Software Requirements Specification for Software Engineering: subtitle describing software

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October 6, 2024

Contents

Revision History

Date	Version	Notes
Date 1	1.0	Notes
Date 2	1.1	Notes

1 Purpose of the Project

1.1 User Business

The primary business of the McMaster GSA softball league is to facilitate recreational softball activities for students, staff, and alumni. The league aims to provide an organized platform for scheduling games, managing teams, and tracking player performance, enhancing the overall experience for participants. By streamlining league operations, the platform will foster a more inclusive and efficient environment, enabling better communication among players, captains, and commissioners.

- Team Management: captains will have the ability to create and manage their teams, inviting players to join, assigning roles, and ensuring that all team members are informed about practices and games.
- Game Scheduling: users will utilize the scheduling tools to view upcoming games, propose new times, and request rescheduling, ensuring that all participants are aware of their commitments and can manage their time effectively.
- Communication and Announcements: Commissioners will post league-wide announcements and updates, allowing all users to stay informed about important news, such as changes in scheduling, league policies, or events.
- Performance Tracking: players can track their individual and team performance through leaderboards and standings, fostering a sense of competition and motivation to improve.
- Payment Management: the application will provide visibility into players' payment statuses, enabling captains and commissioners to easily monitor team compliance with league participation requirements.
- Community Building: through features such as announcements and event notifications, users can engage with one another beyond the field, strengthening community ties and enhancing the overall experience of league participation.

1.2 Goals of the Project

The primary goal of the McMaster GSA softball league platform project is to develop an intuitive, user-friendly web application that enhances the management and operation of the league. Specific goals include:

- Streamlined Scheduling and Communication: Simplify the scheduling process for games and practices, allowing captains to manage their teams effectively while facilitating clear communication between all stakeholders.
- Role-Based Access Control (RBAC): Implement a secure login system using JSON Web Tokens (JWT) that allows different levels of access for commissioners, captains, and players, ensuring that users can perform actions relevant to their roles without compromising sensitive information.
- Improved User Interface: Design a modern, responsive user interface that enhances usability and engagement, making it easier for participants to navigate the platform and access essential features.
- Enhanced Data Management: Develop robust features for managing player registrations, tracking payment statuses, and maintaining accurate standings and leaderboards, thereby reducing administrative overhead and increasing transparency.
- Facilitate Community Engagement: Foster a sense of community among participants through features such as announcements, event notifications, and an organized platform for sharing updates, enhancing the overall experience of league participation.

2 Stakeholders

2.1 Client

The client for this project is the McMaster GSA, which oversees the softball league. Their primary goal is to provide a robust platform that improves the management of the league, facilitates better communication among users, and enhances the overall user experience. The GSA will benefit from increased participation and smoother operations, ultimately fostering a stronger community at McMaster.

2.2 Customer

The customers are the users of the platform, including players, captains, and commissioners. They seek an intuitive and efficient system that allows for easy management of games, team coordination, and communication. By addressing their needs, the platform aims to increase user satisfaction and engagement within the league.

2.3 Other Stakeholders

Other stakeholders include the university administration, potential sponsors, and the broader McMaster University community. These groups may have a vested interest in the successful operation of the league, as it contributes to student life and community engagement. Sponsors may seek visibility and promotional opportunities through the league's activities.

2.4 Hands-On Users of the Project

Hands-on users include the players, captains, and commissioners who will interact with the platform daily. Players will use the system to join teams, view schedules, and track their performance. Captains will manage their teams, schedule games, and communicate with players. Commissioners will oversee league operations, post announcements, and manage administrative tasks.

2.5 Personas

Player Persona: A student looking to join a team, participate in recreational activities/games, check their game schedule, and track their performance. Captain Persona: An organized individual responsible for managing team logistics, rescheduling games, and ensuring effective communication. Commissioner Persona: A knowledgeable overseer who ensures the league operates smoothly, creates game schedules, handles disputes, and communicates important updates to all users.

2.6 Priorities Assigned to Users

Players prioritize ease of joining teams, checking their game schedule, and tracking performance. Captains focus on scheduling flexibility, team management features, and communication tools. Commissioners prioritize administrative functionality, announcement features, and overall system reliability.

2.7 User Participation

User participation will be critical throughout the project. Stakeholders will provide feedback during the development process to ensure the platform meets their needs. User testing sessions will be conducted to gather insights and refine the interface and features.

2.8 Maintenance Users and Service Technicians

Maintenance users include any staff responsible for ongoing system updates, bug fixes, and technical support (our team). This group ensures that the platform remains functional, secure, and up-to-date. Service technicians may be involved in troubleshooting issues and providing assistance to users, particularly during peak usage periods, such as the beginning of the season.

3 Mandated Constraints

3.1 Solution Constraints

Insert your content here.

3.2 Implementation Environment of the Current System

Insert your content here.

3.3 Partner or Collaborative Applications

Insert your content here.

3.4 Off-the-Shelf Software

Insert your content here.

3.5 Anticipated Workplace Environment

Insert your content here.

3.6 Schedule Constraints

Insert your content here.

3.7 Budget Constraints

Insert your content here.

3.8 Enterprise Constraints

Insert your content here.

4 Naming Conventions and Terminology

4.1 Glossary of All Terms, Including Acronyms, Used by Stakeholders involved in the Project

Insert your content here.

5 Relevant Facts And Assumptions

5.1 Relevant Facts

Insert your content here.

5.2 Business Rules

Insert your content here.

5.3 Assumptions

Insert your content here.

6 The Scope of the Work

6.1 The Current Situation

Insert your content here.

6.2 The Context of the Work

Insert your content here.

6.3 Work Partitioning

Insert your content here.

6.4 Specifying a Business Use Case (BUC)

Insert your content here.

7 Business Data Model and Data Dictionary

7.1 Business Data Model

Insert your content here.

7.2 Data Dictionary

Insert your content here.

8 The Scope of the Product

8.1 Product Boundary

Insert your content here.

8.2 Product Use Case Table

Insert your content here.

8.3 Individual Product Use Cases (PUC's)

Insert your content here.

9 Functional Requirements

9.1 Functional Requirements

Requirement #: 1 **Requirement Type:** 9 **Event/Use Case:** 1
Description: The platform shall provide a login system where users enter credentials (username, password) to access the system.
Rationale: Ensures secure access to the platform and role-specific functionality.
Fit Criterion: No unauthorized users are able to log in and access role-based features after entering credentials.
Customer Satisfaction: 5 **Customer Dissatisfaction:** 5

Requirement #: 2 **Requirement Type:** 9 **Event/Use Case:** 1
Description: The platform shall distinguish between different user roles (commissioner, captain, player) and role-specific access after login.
Rationale: Provides tailored access to players, captains, admin.
Fit Criterion: Different user-roles only have access to the features assigned to their roles after login.

Customer Satisfaction: 5 **Customer Dissatisfaction:** 5

Requirement #: 3 **Requirement Type:** 9 **Event/Use Case:** 2
Description: The platform shall allow users to view the game schedule including date, time, location, opponent.
Rationale: Facilitates easy access to schedule information to provide league members with aligned game information.
Fit Criterion: Schedules and game information are viewable by users.
Customer Satisfaction: 5 **Customer Dissatisfaction:** 5

Requirement #: 4 **Requirement Type:** 9 **Event/Use Case:** 3
Description: The platform shall provide an accurate display of league standings for all registered users.
Rationale: Keeps league members informed of team rankings.
Fit Criterion: League standings are updated accurately, automatically and visible to logged-in users.
Customer Satisfaction: 4 **Customer Dissatisfaction:** 4

Requirement #: 5 **Requirement Type:** 9 **Event/Use Case:** 4
Description: The platform shall allow captains to create a team by entering team details and submitting for registration.
Rationale: Enables team formation and league participation.
Fit Criterion: Captains can create a team, and details are stored in the system.
Customer Satisfaction: 5 **Customer Dissatisfaction:** 5

Requirement #: 6 **Requirement Type:** 9 **Event/Use Case:** 5
Description: The platform shall allow players to request to join a team, and notify the captain for approval.
Rationale: Simplifies team membership management and formation.
Fit Criterion: Players can submit join requests, and captains can approve or reject them and the system automatically updates the roster.
Customer Satisfaction: 4 **Customer Dissatisfaction:** 5

Requirement #: 7 **Requirement Type:** 9 **Event/Use Case:** 6

Description: The platform shall automatically generate the season game schedule based on team availability and preferences.
Rationale: Automates scheduling for league to begin with improved efficiency.
Fit Criterion: The system generates a schedule that gives all teams equal games and factors in team preferences.
Customer Satisfaction: 5 **Customer Dissatisfaction:** 5

Requirement #: 8 **Requirement Type:** 9 **Event/Use Case:** 7
Description: The platform shall allow captains to request a reschedule by selecting a new time slots for an existing game.
Rationale: Enables flexibility and error-handling in scheduling.
Fit Criterion: Captains can successfully submit reschedule requests, and the system tracks pending requests.
Customer Satisfaction: 4 **Customer Dissatisfaction:** 5

Requirement #: 9 **Requirement Type:** 9 **Event/Use Case:** 8
Description: The platform shall allow users to view league-wide announcements, lost and found, weather updates on the dashboard.
Rationale: Keeps users informed about important league updates.
Fit Criterion: Announcements are displayed in the users announncement dashboard.
Customer Satisfaction: 4 **Customer Dissatisfaction:** 3

Requirement #: 10 **Requirement Type:** 9 **Event/Use Case:** 9
Description: The platform shall allow administrators to post announcements that are visible to all users.
Rationale: Enables effective communication with all participants.
Fit Criterion: Administrators can post announcements to be viewable by players.
Customer Satisfaction: 3 **Customer Dissatisfaction:** 3

Requirement #: 11 **Requirement Type:** 9 **Event/Use Case:** 10
Description: The platform shall allow administrators to manually cancel or reschedule games due to weather conditions or accepted requests.
Rationale: Ensures timely communication for game rescheduling or cancel-

lations.
Fit Criterion: Administrators can cancel or reschedule games, which updates the schedule, and teams are notified automatically.
Customer Satisfaction: 5 **Customer Dissatisfaction:** 4

Requirement #: 12 **Requirement Type:** 9 **Event/Use Case:** 11
Description: The platform shall allow captains to report game scores and forfeits by selecting a completed game and submitting the final result.
Rationale: Simplifies reporting and keeps standings up to date.
Fit Criterion: Captains can submit game results, and standings are updated automatically.
Customer Satisfaction: 4 **Customer Dissatisfaction:** 3

10 Look and Feel Requirements

10.1 Appearance Requirements

The platform must feature a modern, intuitive interface with consistent visual elements across all views.

10.2 Style Requirements

The platform shall follow a consistent color palette, typography, and layout.

11 Usability and Humanity Requirements

11.1 Ease of Use Requirements

The product must be easy to use for graduate students.

11.2 Personalization and Internationalization Requirements

The platform must be tailored to Canadian English, using the metric system for measurements and adhering to local date and time formats.

11.3 Learning Requirements

The platform must provide clear instructions and tooltips on all views to help new users quickly learn how to navigate and use key features.

The platform must include easily accessible help documentation for users to learn how to perform tasks and resolve issues independently.

11.4 Understandability and Politeness Requirements

The platform must provide clear, straightforward navigation with simply labeled menus and buttons so that minimal prior knowledge is required.

11.5 Accessibility Requirements

The platform shall provide basic accessibility features, such as keyboard navigation and sufficient text contrast, to ensure usability for a wide range of users.

12 Performance Requirements

12.1 Speed and Latency Requirements

The platform must respond to user actions (e.g., scheduling, score reporting) within 1 second.

12.2 Safety-Critical Requirements

The platform must ensure the secure and accurate storage of player personal information and waivers, preventing data loss or corruption.

12.3 Precision or Accuracy Requirements

The platform must calculate and display the standings with 100% accuracy.

The platform must accurately match game preferences with available slots to avoid conflicts or scheduling errors and maximize adhesion with team schedule preferences.

12.4 Robustness or Fault-Tolerance Requirements

The platform shall handle common errors (e.g., failed database connections) without crashing, and users shall be able to retry actions if errors occur.

12.5 Capacity Requirements

The platform must be able to store and handle the scheduling for at minimum 50 teams in the league.

12.6 Scalability or Extensibility Requirements

The platform shall support up handling 50 teams without performance issues.

12.7 Longevity Requirements

The platform must use modern, widely supported web technologies to ensure long-term compatibility with future devices and browsers.

13 Operational and Environmental Requirements

13.1 Expected Physical Environment

Insert your content here.

13.2 Wider Environment Requirements

Insert your content here.

13.3 Requirements for Interfacing with Adjacent Systems

Insert your content here.

13.4 Productization Requirements

Insert your content here.

13.5 Release Requirements

Insert your content here.

14 Maintainability and Support Requirements

14.1 Maintenance Requirements

Insert your content here.

14.2 Supportability Requirements

Insert your content here.

14.3 Adaptability Requirements

Insert your content here.

15 Security Requirements

15.1 Access Requirements

Insert your content here.

15.2 Integrity Requirements

Insert your content here.

15.3 Privacy Requirements

Insert your content here.

15.4 Audit Requirements

Insert your content here.

15.5 Immunity Requirements

Insert your content here.

16 Cultural Requirements

16.1 Cultural Requirements

Insert your content here.

17 Compliance Requirements

17.1 Legal Requirements

Insert your content here.

17.2 Standards Compliance Requirements

Insert your content here.

18 Open Issues

Insert your content here.

19 Off-the-Shelf Solutions

19.1 Ready-Made Products

Insert your content here.

19.2 Reusable Components

Insert your content here.

19.3 Products That Can Be Copied

Insert your content here.

20 New Problems

20.1 Effects on the Current Environment

Insert your content here.

20.2 Effects on the Installed Systems

Insert your content here.

20.3 Potential User Problems

Insert your content here.

20.4 Limitations in the Anticipated Implementation Environment That May Inhibit the New Product

Insert your content here.

20.5 Follow-Up Problems

Insert your content here.

21 Tasks

21.1 Project Planning

Insert your content here.

21.2 Planning of the Development Phases

Insert your content here.

22 Migration to the New Product

22.1 Requirements for Migration to the New Product

Insert your content here.

22.2 Data That Has to be Modified or Translated for the New System

Insert your content here.

23 Costs

Insert your content here.

24 User Documentation and Training

24.1 User Documentation Requirements

Insert your content here.

24.2 Training Requirements

Insert your content here.

25 Waiting Room

Insert your content here.

26 Ideas for Solution

Insert your content here.

Appendix — Reflection

The information in this section will be used to evaluate the team members on the graduate attribute of Lifelong Learning. Please answer the following questions:

1. What knowledge and skills will the team collectively need to acquire to successfully complete this capstone project? Examples of possible knowledge to acquire include domain specific knowledge from the domain of your application, or software engineering knowledge, mechatronics knowledge or computer science knowledge. Skills may be related to technology, or writing, or presentation, or team management, etc. You should look to identify at least one item for each team member.
2. For each of the knowledge areas and skills identified in the previous question, what are at least two approaches to acquiring the knowledge or mastering the skill? Of the identified approaches, which will each team member pursue, and why did they make this choice?