Software Requirements Specification for Sandlot: Softball League Scheduling and Management Web Application

Team 29
Nicholas Fabugais-Inaba
Casra Ghazanfari
Alex Verity
Jung Woo Lee

November 4, 2024

Contents

Revision History

Date	Version	Notes
Oct. 7, 2024	1.0	TA Feedback
Oct. 11, 2024	1.1	Rev0
Oct. 28, 2024	1.2	Removed unused sections in requirements cards. Renamed requirements; enforcing letter codes. Added requirements developed in hazard analysis and wrote new requirements to fill gaps and respond to peer feedback.
Nov. 4, 2024	1.3	Modified and added requirements to add coverage. Fixed vague requirements and changed requirements based on TA feedback.

1 Purpose of the Project

1.1 User Business

The McMaster GSA softball league's current scheduling and management platform is used from the 1st week of May until the last week of August. The website creates a season schedule based on the 30-40 teams that are entered into the league by their respective captains. If scheduling conflicts or weather concerns occur, games can be rescheduled by the team captains based on a team's availability. For the many users interacting with the platform, individuals need an intuitive interface that is robust and will allow administrators to easily maintain the system, especially when the website experiences problems. The current platform lacks the capabilities to provide these functionalities to the players, captains, and commissioners. With this project, our team is provided an opportunity to apply our software engineering background to fulfill a desired need for an upgrade to an outdated website.

1.2 Goals of the Project

Our goals with the project are to recreate everything the current website solution does, with a better user interface and a more stable foundation, so that future site admins and league commissioners don't have to deal with the solution breaking or captains/players not understanding how to use the tool. We also plan to add features such as player accounts to help players view their schedules, and a standings viewer to see league scores.

2 Stakeholders

2.1 Client

The client of the project, Dr. Jake Nease, is an active participant in the McMaster GSA softball league and understands the difficulties associated with the current scheduling and management platform. The stability and maintainability concerns with the website are driving factors that contribute to the need for an improved interface.

2.2 Customer

The customers for this project include the players, captains, commissioners, umpires, and other individuals that may interact with the website. These individuals require an easy-to-use platform that allows them to seamlessly enter the website and view the season schedule, regardless of whether they have an account created.

2.3 Other Stakeholders

Future website administrators and maintainers have an interest in the maintainability, learnability of administrative functions, and the robustness of the website.

2.4 Hands-On Users of the Project

Players
- User creates an account, logins to their account, and requests to join a team.
- User needs to know their login details, the team they will join, game details from looking at the schedule.

Captains
- User creates an account, logins to their account, creates a team, and reschedules a game.
- User needs to know their login details, game details from looking at the schedule, days the team is free to reschedule a game.

Commissioners
- User creates an account, logins to their account, can send league alerts, and assign teams to divisions.
- User needs to know their login details, and what alerts they may need to send to the league.

Umpires
- User needs to view the schedule for the game they will be the umpire for.
- User needs to know the game details from looking at the schedule.

Project Supervisor
- User will help gather stakeholders to test the product, meet with the team to discuss the project, provide insight to requirements desired in the product.

- User needs to know how to contact the team, which stakeholders can be contacted to test the product, what requirements are needed to satisfy the needs of the project.

2.5 Personas

1. Josh Brown is a 26-year-old player that has recently joined the McMaster GSA softball league, and he is unfamiliar with how the website functions. As someone who understands how technology works though, he is able to navigate the interface quite well. However, some links he interacts with give him a 404 page not found error. This aggravates Josh as he just wants to understand certain information about the softball league, but the website isn't able to provide it to him because the links on the website are faulty or other issues occur. Josh, along with many others who are new to the league, may be technically literate, but due to the structural integrity of the system, there are many times when users may not be able to access certain information because there is either an error or a link that leads to nothing.

2. Ken Phillips is a 58-year-old captain for his McMaster GSA softball team, and he has been using the current website for as long as he can remember. Although he is not too familiar with how technology works, he is still able to navigate and utilize the website's functionalities as he has used them for quite some time now. Unfortunately, with the creation of the new website, even though the website has the same existing functions as the old system, he is not as familiar with how to navigate the interface the same way he has before. Ken and other individuals that may be comfortable and familiar with the current outdated platform, need the new website to be easy-to-use, especially for people that are either older or not as technically literate.

2.6 Priorities Assigned to Users

Key Users
- Players
- Captains
- Commissioners

Secondary Users
- Umpires

Unimportant Users – Spectators

2.7 User Participation

Mainly user participation will be for testing the product. This can be done by many users included below:

- Players
- Captains
- Commissioners
- Umpires
- Spectators
- Project Supervisor

Additionally, the project supervisor will provide valuable insight about the existing system and its capabilities. These will be used to improve the overall design that will be implemented in the new system.

2.8 Maintenance Users and Service Technicians

The team will be maintaining the product over the development phase until March 2025. Knowledge transfer will then be handed over to the project supervisor along with documentation and other information to aid in the maintaining of the new platform after development is completed.

3 Mandated Constraints

3.1 Solution Constraints

3.2 Implementation Environment of the Current System

Requirement #: **IECS-1**

Description: **The system must be accessible by the internet.**

Rationale: **Users must be able to access all functionalities from their device.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **Users can interact with the system when connected to the internet.**

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

Requirement #: **IECS-2**

Description: **The system must implement a database.**

Rationale: **The system must store information including user login information, the season schedule, team composition, player/captain/commissioner contact information, and game scores.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **The system is able to store and access information pertaining to the league.**

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

Requirement #: **IECS-3**

Description: **The system must be hosted on the web.**

Rationale: **Users must be able to access all functionalities from a web browser.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **Users can access Sandlot through a web browser.**

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

3.3 Partner or Collaborative Applications

Not applicable.

3.4 Off-the-Shelf Software

Not applicable.

3.5 Anticipated Workplace Environment

Not applicable.

3.6 Schedule Constraints

Requirement #: **SC-1**

Description: **The project shall be completed before the final demo.**

Rationale: **Project deadline is non-negotiable, and the product must be completed before the final presentation.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **The product is successfully completed before the final demo.**

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

3.7 Budget Constraints

Requirement #: **BC-1**

Description: **The project shall be subject to a $750 budget.**

Rationale: **Resources required for the project must be under a sum total of $750.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **The total amount spent for the project is under $750.**

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

3.8 Enterprise Constraints

Requirement #: **EC-1**

Description: **The product shall be made available to the project supervisor.**

Rationale: **After project completion, the project supervisor will have access to the product for future use.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **The project supervisor must be able to access all functionalities of the product.**

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

4 Naming Conventions and Terminology

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

Sandlot: Management software for a softball baseball league, the software that is the subject of this document.

Player: A person who plays on a baseball team in the league. They have an account on Sandlot and are a member of a team.

Captain: A person who plays and leads a baseball team in the league. They are in charge of defining the team's information on Sandlot.

Team: A name, list of players and record of match scores that represents a baseball team defined by a captain. Teams are stored on a database on Sandlot.

Commissioner: A person who manages the league. They may also play in the league. Commissioners have top level permissions on Sandlot, they may edit any team information like player list and past scores.

5 Relevant Facts And Assumptions

5.1 Relevant Facts

- The current solution is a website with URL https://www.gsasoftball.ca/
- There are currently 25-32 teams in the league playing an average of 100 games a month.
- Many users are older and require an intuitive UI to enjoy using the site

5.2 Business Rules

Not applicable

5.3 Assumptions

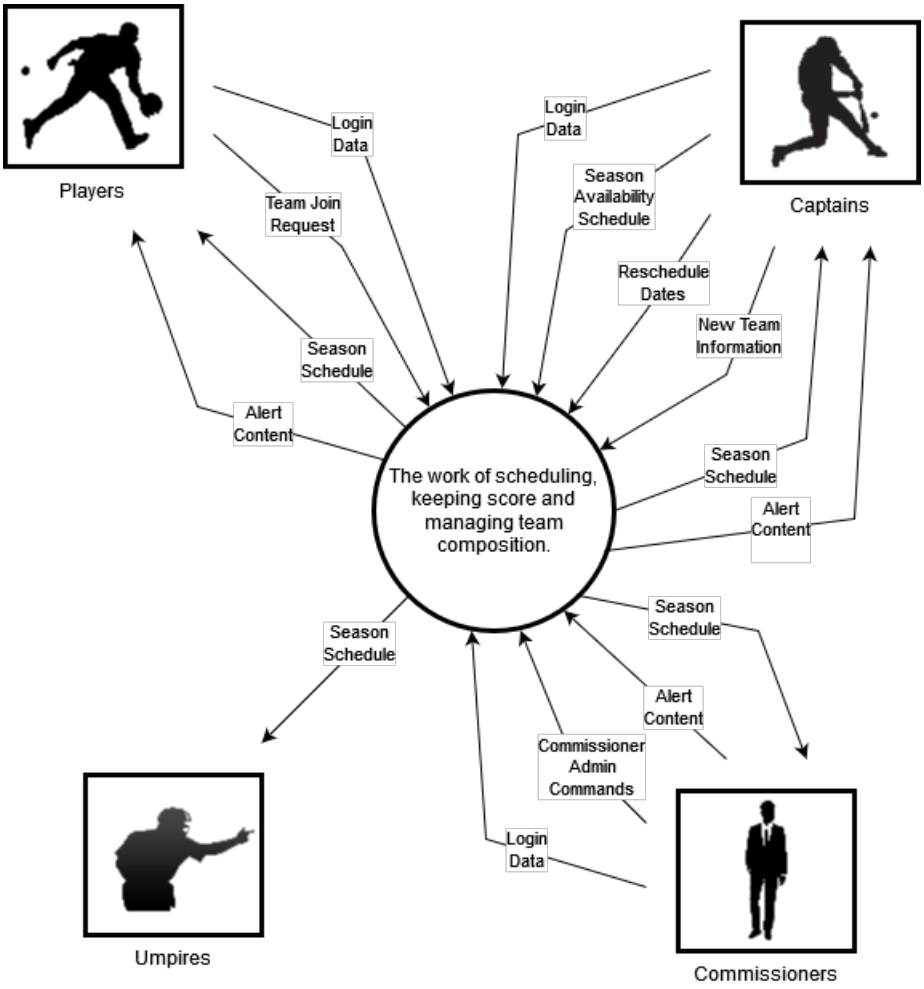
- All users will understand how to log in to a website using a username and password.
- Users will know how a softball league is structured and how it functions.

6 The Scope of the Work

6.1 The Current Situation

It is important to note that we will not be using the existing solution other than as a feature guide. The current solution is hosted on the web and is written in PHP. The current login system does not use a username and password. Only captains can log in, and they are emailed an ASCII code which they use to access the website to schedule games and submit scores. Commissioners can log in in the same way as captains and can modify schedules, scores and team compositions as needed. Currently, the standings functionality, which would allow users to view the scores of played games, is not working.

6.2 The Context of the Work



6.3 Work Partitioning

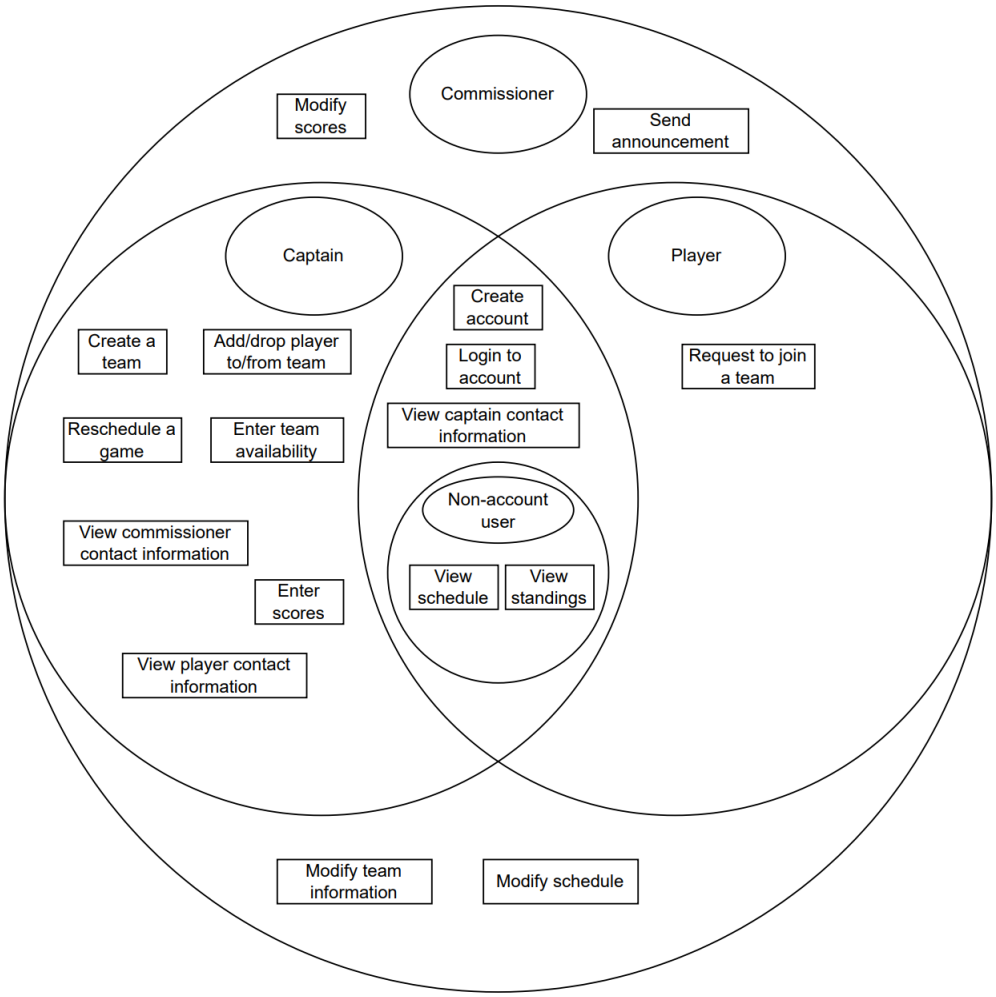
Event Name	Input and Output	Summary of BUC
1. User creates an account	Account Data (in)	A player, captain or commissioner enters in a username and password along with account details including their name, email, phone number, and gender.
2. User logs in	Login Data (in)	A player, captain or commissioner enters their username and password and the system grants them access to their account.
3. Captain creates a team	New Team Information (in)	At the start of the season, captains can enter team information such as a team name. This registers a new team.
4. Player requests to join a team	Team Join Request (in)	At the start of the season, players are not assigned to a team and must request to join one.
5. Season starts and availability entered	Season Availability Schedule (in)	Record the team captain's entered availability schedule. This will be used to generate the league schedule.
6. Reschedule request entered	Reschedule Dates (in)	Record availability dates the requesting captain entered as alternates for the planned date.
7. Reschedule request received	Reschedule Dates (out)	Send the dates the captain who sent the request submit to the other team's captain.
8. User navigates to schedule section	Season Schedule (out)	Display stored season schedule (if available) to site user.
9. User navigates to contact information	Contact Infromation (out)	Display stored contact information (requires specific access) to site user.
10. User submits alert	Alert Content (in)	Commissioners can submit custom alerts to send to any chosen users.

11. System sends alert	Alert Content (out)	Send the alert to any user the alert must reach.
12. Commissioner inputs admin command	Commissioner Admin Commands (in)	Commissioners have the ability to overwrite team composition and schedule.
13. Captain submits game score	Game Score (in)	Captains submit the scores of games they have played into the system.

6.4 Specifying a Business Use Case (BUC)

Not applicable as events are simple and described above in the work partitioning table.

6.5 User Type Hierarchy



7 Business Data Model and Data Dictionary

7.1 Business Data Model

Need to add.

7.2 Data Dictionary

Need to add.

8 The Scope of the Product

All necessary parts of this section were covered in section 6.

8.1 Product Boundary

8.2 Product Use Case Table

8.3 Individual Product Use Cases (PUC's)

9 Functional Requirements

9.1 Functional Requirements

Requirement #: **FR-1**	Event/BUC/PUC #: **7**
Description: **System must display the season schedule and standings.**	
Rationale: **Schedule and standings are important information to be displayed for the league.**	
Originator: **Alex Verity**	
Fit Criterion: **The schedule and standings shall be viewable.**	
Customer Satisfaction: **3**	Customer Dissatisfaction: **3**

Requirement #: **FR-2** Event/BUC/PUC #: **3**

Description: **Captains should be able to create a team which is added to the Sandlot database.**

Rationale: **Teams are defined by captains, in charge of scheduling and recording scores. Captains must be able to define teams at the start of the season.**

Originator: **Alex Verity**

Fit Criterion: **When captains make a team, it should be added to the Sandlot database.**

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

Requirement #: **FR-3** Event/BUC/PUC #: **1**

Description: **Users should be able to create a new account by providing the necessary information.**

Rationale: **An account structure is necessary to be able to change what a user of the system can see/do based on who they are. For example, a player and captain should not be able to see/do the same things or 2 players from different teams should not be able to see/do the same things.**

Originator: **Casra Ghazanfari**

Fit Criterion: **When a user provides the necessary information, an account should be created from that information**

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

Requirement #: **FR-4** Event/BUC/PUC #: **xx**

Description: **Users should be able to change their account information by providing the necessary information.**

Rationale: **User information does not stay the same forever, therefore the system should have a way for the user to change their information if it ever changes.**

Originator: **Casra Ghazanfari**

Fit Criterion: **When a user provides the necessary information, their account information should change.**

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

Requirement #: **FR-5** Event/BUC/PUC #: **xx**

Description: **Users should be able to delete their account by providing the necessary information.**

Rationale: **If a user wants to quit the league they should be able to delete any of their personal information at any time.**

Originator: **Casra Ghazanfari**

Fit Criterion: **When a user provides the necessary information, their account should be deleted.**

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

Requirement #: **FR-6** Event/BUC/PUC #: **8,9**

Description: **Commissioners should be able to send alerts with custom information to a specified user or group of users.**

Rationale: **Commissioners have the need to notify league members with any new information relevant to the league.**

Originator: **Alex Verity**

Fit Criterion: **When a commissioner enters information to alert league members, the league members receive a notification with the relevant information.**

Customer Satisfaction: **2** Customer Dissatisfaction: **3**

Requirement #: **FR-7** Event/BUC/PUC #: **9**

Description: **Commissioners should be able to update the team information of any team, including player list and scores.**

Rationale: **Commissioners have the need to easily fix any errors made by users.**

Originator: **Alex Verity**

Fit Criterion: **When a commissioner enters team information to be changed, the changes are made in the database.**

Customer Satisfaction: **2** Customer Dissatisfaction: **2**

Requirement #: **FR-8** Event/BUC/PUC #: **3**

Description: **Before the season starts, captains must have the option to give their team's availability for the season.**

Rationale: **Each team will have members who may only be free on certain days of the season. This availability will inform the season schedule so that teams will have as many people attending each game as possible.**

Originator: **Alex Verity**

Fit Criterion: **Before the season starts, captains shall be able to view the option to enter their availability and once entered, it shall be stored by the system to be used for scheduling.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

Requirement #: **FR-9** Event/BUC/PUC #: **3**

Description: **Once the season start due date is reached, all captain's availability will be used to generate a season schedule.**

Rationale: **Once the season starts all users need to know the schedule to know when and where to go to games.**

Originator: **Alex Verity**

Fit Criterion: **When the season start due date is reached, a season schedule shall be displayed on the website.**

Customer Satisfaction: **4** Customer Dissatisfaction: **5**

Requirement #: **FR-10** Event/BUC/PUC #: **6**

Description: **Captains must be able to request a rescheduling for their team's upcoming games as long as the game is at least 24 hours in the future. Rescheduling involves giving a list of alternate dates which are sent to the opposing team's captain to choose a date and accept.**

Rationale: **Rescheduling is a core feature of the product, and schedule changes less than a day from when they are to occur may be too little warning for players to prepare for.**

Originator: **Alex Verity**

Fit Criterion: **A captain shall have the option to request a rescheduling for games only more than 24 hours in the future.**

Customer Satisfaction: **4** Customer Dissatisfaction: **5**

Requirement #: **FR-11** Event/BUC/PUC #: **3**

Description: **When a captain receives a rescheduling request, the system should prompt the captain to either accept the request and choose a date from the list of alternate dates, or deny the request.**

Rationale: **Sometimes a captain may not be able to reschedule a game due to prior commitments or some other external factors. Therefore, there should be both an option to accept or deny any resheduling request.**

Originator: **Casra Ghazanfari**

Fit Criterion: **A captain shall have the option to either accept or deny any request to reschedule a game.**

Customer Satisfaction: **4** Customer Dissatisfaction: **5**

Requirement #: **FR-12** Event/BUC/PUC #: **3**

Description: **When a captain's rescheduling request is either accepted or denied the system should notify them about the outcome.**

Rationale: **It is important that the sender of the rescheduling request is informed about the status of the request quickly**

Originator: **Casra Ghazanfari**

Fit Criterion: **A captain who sent a rescheduling request shall be notified on the status of the request when it is responded to.**

Customer Satisfaction: **4** Customer Dissatisfaction: **5**

Requirement #: **FR-13** Event/BUC/PUC #: **9**

Description: **Captains should be able to update their team name and player list.**

Rationale: **Captains are representatives of their teams and should have the ability to control information about their team on a high level. However, they should not have the same power as the commissioner and therefore should only be able to change information related to their team.**

Originator: **Casra Ghazanfari**

Fit Criterion: **A captain shall have the ability to update team information.**

Customer Satisfaction: **4** Customer Dissatisfaction: **5**

Requirement #: **FR-14** Event/BUC/PUC #: **13**

Description: **Captains should be able to submit scores for a game their team has played after the game has been completed.**

Rationale: **Once a game is completed the system must know what the score was to accurately keep track of standings. The most reliable way to achieve this is a captain submitting it.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **The captain should be able to submit a score after their scheduled game time is passed.**

Customer Satisfaction: **4** Customer Dissatisfaction: **5**

Requirement #: **FR-15** Event/BUC/PUC #: **4**

Description: **Players should be able to join a team.**

Rationale: **Players need to join a team to get a team schedule and play in the league.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **When a player joins a team they are added to the team's player list.**

Customer Satisfaction: **4** Customer Dissatisfaction: **5**

Requirement #: **FR-16** Event/BUC/PUC #: **2**

Description: **Account holders should be able to log in to Sandlot.**

Rationale: **After a user makes an account they will need to access that account to use account related features.**

Originator: **Alex Verity**

Fit Criterion: **When a player enters valid account data the solution logs them in to their account.**

Customer Satisfaction: **4** Customer Dissatisfaction: **5**

Requirement #: **FR-17**

Description: **If the season start availability due date hasn't been reached, a captain should be able to resubmit availability data which overwrites previous availability data.**

Rationale: **If the captain makes an error when submitting availability data they should be able to fix their error.**

Originator: **Alex Verity**

Fit Criterion: **If the captain has submitted data, they shall be able to overwrite it with new data.**

Customer Satisfaction: **4** Customer Dissatisfaction: **3**

Requirement #: **FR-18**

Description: **Commissioners should be able to edit the league schedule.**

Rationale: **Commissioners have admin level permissions and should be able to modify the schedule to account for unforeseen problems.**

Originator: **Alex Verity**

Fit Criterion: **If the commissioner inputs new schedule data, the schedule reflects the updates made.**

Customer Satisfaction: **4** Customer Dissatisfaction: **3**

Requirement #: **FR-19**

Description: **Commissioners are able to assign captain level permissions to users.**

Rationale: **Commissioners should be able to assign captains as captains are needed to create and manage teams.**

Originator: **Alex Verity**

Fit Criterion: **If the commissioner assigns a user to captain, the user's account will gain captain level permissions.**

Customer Satisfaction: **4** Customer Dissatisfaction: **3**

Requirement #: **FR-20**

Description: **The system must display a schedule that includes all past and future games from all teams on a calendar.**

Rationale: **All users need to know the league's schedule.**

Originator: **Jung Woo Lee**

Fit Criterion: **The system shall display a schedule that includes all past and future games from all teams on a calendar.**

Customer Satisfaction: **4** Customer Dissatisfaction: **3**

Requirement #: **FR-21**

Description: **The system must display a team schedule for each team that includes all the team's past and future games.**

Rationale: **Users would like to see an individual team's schedule.**

Originator: **Jung Woo Lee**

Fit Criterion: **For each team, the system shall display a schedule that includes all past and future games from the team.**

Customer Satisfaction: **4** Customer Dissatisfaction: **3**

Requirement #: **FR-22**

Description: **The system must display a schedule that displays all upcoming games within a short time interval specified by the commissioner from the present.**

Rationale: **Users would like to see a schedule focused on the soonest games in the season.**

Originator: **Jung Woo Lee**

Fit Criterion: **The system shall display a schedule that displays all upcoming games within a short time interval specified by the commissioner from the present.**

Customer Satisfaction: **4** Customer Dissatisfaction: **3**

Requirement #: **FR-23**

Description: **There can be only one captain associated with each team. Players who are captains of other teams do not count towards the one captain limit.**

Rationale: **Based on the league rules, teams are only allowed one captain.**

Originator: **Jung Woo Lee**

Fit Criterion: **No team can have more than one captain associated with the team.**

Customer Satisfaction: **4** Customer Dissatisfaction: **3**

10 Look and Feel Requirements

10.1 Appearance Requirements

Requirement #: **AP-1**

Description: **All user input elements should be distinctive such that they can be contrasted.**

Rationale: **User input should be clear to all users so users know where to enter inputs.**

Originator: **Alex Verity**

Fit Criterion: **User input elements shall have a minimum size of 44x44 pixels, maintain at least a 3:1 contrast ratio with the background.**

Customer Satisfaction: **2** Customer Dissatisfaction: **2**

Requirement #: **AP-2**

Description: **All user input elements should provide feedback.**

Rationale: **Users should be able to know if their inputs are working or not.**

Originator: **Alex Verity**

Fit Criterion: **User input elements shall include distinct visual feedback (e.g., color change or shadow) on hover or click for clear visibility and interactivity.**

Customer Satisfaction: **2** Customer Dissatisfaction: **2**

Requirement #: **AP-3**

Description: **All images and visuals made for/by Sandlot should be high quality.**

Rationale: **Low quality images and visuals are unprofessional, and the solution should appear professional when possible. Only images made for/by Sandlot are included in this requirement as older photos or other visuals may need to be displayed that don't meet this standard.**

Originator: **Alex Verity**

Fit Criterion: **All images made for/by Sandlot shall be free of pixelation or blurring at their displayed size.**

Customer Satisfaction: **2** Customer Dissatisfaction: **2**

Requirement #: **AP-4**

Description: **Navigation should be straightforward, with menus and links easily accessible and readable.**

Rationale: **Users should know what section of the site they will be accessing when they click on a navigation option so they don't get lost or confused.**

Originator: **Alex Verity**

Fit Criterion: **Navigation options shall be placed across all pages and their destination should be visibly written.**

Customer Satisfaction: **2** Customer Dissatisfaction: **2**

10.2 Style Requirements

Requirement #: **STY-1**

Description: **The solution should use the same colours, fonts and buttons across the entire user interface.**

Rationale: **To ensure the professionalism of the solution, the style should feel unified and consistent to all users.**

Originator: **Alex Verity**

Fit Criterion: **All interface elements shall use fonts, colors and user input fields that are the same as those used in another section of the solution, ensuring a cohesive visual style and branding.**

Customer Satisfaction: **2** Customer Dissatisfaction: **2**

11 Usability and Humanity Requirements

11.1 Ease of Use Requirements

Requirement #: **EU-1** Event/BUC/PUC #: **7**

Description: **All users must be able to easily find the season schedule.**

Rationale: **Many users of Sandlot will not be using it often, and the schedule will be one of the most frequented parts of Sandlot. It must be easy to find and access.**

Originator: **Alex Verity**

Fit Criterion: **On average, a new user shall not take more than one minute to find the schedule, and it should not take more than 2 clicks to access.**

Customer Satisfaction: **3** Customer Dissatisfaction: **5**

Requirement #: **EU-2**

Description: **Misinputted user login information shall provide a warning to the user, if login information does not exist or does not match the database stored login information.**

Rationale: **Login information stored in the database should match the user inputted login information. Feedback should be provided for the user to understand an error has occurred when accessing an account with incorrect login details.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **Assuming the user has misinputted the login details for an account stored in the database, they should be given a warning that notifies them about the login information being incorrect or not existing in the database.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

Requirement #: **EU-3**

Description: **Teams will be given a warning if their availability data has scheduling conflicts.**

Rationale: **The system should be able to create a valid schedule, in which teams do not have conflicting availability data that schedules games for the same dates and times as other teams.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **Teams should receive a warning about their availability data conflicting on the schedule.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

11.2 Personalization and Internationalization Requirements

Not applicable.

11.3 Learning Requirements

Requirement #: **LR-1** Event/BUC/PUC #: **7**

Description: **A commissioner should be able to learn how to perform all of their available actions in a short amount of time.**

Rationale: **Commissioners will need to make the necessary changes to the product as the league plays out or changes season, and they have the most available actions that need to be learned.**

Originator: **Jung Woo Lee**

Fit Criterion: **A new commissioner to the product should be able to learn all of their possible actions within 1 hour.**

Customer Satisfaction: **2** Customer Dissatisfaction: **2**

Requirement #: **LR-2** Event/BUC/PUC #: **7**

Description: **A captain should be able to learn how to perform all of their available actions in a short amount of time.**

Rationale: **Captains have certain actions that will be available to them that require some learning**

Originator: **Jung Woo Lee**

Fit Criterion: **A new captain to the product should be able to learn all of their possible actions within 1 hour.**

Customer Satisfaction: **2** Customer Dissatisfaction: **2**

Requirement #: **LR-3** Event/BUC/PUC #: **7**

Description: **A new user should be able to use the basic features (such as viewing the league schedule) of the product without having prior knowledge of the product.**

Rationale: **All users should be able to intuitively perform some actions such as viewing the season schedule.**

Originator: **Jung Woo Lee**

Fit Criterion: **A new user should be able to navigate to the season schedule on their first time interacting with the product.**

Customer Satisfaction: **2** Customer Dissatisfaction: **2**

11.4 Understandability and Politeness Requirements

Requirement #: **UP-1**

Description: **Any terminology or symbols used are the same as ones used in the past solution.**

Rationale: **The terminology used should be the same as the past solution to make sure there is little confusion. For example the term off day will be used during scheduling as that is used in the past solution.**

Originator: **Alex Verity**

Fit Criterion: **90 percent of users understand terminology used on Sandlot.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

11.5 Accessibility Requirements

Requirement #: **AC-1**

Description: **The fonts used should be readable by all users.**

Rationale: **Sandlot will have a wide variety of users, and we must make sure the font is an appropriate size for those with reduced vision.**

Originator: **Alex Verity**

Fit Criterion: **Body text shall have a minimum font size of 16 pixels, and a line length between 45 and 75 characters for optimal readability across all devices.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

Requirement #: **AC-2**

Description: **Colours used should be colour blind friendly.**

Rationale: **Sandlot will have a wide variety of users, and we must make sure the colours can be contrasted by all users.**

Originator: **Jung Woo Lee**

Fit Criterion: **All colours applied to elements users will interact with must have a contrast ratio of at least 4.5:1.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

Requirement #: **AC-3**

Description: **Alerts sent to users must be visible and readable.**

Rationale: **User may travel to a game that was postponed or cancelled, or miss out on critical information.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **User receives an alert that is readable and clear enough for them to understand.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

12 Performance Requirements

12.1 Speed and Latency Requirements

Requirement #: **SL-1**

Description: **Solution must load quickly and provide smooth user interactions, ensuring minimal delays when accessing content.**

Rationale: **Sandlot will need to be a solution users are not frustrated by to encourage use, and long load times are frustrating.**

Originator: **Alex Verity**

Fit Criterion: **The website shall load in under 3 seconds on a stable internet connection.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

12.2 Safety-Critical Requirements

Not applicable.

12.3 Precision or Accuracy Requirements

Not applicable.

12.4 Reliability and Availability

Requirement #: **RA-1**

Description: **All features of the solution will achieve 99 percent uptime.**

Rationale: **The past solution often has features that will break and go down, such as the standings feature, which at the time of writing is down. Our solution should not have these uptime issues.**

Originator: **Alex Verity**

Fit Criterion: **All features of the solution shall be usable and visible 99 percent of the time.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

12.5 Robustness or Fault-Tolerance Requirements

Requirement #: **RFT-1**

Description: **The fonts used should be readable by all users.**

Rationale: **Sandlot will have a wide variety of users, and we must make sure the font is an appropriate size for those with reduced vision.**

Originator: **Alex Verity**

Fit Criterion: **Body text shall have a minimum font size of 16 pixels, and a line length between 45 and 75 characters for optimal readability across all devices.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

12.6 Capacity Requirements

Requirement #: **CR-1**

Description: **Sandlot should function for upwards of 60 teams and 1500 players in the system at once.**

Rationale: **Sandlot should be able to function even if the league increases in population between seasons.**

Originator: **Alex Verity**

Fit Criterion: **No faults should occur when 60 teams with 25 players each are entered into the system.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

Requirement #: **CR-2**

Description: **Sandlot should function for upwards of 500 concurrent users.**

Rationale: **Sandlot should be able to function even if a large portion of the league including spectators are using the solution.**

Originator: **Alex Verity**

Fit Criterion: **No faults should occur when 500 users are using the system at once.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

12.7 Scalability or Extensibility Requirements

Not applicable.

12.8 Longevity Requirements

Not applicable.

13 Operational and Environmental Requirements

13.1 Expected Physical Environment

Not applicable.

13.2 Wider Environment Requirements

Not applicable.

13.3 Requirements for Interfacing with Adjacent Systems

Requirement #: **IAS-1**

Description: **Sandlot should function on the last four releases for the five most popular browsers.**

Rationale: **Sandlot should be accessible to a wide variety of users.**

Originator: **Alex Verity**

Fit Criterion: **The site shall function on the last four releases for the five most popular browsers.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

13.4 Productization Requirements

Not applicable.

13.5 Release Requirements

Requirement #: **RR-1**

Description: **Sandlot will be released between league seasons.**

Rationale: **Data will be difficult to transfer to Sandlot mid-season, Sandlot will not have that functionality on release.**

Originator: **Alex Verity**

Fit Criterion: **The solution shall be released between league seasons.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

14 Maintainability and Support Requirements

14.1 Maintenance Requirements

Requirement #: **MR-1**

Description: **A new season can be started (i.e. saving past standings, resetting teams.) within one hour.**

Rationale: **New seasons should not require a lot of maintenance to reset.**

Originator: **Alex Verity**

Fit Criterion: **A new season can be started within one hour.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

14.2 Supportability Requirements

Not applicable, however commissioners will support users if they can.

14.3 Adaptability Requirements

Not applicable, our solution will run on the web.

15 Security Requirements

15.1 Access Requirements

Requirement #: **AS-1**

Description: **Viewing the league schedule and standings are accessible by any users of the system, logged in or not.**

Rationale: **Viewing the schedule or standings should be accessible by spectators and umpires who will not have accounts in the system.**

Originator: **Jung Woo Lee**

Fit Criterion: **The league schedule and standings should be visible to all users including those not logged in.**

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

Requirement #: **AS-2** Event/BUC/PUC #: **9**

Description: **Players can only see the contact information of their own captain.**

Rationale: **Players may need to contact their captain but should not have access to every account's information.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **Players shall not be able to see any contact information outside their team's captain.**

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

Requirement #: **AS-3** Event/BUC/PUC #: **9**

Description: **Captains can only see the contact information of players on their own team and other team captains.**

Rationale: **Captains may need to contact their players and other team captains but should not have access to every account's information.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **Captains shall not be able to see any contact information outside of players on their team or other team captains.**

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

Requirement #: **AS-4** Event/BUC/PUC #: **9**

Description: **Commissioners can see the contact information of everyone in the league.**

Rationale: **Commissioners may need to contact any account in the system.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **Commissioners shall be able to see any account's contact information.**

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

Requirement #: **AS-5**

Description: **Giving permissions to users must be accompanied by a warning that warns the user of the severity of the action.**

Rationale: **Accidentally giving permissions to users who should not have them could result in unexpected errors.**

Originator: **Alex Verity**

Fit Criterion: **If permissions are being changed, a warning shall be displayed to the user before updating the permissions.**

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

Requirement #: **AS-6**

Description: **Users can only access an account with correctly inputted login information that matches the database stored login information.**

Rationale: **Login information stored in the database should correspond to a specific account. The account should only be accessed by the correctly inputted login information details.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **Assuming the user has correctly inputted the login details for an account stored in the database, they should be granted access into the corresponding account.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

Requirement #: **AS-7**

Description: **Captains can join a team that they are not the captain of.**

Rationale: **Captains should be able to join a team they are not a part of, the league allows players to be on multiple teams.**

Originator: **Jung Woo Lee**

Fit Criterion: **If a captain attempts to join a team they are not the captain of, they will be added to the player list of the team.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

Requirement #: **AS-8**

Description: **If a captain is a member of a team they are not the captain of, they only have player level permissions relating to that team.**

Rationale: **Captains should not have captain permissions for any teams other than the team that they are the captain of.**

Originator: **Alex Verity**

Fit Criterion: **A captain can only do actions available to a player in a team that is not their own.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

Requirement #: **AS-9**

Description: **Only commissioners can assign teams to a division.**

Rationale: **Users not logged in as a commissioner should not be able to assign teams to a division.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **Commissioners are able to assign a team to a division.**

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

15.2 Integrity Requirements

Requirement #: **IG-1** Event/BUC/PUC #: **5**

Description: **Website must not create conflicts when scheduling games.**

Rationale: **The system shall create a schedule for all the teams in the league, without scheduling conflicts. Rescheduled games must also not conflict with the season schedule.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **There exists no conflicts in the season schedule when the season begins or throughout the season when games are rescheduled.**

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

Requirement #: **IG-2**

Description: **If there is only one commissioner level account, that account cannot be deleted.**

Rationale: **Deleting this account would stop any more commissioner level accounts from being created, soft-locking the system.**

Originator: **Alex Verity**

Fit Criterion: **If there is only one commissioner level account it shall not be deleted.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

Requirement #: **IG-3**

Description: **All match scores must be visible and contestable by other captains once recorded.**

Rationale: **Match score correctness is extremely important for a competitive league, if a score is wrong, captains should be able to request that it be fixed.**

Originator: **Alex Verity**

Fit Criterion: **Any match scores shall have the option to be viewed and contested by captains.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

Requirement #: **IG-4**

Description: **Captains are adequately notified when they receive an alert or a rescheduling request.**

Rationale: **Important information may be shared in alerts, and reschedule requests that go unanswered may be frustrating for captains. Notifications should reach their intended targets if possible.**

Originator: **Alex Verity**

Fit Criterion: **Assuming the user hasn't interfered, alerts and reschedule requests shall always be sent to a place the user receives notifications.**

Customer Satisfaction: **3** Customer Dissatisfaction: **3**

15.3 Privacy Requirements

Requirement #: **PV-1** Event/BUC/PUC #: **1**

Description: **The product shall not reveal contact information to any parties without the necessary access.**

Rationale: **Contact information must be kept private within the league.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **Contact information cannot be accessed by users that do not have an account registered in the league.**

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

Requirement #: **PV-2**

Description: **Users are reminded to keep their passwords secure.**

Rationale: **If a user accesses another user's account they may do actions without the account owner's permission or that the account owner is unaware of.**

Originator: **Alex Verity**

Fit Criterion: **A reminder telling users to keep their passwords secret and secure is displayed to the user.**

Customer Satisfaction: **1** Customer Dissatisfaction: **1**

15.4 Audit Requirements

Not applicable.

15.5 Immunity Requirements

Not applicable.

16 Cultural Requirements

16.1 Cultural Requirements

Requirement #: **CL-1** Event/BUC/PUC #: **1**

Description: **The product shall provide an option to not specify gender.**

Rationale: **Users may not associate themselves as male or female.**

Originator: **Nicholas Fabugais-Inaba**

Fit Criterion: **A user must be able to choose an option to not specify their gender.**

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

17 Compliance Requirements

17.1 Legal Requirements

Not applicable.

17.2 Standards Compliance Requirements

Not applicable.

18 Open Issues

- There are no open issues

19 Off-the-Shelf Solutions

19.1 Ready-Made Products

Not applicable.

19.2 Reusable Components

Not applicable.

19.3 Products That Can Be Copied

Not applicable.

20 New Problems

20.1 Effects on the Current Environment

Not applicable.

20.2 Effects on the Installed Systems

Not applicable.

20.3 Potential User Problems

Existing users of the current platform may suffer from the migration to the new platform as they may not be familiar with how to navigate the new system and utilize certain functions/features. This could be concerning considering the age group and lack of technical literacy for some users. One precaution that can be taken is to create a user guide to aid users in interacting with the new system and the various features it has to offer.

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

Not applicable

20.5 Follow-Up Problems

Not applicable

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

Not applicable, we plan to begin use of Sandlot between seasons so that current season data does not need to be transferred between systems aside from archived past season standings.

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

Requirement #: **DMT-1**

Description: **There will exist an archive of past seasons that displays past season standings and results.**

Rationale: **Users may be disappointed if new solution overwrites past season achievements.**

Originator: **Alex Verity**

Fit Criterion: **Past season standings shall be viewable on Sandlot.**

Customer Satisfaction: **1** Customer Dissatisfaction: **2**

23 Costs

Not applicable

24 User Documentation and Training

24.1 User Documentation Requirements

Requirement #: **UD-1**

Description: **There must exist a user guide that informs users of the previous system and new users how to use the features of the new system.**

Rationale: **There will be many new users of the system who might not be familiar with how to use the features of our solution, and will require guidance.**

Originator: **Alex Verity**

Fit Criterion: **There shall exist a user guide that explains all major features of the system.**

Customer Satisfaction: **3** Customer Dissatisfaction: **1**

24.2 Training Requirements

Requirement #: **TR-1**

Description: **There must exist a code walkthrough of the system that informs future solution admins how the solution functions internally.**

Rationale: **Future Sandlot admins will need to understand the solution in order to fix any possible errors that arise and add any features needed.**

Originator: **Alex Verity**

Fit Criterion: **There shall exist a code walkthrough that explains all source code of the system.**

Customer Satisfaction: **2** Customer Dissatisfaction: **1**

25 Waiting Room

Not applicable.

26 Ideas for Solution

Not applicable.

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:

Team – Reflection

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.

   The team collectively needs to acquire lots of knowledge skills to successfully complete this capstone project. In particular, Web development skills and knowledge about the React language will be key in developing a working website efficiently. SQL skills and knowledge about database design and data migrations will be extremely useful when working to store the website's information properly. Knowledge on hosting these different pieces of the project as well as learning how to properly integrate our project with the host and finally, domain knowledge of the UI/UX design of existing scheduling solutions on the market so that we can learn from existing solutions to ensure our ease-of-use and user experience is top of the line. Casra will take on the web development skills and knowledge, Nicholas will tackle the SQL skills and database knowledge, Alex will look into hosting information and integrations, and Jung Woo will look into domain knowledge of existing scheduling systems.

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?

   Web development skills and knowledge of the React language can be learned either by reading the React documentation or by starting a

separate test project and spending some time learning by experimenting with the language. SQL skills and database design knowledge can be learned by either creating practice queries on a dummy database or taking an online structured learning course. Knowledge about hosting the different components of the project can be gained by getting hands-on experience with cloud hosting platforms such as Microsoft Azure or AWS or by testing hosting in a local environment on our own computers. To gain domain knowledge of UI/UX design of scheduling platforms can either be gained by investigating existing systems hands on and analyzing their UI/UX or by surveying people about different applications they use and what parts of them they like/dislike. Casra will pursue learning web development and React by creating a separate test project because he finds that learning by doing is much more effective for him than other methods. Nicholas will pursue learning SQL and database design by taking an structured online course on the subject because he feels that the more structured nature of the course will help him learn consistently. Alex will pursue getting hands-on experience with cloud hosting platforms because these platforms are likely what we will be using for the project and so getting experience with them would be beneficial. Finally, Jung Woo will pursue investigating the UI/UX domain knowledge and design of existing scheduling systems hands on because he feels as though he will learn more from the existing system will give insights into the developer's perspective of UI/UX design which will be helpful for us as the developers.

Alex Verity – Reflection

1. What went well while writing this deliverable?

   The parts that went well for me were the non-functional requirements, I felt the look and feel section gave me a much better idea of what the solution is going to look like. The TA meeting was also extremely helpful and gave me a much better perspective on the project and confidence in our solution.

2. What pain points did you experience during this deliverable, and how did you resolve them?

Some pain points experienced were trying to get full coverage when coming up with use cases and functional requirements, we have many more questions for the supervisor now and will almost certainly need to come back to this document and modify it with new information we receive. I still don't know if the use cases provided are well put together or not and will be looking heavily at feedback in that area.

3. How many of your requirements were inspired by speaking to your client(s) or their proxies (e.g. your peers, stakeholders, potential users)?

   Almost all requirements are inspired by speaking to our supervisor and primary stakeholder, as he defined the entire project during meetings with him. We were also heavily inspired by the TA meeting, where many of the look and feel requirements and user guide requirements came from, as well as advice on what to make into functional requirements.

4. Which of the courses you have taken, or are currently taking, will help your team to be successful with your capstone project.

   The class 4HC3, whose subject is human computer interfaces and talks mainly about designing user interface. One of the main goals of the project is designing the UI to be more readable and better designed than the current solution, so any learning in that regard will be vital.

Jung Woo Lee – Reflection

1. What went well while writing this deliverable?

   Coming up with most of the requirements was easier than expected due to the breadth of information we had from talking with the supervisor on the product.

2. What pain points did you experience during this deliverable, and how did you resolve them?

   Going through and working on this document, made me realize how much more we as a team probably need to know about user needs.

Sometimes we were left with questions on if something was a requirement or not. All of this indicated to the fact that we need to have more time to speak to our supervisor.

3. How many of your requirements were inspired by speaking to your client(s) or their proxies (e.g. your peers, stakeholders, potential users)?

   Almost all of the requirements came from the supervisor, who is both a potential user and stakeholder. With the initial information he provided us on the problem and desired product, we could develop most of these requirements. A few of the requirements were not explicitly told to us, but could be inferred and others have been created by us to conform with ethical practices for example.

4. Which of the courses you have taken, or are currently taking, will help your team to be successful with your capstone project.

   All project based courses are definitely useful to understand project dynamics. Dealing with a team, and performing to certain standards has been taught to us in all of these various courses. Providing deliverables and project scheduling has also been taught to us, such that administrative duties are easier for us to tackle. The databases course will likely help us as our project will most likely be using this in our solution. The user-interface course will help us in creating a human-centered design that is intuitive and clean. This is one of the pitfalls of the current solution, and thus one of the important non-functional requirements. The requirements course will also help us interpret requirements going forward and make use of our work here. And late it will undoubtedly help us revise this document.

Nicholas Fabugais-Inaba – Reflection

1. What went well while writing this deliverable?

   When writing this deliverable, outlining the different requirements associated with the varying aspects of the project helped in understanding what is required from the team to accomplish a completed product for this project. More specifically, outlining the access requirements and

creating the hierarchy diagram aided in my understanding of how each user will interact with the system.

2. What pain points did you experience during this deliverable, and how did you resolve them?

   Some of the pain points from this deliverable was the amount of content needed to be covered with all of the different sections. With so many different types of requirements in mind and the number of overlapping requirements, it was incredibly difficult to fill in each section or understand why a certain type of requirement may not apply to the project. These pain points were resolved by brainstorming as a team our own requirements that we would then review amongst each other to understand if the requirement was satisfactory enough or if it should be constructed in a different way.

3. How many of your requirements were inspired by speaking to your client(s) or their proxies (e.g. your peers, stakeholders, potential users)?

   From both the TA and the initial meeting with the project supervisor, the team was able to get a grasp on the requirements that must be important to mention in the SRS. Mainly the project supervisor was able to outline the overall requirements needed to improve on the existing system, however, the TA was still able to provide valuable insight into either how general or how specific a requirement should be defined.

4. Which of the courses you have taken, or are currently taking, will help your team to be successful with your capstone project.

   Specifically for the SRS, our software requirements class that is primarily taken in the 3rd year for software engineering students aided in the creation of the SRS document. Additionally, our software design III course will help the team be successful with the capstone project as we had created a prototype design similar to Uber. Collaborating with a team for a project that had many moving parts to it should surely aid in the creation of the team's initial MVP for the project as well as the development towards the final product that will be showcased early in 2025.

Casra Ghazanfari – Reflection

1. What went well while writing this deliverable?

   Writing the functional requirements section of this deliverable went well because we had access to the old existing system that the project is aiming to improve upon. This allowed us to look at the old existing system's functionalities and easily come up with functional requirements that the new system would need to meet based on the old system's functionalities.

2. What pain points did you experience during this deliverable, and how did you resolve them?

   The biggest pain point during this deliverable was understanding what each section of the document was asking for. Many sections of the document have unintuitive names that do not accurately describe the information the section should hold. In addition, many of the sections were either inapplicable or very loosely applicable to our project making it difficult to understand which sections we should be tackling.

3. How many of your requirements were inspired by speaking to your client(s) or their proxies (e.g. your peers, stakeholders, potential users)?

   There isn't an exact number but 25% of our requirements are directly inspired/created from information we got while talking to our client. Most prominently our look and feel requirements were directly from our discussions where we learned that UX and ease of use were extremely important factors for both the client and users of our system.

4. Which of the courses you have taken, or are currently taking, will help your team to be successful with your capstone project.

   SFWRENG 3XB3 Software Engineering Practice and Experience is a project oriented software design course which is, and will be extremely helpful for a successful capstone project. 3XB3 taught effective software design and got me used to the workflow of a software project which will both be very applicable to our capstone.