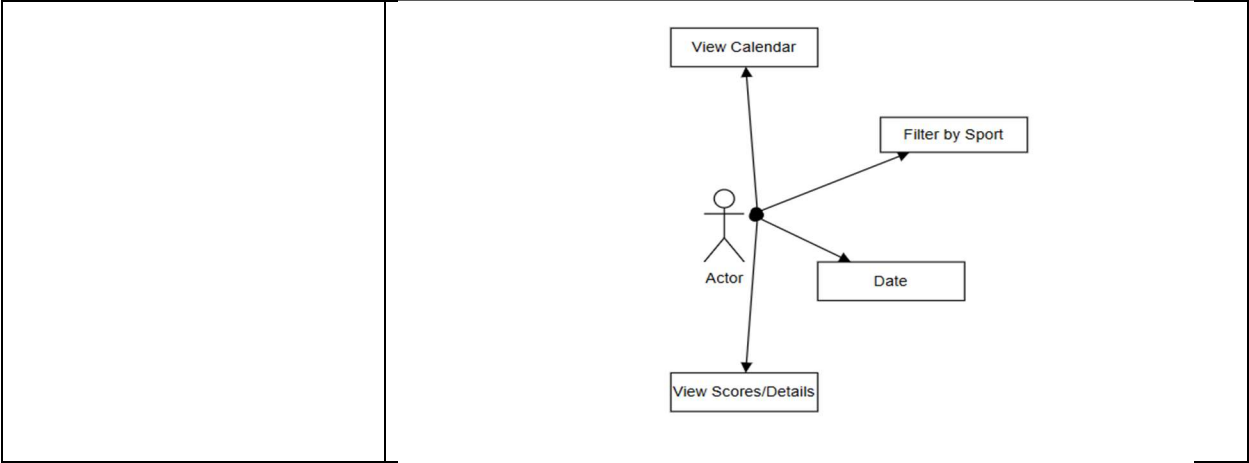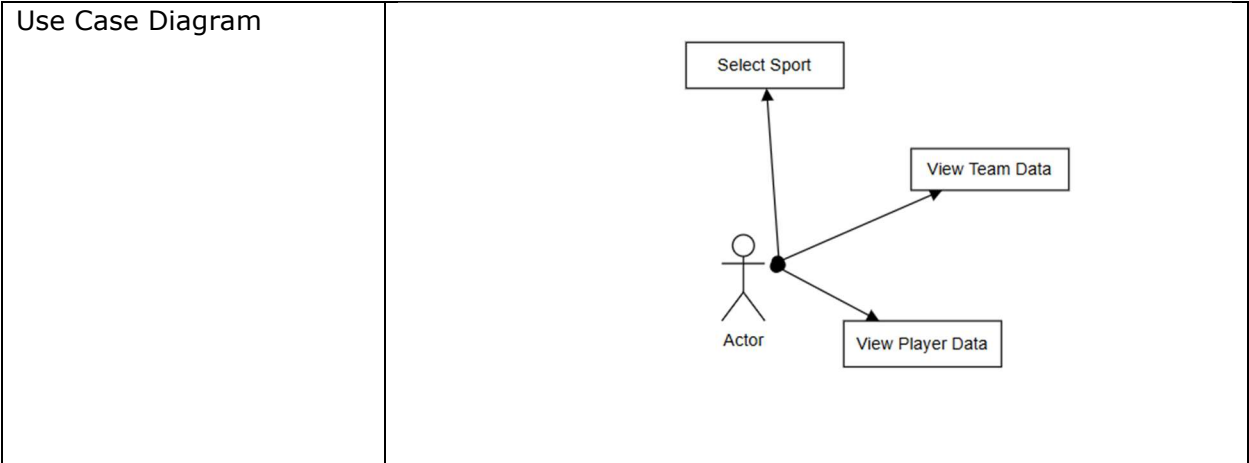| Title	Expansion capability
Description	App should be able to handle future increases in user and data with performance degradation.
Priority	2

Requirements Modeling

3.1.1 Login

Use Case Diagram	

3.1.2 Home Screen

Use Case Diagram	

3.1.3 Calendar

Use Case Diagram	

	 View Calendar Filter by Sport Actor Date View Scores/Details

3.1.4 Archive of Sports Data

Use Case Diagram	
	 Select Sport View Team Data Actor View Player Data

3.1.5 Athlete Bios
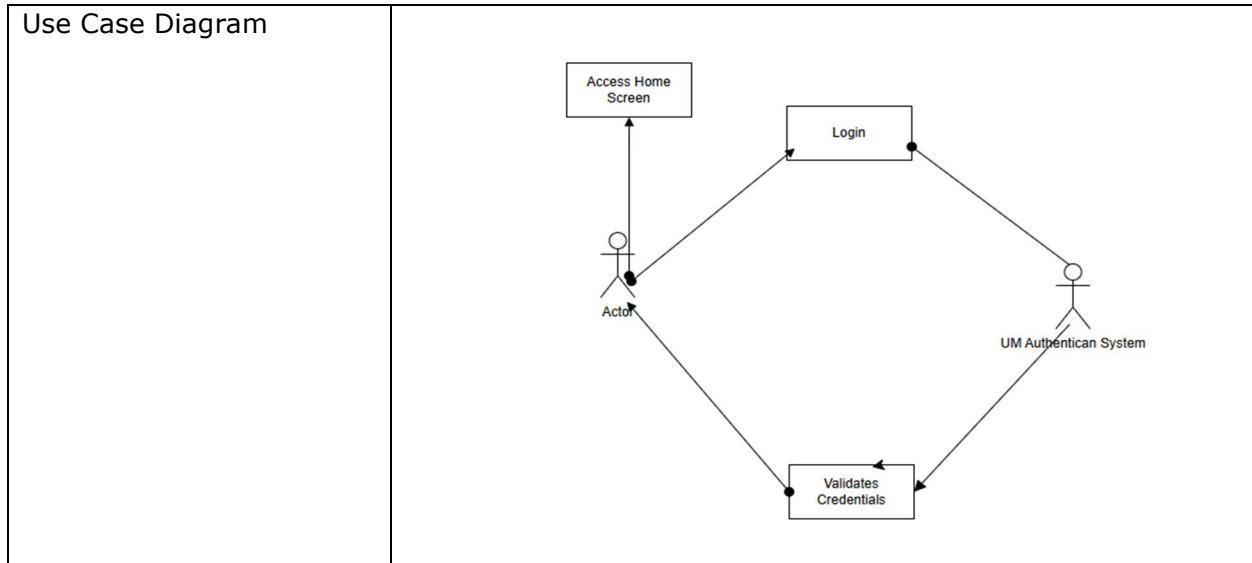
Use Case Diagram	
	 Search Athlete View Athlete Profile Actor Return to Home Screen
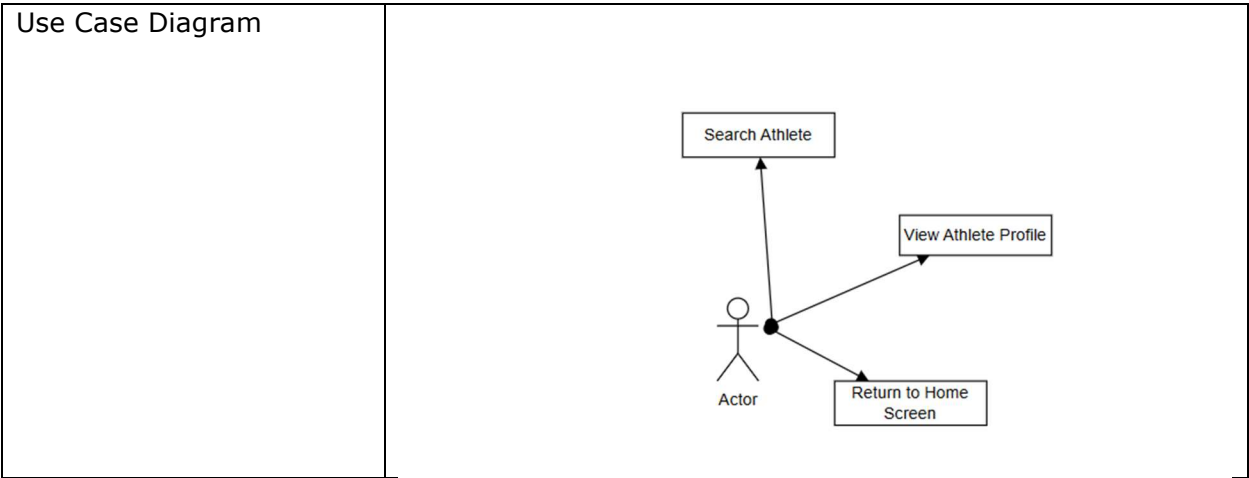
3.1.6 Student Tickets
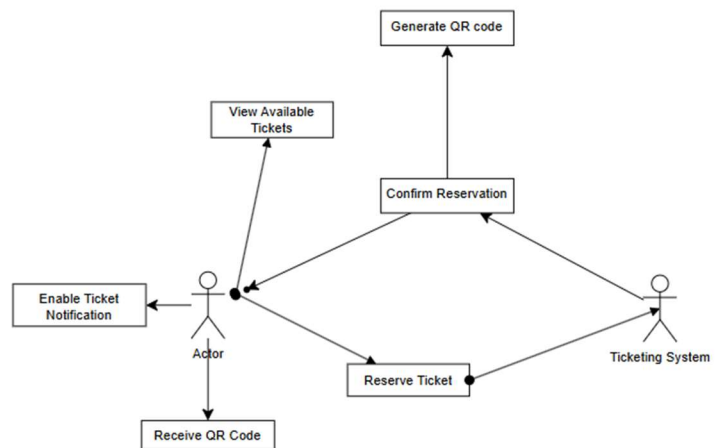
Use Case Diagram	

3.1.7 Notifications for Game Updates

Use Case Diagram	
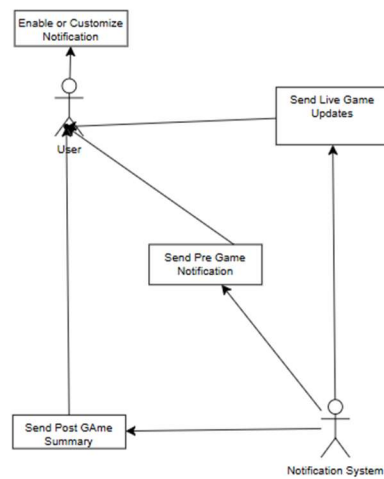
Evolutionary Requirements

Functional Requirements

In-App Merchandise Store

Title	In-app Merchandise Store
Description	The app should allow users to browse and purchase University of Miami sports merchandise
Priority	2
Precondition(s)	The app must integrate with a merchandise provider. The user must have a payment method linked
Postconditions(s)	The user successfully purchases merchandise
Use Case Diagram	

4.1.2 Alumni & Fan Club Engagement

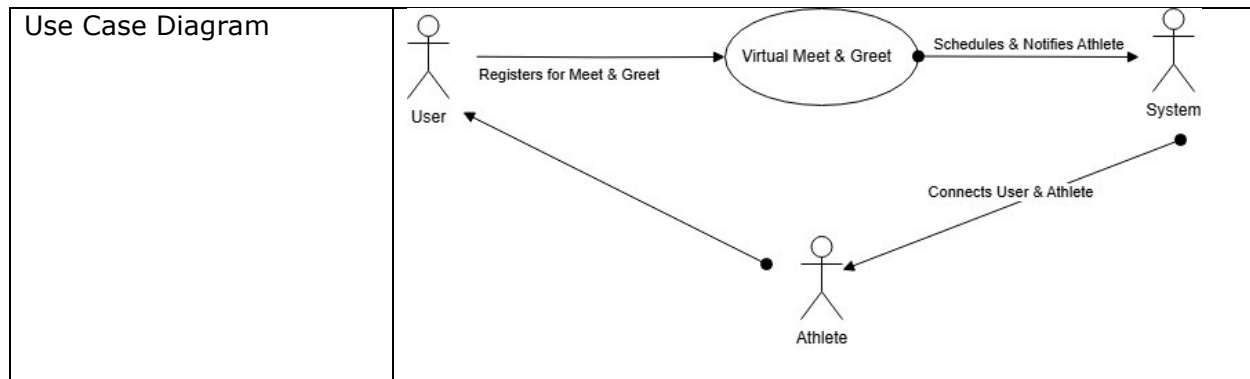| Title	Alumni & Fan Club Engagement
Description	The app should allow alumni and fans to connect, share experiences and access exclusive content
Priority	2
Precondition(s)	The user must register as an alumni or fan club member
Postconditions(s)	The user gains access to exclusive alumni content and discussions
Use Case Diagram	

4.1.3 AR Game Previews

Title	Augmented Reality Game Previews
Description	The app should provide an AR experience that displays game previews, team stats or player highlights using AR technology
Priority	1
Precondition(s)	The device must support AR capabilities The user must grant camera access
Postconditions(s)	Users can interact with AR features for enhanced engagement
Use Case Diagram	

4.1.4 Virtual Meet & Greets with Athletes

Title	Virtual Meet & Greets
Description	The app should allow students to schedule and attend virtual Q&A sessions with athletes
Priority	3
Precondition(s)	The athlete must opt into the session The user must register for an available session
Postconditions(s)	The user successfully attends a virtual meet-and-greet session

Use Case Diagram	

4.1.5 Live Game Streaming Integration

Title	Live Game Streaming
Description	The app should allow users to access live game streams or provide links to official streaming services
Priority	0
Precondition(s)	The app must have integration with a streaming service provider The user must have internet connection
Postconditions(s)	Users can watch live games directly from the app or through an external link
Use Case Diagram	

Non-Functional Requirements

4.2.1 QR Code Ticket Integration

Title	QR Code Ticket Integration
Description	Users should be able to access their student tickets via QR codes directly in the app.
Priority	3
Applicable FR(s)	Way to link to get Student tickets

4.2.2 Game Reminder Alerts

Title	Game Reminder Alerts
Description	Users should be able to set reminders for upcoming games
Priority	2

Applicable FR(s)	Sport Personalization & Preference

4.2.3 Social Media Sharing

Title	Social Media Sharing
Description	The app should allow users to share game highlights, scores and athlete achievements on social media
Priority	3
Applicable FR(s)	Links to player's socials

4.2.4 Multi-Language Support

Title	Multi-Language Support
Description	The app should provide translations for different languages to improve accessibility
Priority	4
Applicable FR(s)	User Personalization & Preferences

4.2.5 Customizable Push Notifications

Title	Customizable Push Notifications
Description	Users should be able to fine-tune notification, choosing which updates they receive
Priority	2
Applicable FR(s)	Push Notifications for Game Events

4.2.6 Voice Command Support

Title	Voice Command Support
Description	Users should be able to navigate the app using voice commands
Priority	4
Applicable FR(s)	User Personalization & Preferences

4.2.7 Dark Mode Support

Title	Dark Mode Support
Description	The app should support a dark mode option for better user experience and reduced eye strain
Priority	3
Applicable FR(s)	User Personalization & Preferences