TeamWatch System Requirements
Inf 43 – Homework 1

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Introduction

TeamWatch is an application essentially aiming to maintain a system for a soccer club to manage team rosters, post-match schedules and statistics related to the same.

International Soccer Club is a soon to open club based in Orange County which encompasses several individuals of different age groups and clubs, all united by their immense interest in soccer. There are four fields were the matches are held and tournaments take place all around the year. Due to several matches throughout the year, it becomes difficult to keep record of all of them. Hence, a system to not only keep a track of the match statistics, but also select an appropriate schedule for upcoming matches is required. These activities which are often performed by hand, now potentially have a much more efficient and easier alternative of the app, TeamWatch.

The web-based app compatible with both Apple and Android devices, should allow easy viewing of the schedule of matches as well as statistics related to each individual player, and the overall club itself. The main control of the app lies in the hands of the CEO, Mr. Hamid and chosen moderators. The application aims to ease the ability to keep track of the matches which are so organized by the club, while also providing a platform for sponsors to advertise. Players will not only be able to see match-related statistics but also data related to their overall performance on the field, which can be used for future improvements. This allows members of the club to spend less time on planning and more time exploring the insights of the game on the field.

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Application Context/Environmental Constraints	Specifications of the environment required by TeamWatch and other requirements that the user might need to fulfill in order to use the application
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Software Qualities and Non-Functional Requirements	Discusses qualities of the software which would be deemed as ideal and the constraints so caused due to the same
Other Requirements	List of additional requirements which have not been already mentioned
Assumptions/Risks	States the assumptions and risks so accounted for when going into the project
Priorities/Implementation Phases	Mentions the priorities in the development of the project, and the phases of implementation of the features

Future Directions and Expectations	Takes in account the potential changes in the app after the initial launch of the product

Overview / Executive Summary

TeamWatch is a software system consisting of a website and a mobile application (compatible with both Android and Apple Devices) specially designed for the International Soccer Club of Orange County. It aims to ease the process of creating viable schedules for tournaments for the different age groups and leagues so present in the club.

The main purpose of the system is to facilitate easy communication between members of the club and the main board. Presently the only way to access schedules for matches or gain knowledge about match or specific player statistics was to either visit the bulletin board in the club or call and request for the same. The app will allow members of the club to easily view match schedules and have easy access to the news about the club.

The users are different in terms of the website and app, such as the website is open to use for the owner of the club(Hamid), selected moderators, players, club owners, whereas the app is specifically for the moderators of the club mainly serving for administrative use as of now. The website will also allow all users including guests to purchase club merchandise, as well as products from club sponsors. This provides another incentive for companies to sponsor the club and spread their marketing horizon.

Having easier access to the match schedules and game/player statistics will allow club owners and players to formulate strategies to improve their overall playing style, and simply save time in terms of the strenuous process of calling or visiting the club just to obtain simple information about the matches. The match statistics will also show club owners how efficient his/her players are in the sport, and whether their investment into the club was correct or not. For the moderators, TeamWatch will serve as a rather more efficient and environmentally friendly to schedule matches. It will be easier to not only make any unforeseen changes in the schedule, but also for users to better interpret the schedule with the calendar feature so offered. The moderators can make changes to the overall system easily through the comfort and easy accessibility of their mobile phones.

Club owners will be able to register their clubs into different leagues based off the age groups and must have a minimum of 11 players at least with full details of each player such as their name, age, date of birth, picture, height, weight, points scored and previous experiences along with a picture. Each player will then be able to make an account and request changes if needed which would need to be approved by the moderators. The main control to delete and make changes into the system will be in the hands of the moderators only, and further control in hands of Mr. Hamid only.

The comprehensive system will not allow moderators to forgo interaction with outdated methods and processes, but also streamline the process of the management of schedules into a simple task at hand. Players and Club owners would be able to assess their performances from game/player

statistics which would reap into better performance potential of the overall club itself. All of this not only expands the incentive horizon for potential sponsors, hence increasing the monetary value of the club itself.

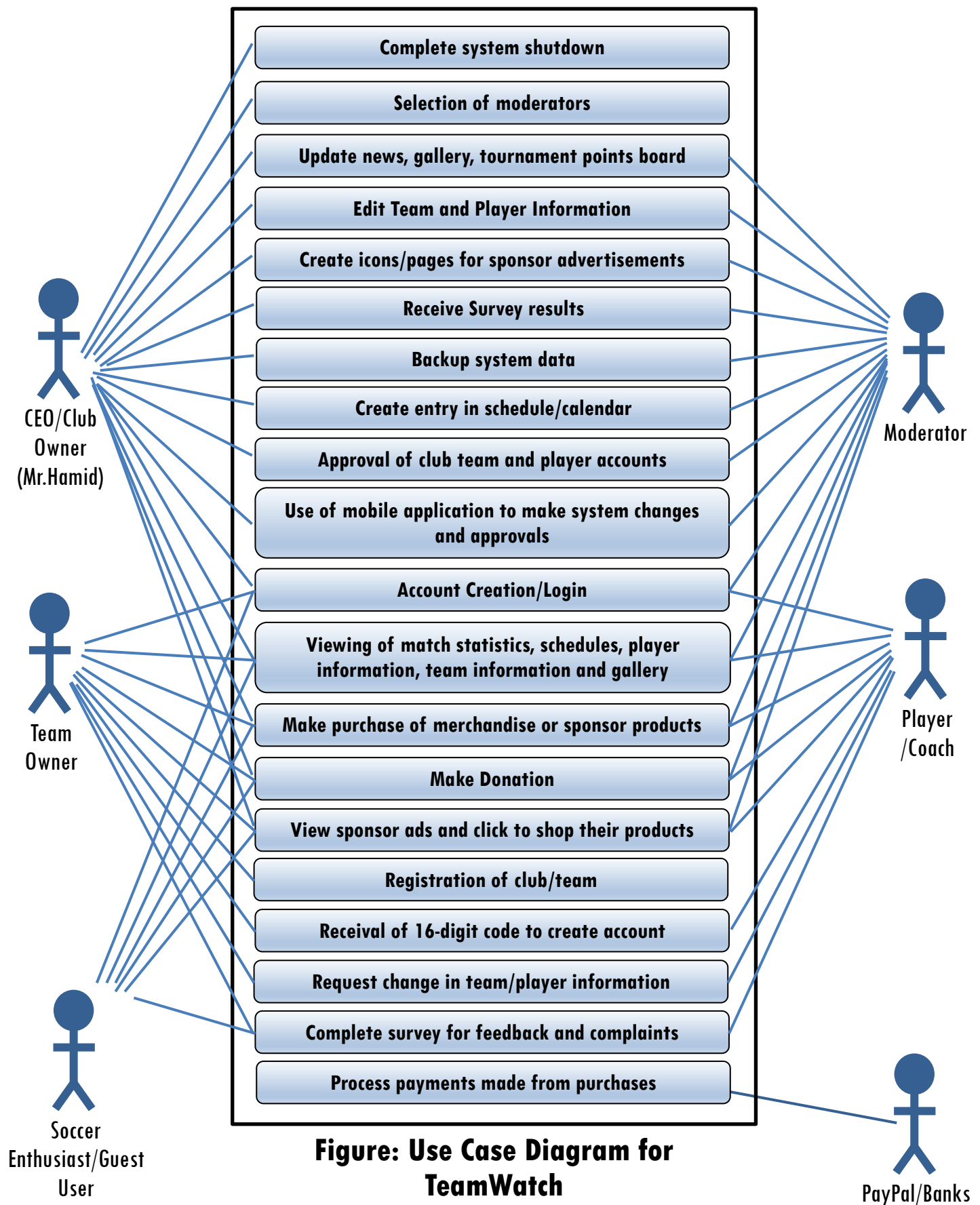## Application Context / Environmental Constraints

The TeamWatch software system has two components: the website and the mobile application. The website is the main medium for the functional user interface such as the players, soccer enthusiasts and club owners, whereas the mobile application serves mainly as an external medium for moderators and CEO Hamid to make changes in the website, as well as post news and compose schedules for easy viewing of the players. Overall management of the website is done through the mobile application which only the selected moderators and Hamid currently have access to.

The mobile application must be able to run on all phone operating systems: Windows, Android, and iOS. This also means that the application has a version in a web-based programming language in order to function effectively, such as Java for Android devices, Swift for iOS devices and C++ for the Windows devices. The website is essentially to be accessible easily from any desktop or laptop with available accessibility to the internet.

The website version will have a rather more user-friendly interface intended to display the main highlights of the club such as its schedule, news updates in an interactive and attractive setting. The mobile application has a rather rudimentary and simple design as of now, since it is more for the administrative use, but also keeping in mind to make it easily usable, considering that the club board has been backward in the past in terms of the use of technology.

Functional Requirements

The use case diagram for the TeamWatch application is shown below. TeamWatch is essentially a software system whose core is its web-based version. Absolute control of the system is in hands of the CEO, Mr. Hamid and password protected accounts are given to the selected system moderators. The primary user who is usually a soccer enthusiast has mainly viewing capabilities and the ability to purchase merchandise from the club or the club's sponsors. There is an option of making a purchase without the need of an account, i.e. as a guest. He/she usually can view all the statistics of the most recent, as well as past matches and even view the schedule for upcoming matches and the gallery. Players and Club owners can do the same, but the only extra ability they possess is to request edits in their profiles, and they have accounts as well which are approved by moderator after registration by the club owner. The club owner is then given a 16-digit code which shared with the players and this is to be entered when they are creating their individual accounts. All edits and changes so requested are to be validated by the moderators, who verify the accuracy of the request and then do the task accordingly. Absolute control over moderators in terms of deleting accounts or even simply performing the moderator tasks is in hands of the CEO, Mr. Hamid.

Figure: Use Case Diagram for TeamWatch

Actors:
- CEO/Club Owner (Mr.Hamid)
- Team Owner
- Soccer Enthusiast/Guest User
- Moderator
- Player /Coach
- PayPal/Banks

Use Cases:
- Complete system shutdown
- Selection of moderators
- Update news, gallery, tournament points board
- Edit Team and Player Information
- Create icons/pages for sponsor advertisements
- Receive Survey results
- Backup system data
- Create entry in schedule/calendar
- Approval of club team and player accounts
- Use of mobile application to make system changes and approvals
- Account Creation/Login
- Viewing of match statistics, schedules, player information, team information and gallery
- Make purchase of merchandise or sponsor products
- Make Donation
- View sponsor ads and click to shop their products
- Registration of club/team
- Receival of 16-digit code to create account
- Request change in team/player information
- Complete survey for feedback and complaints
- Process payments made from purchases

These are the textual descriptions of the function requirements which the TeamWatch system seems to serve detailed by each individual user or actor:

<u>**CEO/Club Owner (Mr. Hamid)**</u>
This user has absolute control over the entire TeamWatch system. He has the following abilities:
- **Selection of Moderators:** upon logging into the system, this user has the ability to add selected moderators and enable them to create accounts with system provided temporary passwords sent to the emails of the selected moderators. There is an error message shown as well as sent to the email of Mr. Hamid if the email so entered is invalid.
- **Complete system shutdown:** in event of an emergency, Mr. Hamid has the ability to request the complete shutdown of the software system. This can only be done if the entered password matches with special code so provided to him beforehand. Note that shutdown of the system does not mean deletion of all information, as information should be all backed up onto the club server or cloud.
- **Account Creation/Login:** the user or Mr. Hamid is provided with an automated username and password by the system which can be changed upon entering the current password and username at that point of time. Login is necessary to access all the capabilities of this specific user.
- **Moderator Capabilities:** the user or Mr. Hamid possesses all the abilities which are also possessed by a moderator.

<u>**Moderators**</u>
User has editing control over specific portions of the TeamWatch system. The following abilities are granted to the user:
- **Update news, gallery, tournament points board:** the moderator has the ability to create news updates, gallery, tournament points board on the homepage with the 'create' option as all of this data is displayed on the homepage. For the gallery only .jpg or .png extension files are accepted, text entries for news updates and numerical values for the inbuilt tournament points feature. For tournament points entry, there should be an already available form type of feature where the entries for the recent match such as the date of match, location and league can be made. These entries should in turn cause a change in the overall statistics of the team, as well as the individual players of the team on their respective pages. There is an error if the entry does not match the data type or isn't completed in its entirety.
- **Edit Team and Player Information:** moderators can make changes in the information for a player or team upon visiting the page of the location of the requested change and making the change with the available edit option. There is failure in change if the change so made doesn't match with the requirement of the section, such as for the number of matches section if an entry is made instead of a number.
- **Create icons/pages for sponsor advertisements:** moderators are responsible for sponsor advertisement and are hence given the ability to create advertisements through pictures which serve as hyperlinks to the website of the sponsors. The picture is required to be a .jpg extension file and the system shows an error if not met. The link must also be a valid one pertaining to the sponsor or another error would be shown as well.
- **Receive Survey results**: moderators will receive emails every month pertaining to all the complaint-suggestion surveys so filled in. They can access these survey results which are

simply ideas for improvement by selecting the 'View Survey Results' which shows the responses for each question through pie-charts and graphs. This can only be accessed upon login.

- **Backup System Data:** whenever any change or entry is so made by the moderator, it should be accounted for in the International Soccer Club cloud or future server. Error is caused when there is lack of internet connection leading to inability to connect to server/cloud.

- **Create entry in schedule/calendar:** the system should have the ability to edit the calendar so available which consists of all the upcoming matches and their respective locations. The entry can be so made with a simple form already pre-prepared consisting of general questions related to the location, timing and the teams playing for the match. This in turn would create an entry in the calendar so seen on the homepage as well as its own respective page. Since matches can only be scheduled for weekends only, an error would be shown if a match is scheduled for any other day. Other events of the club can be scheduled for other days, but an error would be shown if the event isn't affiliated with the club. An error should also be shown if all the details of the event are not entered. The event will be shown in the calendar with its own respective league color along in an enclosed box.

- **Approval of club team and player accounts:** moderators are given the ability to approve club teams and player accounts. Upon receiving the registration form from the team owner, the moderator then verifies the team and then upon approval of the team, each member of the team including the coach and owner is emailed a 16-digit code which is essential for their account creation. The only possibility of an error is when either members entry of email is invalid or inaccurate upon which the system displays an error.

- **Use of mobile application to make system changes and approvals:** the mobile application serves as a medium for making all edits and entries in the web-based version of the system. Usage of the mobile app is only permitted upon login specific to moderators. Error is displayed if the password or username entry is inaccurate or the type of account isn't that of a moderator. Upon a successful login, moderator is allowed to perform all the moderator specific functions to make changes around the system and make entries through the mobile application which is not offered to the other users. Usage of mobile application should make changes in web-based version and a sample or simulation of the page should be able to access from the web browser.

- **Account Creation/Login:** the selected moderators are provided temporary passwords and usernames on their emails by the system upon selection by the CEO. Upon logging in with these details, they will be led to a page on the website or the mobile app where they will be able to enter in their details and create their own unique username and password to use throughout the usage of the system. Login is necessary to access all the capabilities of this specific user. Login failure occurs upon the entering of the wrong password or username, and account creation fails when the details so entered do not match with the specified guidelines such as the unique entered password must have one uppercase letter, one lowercase letter, minimum 6 characters with one of them being a special character or a number. There also might be an account creation failure if the username so requested is already preexisting.

- **Soccer Enthusiast/Guest User Capabilities:** the moderator possesses all the abilities which are also possessed by a soccer enthusiast/guest user.

Team Owner
- **Account Creation/Login:** Team owner is given capability to have an account with the 16-digit code which is given upon the approval of the team. The code is to be entered during the specified portion of the account creation process. This will allow him/her to create an account with a unique password and username. The process is deemed successful only if all details are valid and entered accurately, and moreover if the username is unique and not preexisting. The code needs to be correct as well or the account isn't created. Login is successful and no error messaged is shown if the username and password are both entered in correctly.
- **Registration of Club Team:** team owner can register their team for a league in the club upon providing the following details:
  - Name of team
  - Number of matches played by team
  - Achievements and Accolades received by team
  - Team Picture
  - Brief History about Team
  - Details of every individual player in the team such as their age, weight, height, player history with statistics of the number of points he/she has scored along with individual player photo.
  - Name of coach and his/her details along with a picture
  - Requested league to be part of

  There needs to be a minimum of 11 players of the same age group range for the team to be taken into consideration for approval by the moderators. System shows an error if less than 11 players are entered or if not, all details are entered in. Upon successful registration the team owner receives an email with the 16-digit code which is to be shared with the rest of the team.
- **Receival of 16-digit code to create account:** only upon successful registration, the team owner receives a 16-digit code which is then shared with the rest of the team. This code is essential in making team accounts to request changes in the system pertaining to player/team details. The code is sent to the team owner upon approval of the team by the moderator and then shared by the team owner to the rest of the team.
- **Player/Coach User Capabilities:** the moderator possesses all the abilities which are also possessed by a player/coach user.

Player/Coach
- **Account Creation/Login:** Player/Coach is given capability to have an account with the 16-digit code which is given upon the approval of the team to the team owner, who in turn shares it with the rest of the team. The code is to be entered during the specified portion of the account creation process. This will allow him/her to create an account with a unique password and username. The process is deemed successful only if all details are valid and entered accurately, and moreover if the username is unique and not preexisting. The code needs to be correct as well or the account isn't created. Login is successful and no error messaged is shown if the username and password are both entered in correctly.
- **Receival of 16-digit code to create account:** only upon successful registration, the team owner receives a 16-digit code which is then shared with the rest of the team.

Players/Coach use this code to create their respective accounts for the system to be viewed around the web-based version of the system.
- **Request change in team/player information:** a team owner, player/coach can request changes in their specific team or player/coach page with the request edit option. Upon entry of the change, the change is only made in the system database if the change is so approved by a moderator. The change would then be observed throughout the system, specifically the website. There is failure only in case the information for change entered is invalid or moreover the change is denied by the moderator upon verification.
- **Soccer Enthusiast/Guest User Capabilities:** the moderator possesses all the abilities which are also possessed by a soccer enthusiast/guest user.

Soccer Enthusiast/Guest User
- **Account Creation/Login:** Soccer enthusiast or guest user is given the option of creating account mainly for the purposes of saving their billing information for shipping and purchase needs from sponsors as well as the club itself. They can register from the homepage itself where upon entering their unique username and password, they receive a confirmation email for verification. To successfully login into their account, one must correctly enter their password and username. Account creation fails if all the required details are not entered in or username is preexisting.
- **Viewing of match statistics, schedules, player information, team information and gallery:** upon visitation of the web-based version of the system, user can view all match statistics, schedules, player, and team information based on the information so provided by the club and moderators. Requirement for a successful way to view is simply having a strong internet connection. Moderators and Mr. Hamid have the ability to edit all of these information through their accounts but a typical user such as soccer enthusiast/guest user, team owner or player/coach does not.
- **Make purchase of merchandise or sponsor products:** user can make a purchase of the International soccer club merchandise or sponsor products through the shopping cart option so provided. Upon entry of the billing information, it would be saved in the system database only if there is an account login. The billing information is processed by the PayPal/Banks and validated by them as a third party. The transaction is then either approved or rejected. If approved, the purchase is verified and mentioned that the item is for pick up only.
- **Make donations:** donations to the club can be made by users from the same shopping cart option and the main requirement here is again that the billing information for the third party so entered be accurate and the final account to which the addition is made is the International Soccer Club account.
- **View sponsor ads and click to shop their products:** user has the ability to click on the sponsor advertisement picture which is hyperlinked to website of the sponsors and view sponsor websites, as well as make purchases from there itself if available.
- **Complete survey for feedback and complaints:** the user is offered an option to provide feedback to the club through a survey of which results are available to Mr. Hamid and the moderators. The survey is simply an imitation of a google form and serves as a medium for the receival of feedback for not only the club but also the website or web-based version of the system as well.

PayPal/Banks
- **Process payments from purchases:** when purchases are made, a third-party bank or PayPal system serves as a validator for purchases and system displays error if the information so entered is deemed inaccurate by the third party. If information is accurate and valid, the payment is processed and taken in account for the respective needed back accounts. This is also used to process donations made for the club.

Software Qualities and Non-functional Requirements

Software Qualities

Portability	The software system should be used easily with any laptop, desktop, or mobile device with access to the internet, with consideration for the fact that there should be easy switch from device to device, specifically for the moderator accounts
Accuracy	Calculations of statistics as per the reported entries for teams and players is calculated correctly and displayed
Security	The software system should keep the information of the teams, moderators and players secure such as with the 16-digit code so provided to users other than moderators when creating an account. To login, there must be an entry of a valid email address with a password which meets the requirements so prescribed. There is sensitive information such as the individuals age, address and date of birth which must be protected and secured. Moderator accounts are only approved by the CEO, Mr. Hamid, and these moderators are responsible to verify the legibility of all requested accounts. Moreover, shutdown of complete system can only be done with a password which is only known by Mr. Hamid. There are also precautionary measures taken in the safety of the entering of billing information for purchases.
Reliability	System should have an ability to back-up information so verified and entered onto a cloud online in case of an unexpected circumstance. It should be able to retain whatever information was so entered and the system should be able to work efficiently at all times.
Efficiency	User should be able to access the information they wish to use easily and efficiently in terms of both speed and navigation.
Usability	The overall software system must be easy to use and maneuver. Moderators should be able to make edits and changes easily. It should have an interactive and attractive design which make its appealing to the user.
Changeability	As there is an expectation of an increase in popularity for the TeamWatch software system, each release is to have new features which not only increases its popularity but are also done on a periodic and regular basis.

Non-Functional Requirements

Speed	The software system should be able update information without any time lag. The system should not lag while changes are made into the system in terms of entries and records.
Space	There should be no issue for space in a hardware system for the software system, as the mobile version is serves as a lightweight, whereas the entries in the main web-based version is all backed up onto a cloud.

Robustness	The application for the mobile device should have easy to understand editing features along with a robust interface for the same to ensure reliability. Any power loss for any device should be accounted for and no information should be lost upon the restoration of power.

Other Requirements

Deadlines
- Prototype Usability Testing – June 2018
- Product Launch – July 2018

Multilingual Nature
Initially the website will only have two languages versions – Spanish and English, due to the number of Hispanics part of the club currently. In the future, it hopes to adhere to more languages and become further multilingual.

Consumer Base
The current consumer base is of the club teams alone which ranges from 100-500 people. Each player and team have their respective pages. Each league/age group has their tournaments, scores of which should be displayed separately in the points score board of the homepage as well as their individual pages.

ISC History Syncronization
In the history of the club, paper records of 100 matches and 50 club points have been taken into account and the spreadsheet which is now on excel should be able to be synced with the system and taken in account for the statistics.

Design
The design of the website specifically is made keeping in mind that the website is built for individuals who are interested in the game of soccer as well as the ideals of ISC

Travelling
The software system should be able to access the location of the user and adjust to the timestamp specifically for the schedule and calendar of matches

Glossary of Terms	
Backup	The process of making an extra copy of data in the event that the original data is somehow lost
Sync	Synchronization of data through an internet connection
Website	A collection of interlinked web pages with multimedia content and images throughout the website
Robustness	Software is effective and functional in all circumstances
Usability	Quality to assess in regard to how easy or difficult it is to function an application
Interface	Device or program which allows users to interact with the software system
Mobile App	Software application specifically made for mobile phones

Portability	Software is easily usable from any device from any location with internet
ISC	Acronym for International Soccer Club
Sponsor	An organization or individual who provides funds to a project or activity in return for advertisement and other benefits
Cloud Based	Functions and data of system loaded onto the user's device access via the internet
Lightweight	Software only has the minimum features needed to function making it simpler yet faster than other softwares
Hyperlink	A picture or text serving as a benchmark to be clicked to lead to another website or web location

Assumptions / Risks

Assumptions:
- User has access to internet and a viable legal method for payments if prompted
- User is using a device installed with iOS, Android, or Windows operating system
- Reported statistics of players, teams and matches are accurate
- Scheduling of matches so shown in the calendar is with assumption that it is done efficiently without clashes and other discrepancies
- Club is sponsored by companies and the most prominent being Nike

Risks:
- Chance of losing investment from club for product due to issues with the software system or risk of not meeting with the requirements
- Advertisement of sponsors isn't considered adequate
- User Interface is complex and isn't easily usable
- Deadline for development of the first prototype isn't met
- Issues with the security of user information and billing information for sales, with a chance of possible hacking during use

Priorities / Implementation Phases

Must Have:
- Easy usability of the interface along with robust and attractive design of the same.
- Account login security for the moderators and users.
- Calendar displaying the schedule of upcoming matches along with location and time.
- Smooth navigation across the website to access different portions of the website, along with a search website ability
- Providing an advertising database for sponsors
- Display of recent match statistics and newsletter on homepage, along with the team and player statistics on their respective pages
- Availability of option to purchase merchandise and sponsor-based products online
- Access to editing the website or application is only in hands of the moderators

Should Have:
- Users can purchase items with PayPal or credit card, and do the same with a guest account rather as well

- Viewing of gallery of videos and photographs from the latest match, and also highlights of the Instagram accounts the main club
- Viewers should be able to view all portions of the website but not view it
- Easy importing of office documents with the match statistics to be synced with the system, including previous documents from the past before existence of system

Nice to Have:
- Periodic Email newsletter updates pertaining events occurring with relation to the club
- Updating of timestamp as per the location of the individual
- Access to social media accounts of players, teams and International Soccer Club itself

Future Directions and Expected Changes

The future expected changes in the software are:
- The consumer base of the mobile application will be expanded towards all users rather than just moderators and the main board.
- The users of the application would receive notifications for upcoming games and events.
- Availability of live updates of match, along with a live stream of the same.
- Pop sales in the future for merchandise and sponsors.
- Players will be able to enter their own information and have more access to features around the website.
- A long-term goal is that all communities and nationalities would be included as a part of the consumer base and their lingual(language) needs would be accounted for in the overall system.
- Players will be able to see their overall progress in matches, along with visual representation of the same.
- Scheduling of matches between counties and spreading the consumer base around the nation.