Cricket Tracking System

Group 16 Enron

Capstone Assignment Submission v3.3

SALMAAN Jaffer 3839798@myuwc.ac.za

THALENTE GIFT Sithole 3944942@myuwc.ac.za

SINOXOLO Lomani 4026320@myuwc.ac.za

KEAGAN Bruce 3930303@myuwc.ac.za

GREGORY Robson 3843368@myuwc.ac.za

ABSTRACT

The objective of this project is to plan and develop a sport management system that will keep tabs on athletes, games, and leagues. This will automatically update following each game, making it easy for league administrators to distribute the most recent information to teams and fans. Databases are used to store all collected data. Any league official will be able to update through this program and generate reports after each game week with a simple HCI implementation.

1 INTRODUCTION

Domestic one day cricket leagues are still functioning on paper-based records in this day and age. We identified a possible solution in order to cut down on the workload for league officials as well as improving the efficiency to distribute information.

2 HUMAN COMPUTER INTERACTION

When setting a goal for our assignment we first had to identify how we would collect our data and who we had to include to ensure we produced a product that solves the initial problem identified by our team.

2.1 Data Gathering

While trying to identifying our users we checked how the current system is implemented. We observed that all match and score tracking is paper-based. Coaches provide their team sheet to league officials for approval. Coaches and league officials were identified as key participants in our data gathering phase.

To identify our user needs we interviewed 5 coaches and league officials in order to determine the requirements of the system. The questions used are in appendix B figure 5.

Using these questions, we were able to establish an understanding of our users.

The data we received in our data gathering phase was not able to be quantified, however to overcome this we shifted to observations and user answers to identify the importance of each of the requirements. When accessing the data early on we triangulated more perspectives to provide us with a better picture.

Following this we were able to identify the basic features which the system would require:

1. Store and display team and player information/ Statistics
2. Record match information
3. Store and update log after each match.
4. Generate Weekly reports of the league.

2.1.1 Persona 1

Name: Jeffery Josh Peters

Age: 45 Location: Cape Town, South Africa

Work: Engineer, League official

Personality	Traits
Technology Novice	• Organized
Leader	• Adapts Quick
Cricket Lover/Expert	• Meticulous

Goals:

- Improve the efficiency of tracking the cricket league.
- Reduce match day and league admin work.
- Reduce miscommunication between league officials when written documents are handed over.

Frustrations:

- Incorrect tracking of player and match information.
- Cumbersome to work out all games every week then update the league table.
- Existing systems do not offer features that this specific league requires.

Scenario 1:

Jeffery Josh Peters is a 45-year-old technology novice, leader and cricket expert who works as a league official. He is one of the skilled and experienced cricket league officials who regularly track lives game and receives a paper copy of other match reports and updates the record according to the new results.

Rapid growth of the league has increased his workload and now handles live match tracking, computer other match information and distribution of this information by Sunday of each week.

He requires a system that will enable him to easily keep track of the league, as well as update and distribute the most recent information to coaches, teams, and fans. This application can also be accessed by other league officials to track live games and enter data accordingly to increase efficiency of the league and reduce incorrect data capture.

2.1.2 Persona 2

Name: Herschelle Melody

Age: 37 Location: Cape Town, South Africa

Work: Coach/ Accountant

Personality	Traits
Energetic	Sympathetic
Detail orientated	Team leader/worker
Patient	Goal driven

Goals

- Reliably track Player/ Team performance.
- Easily communicate team sheet with league Officials.
- Generate player statistic reports.

Frustrations

- Paper based authentication of players and team sheet is cumbersome.
- Existing solutions do not provide enough to solve these problems.
- Player performance is difficult to track.

Scenario 2:

Hershelle,37, is a full-time accountant for an accounting firm in Cape Town. He has a passion for cricket and coaches a team at his local cricket club. He must constantly juggle the responsibilities of his work and his ability to perform as a coach.

Recently he has taken up more responsibilities at work his time to work as a couch has been reduced. He is struggling to access each players performance as he is required to manual calculate these figures and it is affecting him at practice as he is unable to provide the player with what practice exercise to focus on. Also, he is unable to see improvement as previous player performance is not stored.

He is looking for something that can assist him while fulfilling his coaching duty. He would like to have an application where he can track the performance of his players to be able to tell who is performing well and who he needs to pay more attention to. He feels like having something like this could also help compare his team to their opponents to be able to easily see how well they could potentially fair against them.

2.1.3 Volere shells

Using these Volere shells we will have consistent information for each requirement and it includes traceability of the information. We continued to use these shells which are present in the Appendix A.

Requirements #: 1 Requirement type: Constraint

Event/Use Case :2 Source: Admin

Description: The application should record teams and the players associated with them to ensure information is tracked correctly.

Rationale: Each team and players need to be present within the system before match days to ensure that the system can calculate the information required by users.

Fit Criterion: Each team added to a league will have to enter their name and the players associated with the team to ensure that the system can provide the information required by the couches after matches.

Customer Satisfaction: 5 Customer Dissatisfaction: 5

Dependencies: None Conflicts: None.

Supporting Documents: Observation during Interview

History: None

2.2 Design and Prototyping

Building a conceptual model lean on the familiarity of its users with a specific function. We convert requirements established in data gathering section to be able to provide an easy yet intuitive UI for our users. This new journey begins with the conceptual model.

2.2.1 Conceptual models

Between all our conceptual models it would be on a graphical user interface (GUI) using a keyboard and mouse.

The design of the GUI will be designed in a way that is similar to the scoresheets that is currently in use in the league. Users will be able to enter data into a digital scoresheet system via interactive components on the screen. By using a GUI is allows for the translation from paper-based to digital to be much easier to understand for the users. We identified that user error is can occur and will include undo button and features similar to limit user error. The system would store all the data received as input and allow functionality to report and statistics features.

Expanding on the idea of a calendar, we built off that to create a GUI that is used to create a match schedule of the teams playing and date of the match. This would be stored on the database. Dates will be able to be reviewed and changed before the match occurs. Late entries into a league must also be accounted for and thus a reset option would be present as well. Choosing this conceptual model was aa quality of life idea that allows the manipulation of the schedule to accommodate unforeseen events and to distribute the information quickly by generating an updated schedule.

Before a weekly report was generated by a league official at the end of the game week. Using that understanding we created a GUI review page that system creates which includes all the games, their outcomes. The user has the ability to click and edit any information that is about to be processed. Updating the information will require confirmation by two league officials in order to ensure data is accurate before being entered. Changes to this page will be tracked and a rollback will be present. After updating the information, it will display the latest results.

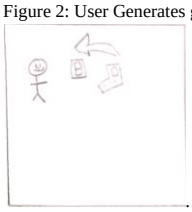
2.2.2 Story Boards

Using story boards such as figure 1 and 2 below and the scenarios discussed above. We were able to produce feedback to increase our understanding of system and user interaction.

Figure 1: User tracks live Match Statistics (Below)

After presenting Figure 1 to our league officials. We identified that users liked the idea however was worried about internet connection issues and authentication of statistics at the end of the day.

Figure 2: User Generates game week summery



League officials were excited for this feature and added that tracking edits was important. Users also mentioned that transferring the report to other devices are important.

2.2.3 Design prototype

Figure 3 is an idea of how our home screen would look. A rough drawing of the users first view of the application. The user would see menu options to direct them to the available screens such as reports or live tracking. The user would also see a summarized view of the log as well as a few important statistics that is available to all users. When designing this application useability was a key factor. The paper scoring sheet requires some insight into knowing how it works. Using some unique features of the digital conversion we can make it easier for the users to interact with the information so user experience is a consideration but not a priority this early in development.

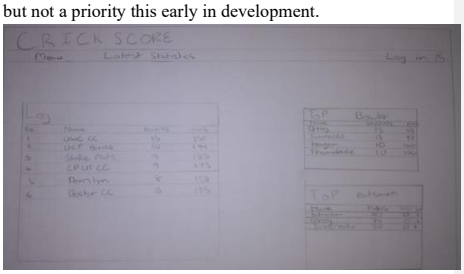


Figure 3: Rough drawing of home page.

2.2.4 Experience map

Using the key provided we went through the steps the user takes and asked ourselves question. Using scenario and persona 1 we developed a simple experience map to identify new interactions.

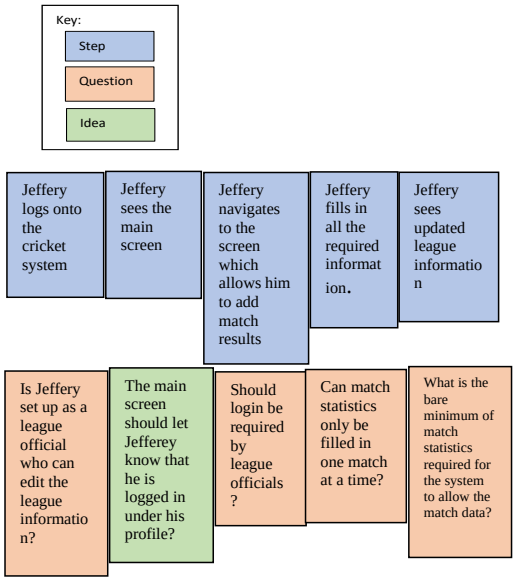


Figure 4: Experience map for Jeffery, league official, updates league information

By drawing this map interaction issues were discovered. User control is required when accessing any team, league and player statistics. To address this issue the home page would have all the information basic users would need. Another issue we identified is minimum threshold of match information that needs to be filled in for the match data to be accepted. To solve this interaction all fields must be filled before progression is allowed.

Our product tries to solve a problem for our users rather than developing an application that can be adapted into other applications. Our application can be a blueprint for other sports like tracking applications but requires a wide backend rework and as a result does not fall under the category of being a maker. Software development kits play a vital role in assisting developer streamline development to be able to produce products faster.

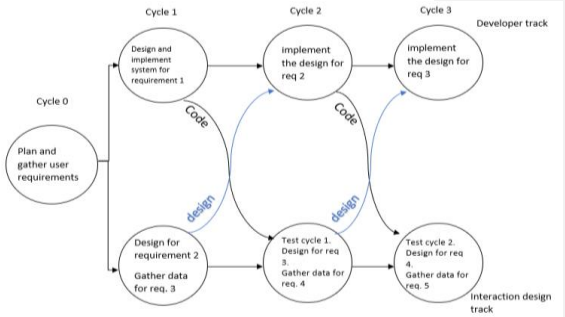
2.2.5 Agile Approach

Cycle 0 is user research to find out exactly what our intended users need and are looking for in the program that would be designed. To achieve this, we spoke to some people at a cricket club, mostly league officials and coaches, to find out what it was that they required. After each sprint a user would be consulted to gauge user feedback. This is a crucial role and would allow us to be user centric in our approach.

Requirements

- Requirement 1: Keeping track of teams and players associated with them. This data is important.
- Requirement 2: Storing data after each match about the match.
- Requirement 3: Live log update.
- Requirement 4: Player statistics report.
- Requirement 5: Generating weekly reports after game week complete.
- Requirement 6: Team statistics report.

Figure 5: Agile cycle. (Below)



2.2.6 Prototyping

Using our research thus far we have created a prototype to build on our idea. This is the steps before building the application as a whole. In figure 6 we build our landing page. Using design principles, we made a simple layout that provides both easy to navigate as well as easy to understand

Vertical analysis: For this application we expand the functionality by making all menu options above to highlight when hovered over changes colour and is clickable to take them to the respective pages. A login feature was added to allow league officials and coaches to access their added features. (Figure 6 below and continue on page 5)

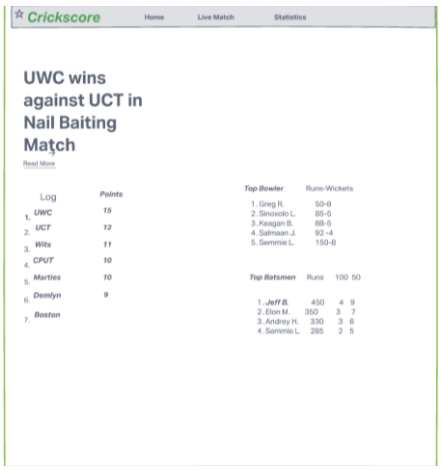


Figure 6: Landing page.

An added news section is on the main page with the ability to update users to the current affairs in the league. Statistics menu option takes you to the page where full league statistics are displayed. Reduces page clutter. Logging in as a league official adds a new menu option that includes live match tracking.

Testing the prototype requires a task that would allow the user to interact. Creating the scoresheet, team selection and home page would allow both stakeholders to participate. To be able to test our prototypes we created a consent form as seen in appendix B figure 4. We selected 2 league officials and 1 coach.

Using the feedback. Users identified options missing in appendix B Figure 7. They requested a redesign of the batsman table also allowing batsman to be shifted live. Missing some additional stats and if game is forfeited or rained out. No undo button but one was promised. Layout was an issue for some as it was not a 1 to 1 copy of a score sheet but was able to adapt in the 15-minute test. (Appendix B Figure 9) The coach mentioned he was not able to add or delete players from his team. Also, more statistics on the selection page was needed.

A controlled usability study would benefit our application due to the intricate scoring system. This would be in an office controlled and calm with bright lights for colour checks. The data I would be looking for is if the user can see the font. Is it easy to navigate? Does it provide all the features? Can a user use it coming from paper scoring sheet? Also ensure users don't interact to reduce influence.

2.2.7 Controlled vs Natural
Understanding natural vs controlled is to understand what each component is and what benefits each type provides.

Controlled study allows all external variable to be mitigated allowing the users full focus. Thus, allowing more engagement with the test. Disadvantages of this method is that if external factors such as light, sound and other distractions interact with the user. You are unable to identify and mitigate this problem.

For a natural study. There is no control forced on the participant's activities. The technology can be used outside. Application can be accessed through mobile phones and other technologies in public places, even at home. Disadvantage of natural study however do exist. Research activities are interrupted by external factors such as people disturbance, phone calls which can create anomalies within the collected data.

2.3 Heuristic evaluation

Scope of evaluation:
The scope of the evaluation is to test the heuristics of the main page, the page where the live scoring will take place.

Know the end user: The intended end users are league officials who will be using the software instead of using paper-based scoresheets.

Set of heuristics:

- User control
- Error prevention
- Visibility of system status

2.3.1. Evaluation system:
We need to measure the severity of each of the issues that we have identified and place them on a scale as to how critical they are compared to each other. We will be adopting a traffic light scheme, red for extremely critical, yellow for critical but not severe and green for minor.

2.3.2 Findings:
Green issues: Some information that might be valuable about the match were not visible so some information was added. Grouping of data for visual appearance.

Yellow issues: An undo and redo button were added so that any error that may have occurred can be undone.

Red issues: A method was needed in order to select which batsman and bowler were currently in use. Without that there would be no way for the system to know who to assign various statistics to.

2.3.3 Changes to Prototype

When adapting our prototype to the new information gained have to satisfy the original requirements laid out in 2.2.5.

As seen in Appendix B figure 7 we redesigned the manner in which we identify who is batting and bowling. We provide this information by adding the name outside of the border of each component and highlight it as well as a radio button for the user to manually select which aligns with requirement 1. Redesigned the layout in general to be more informative and provide more information to the user by the system. No requirements have change to an extent but our design process shifted to provide more intuitive approach.

2.3.4 Heuristic vs Usability Testing

We identified that the users identified missing elements that would make the application such as key features such as missing options for the batsmen getting out or the bowler making a mistake. When using a heuristic view, you take more perspectives into account. The UI becomes more of a way to ensure the users has the required information to make decisions or provide feedback for input placed in by the user. Also allowing the user to view their changes and providing feedback when an error is made. This approach works way more intuitive for a digital presentation. During early development our team preferred using he heuristic view as it ensures the system was simple and easy to understand while providing the user with proper feedback. During later stages we would switch to a usability test in a natural environment to iron out real world issues and get an alternate perspective to application one not bound by predefined rules.

2.3.5 Comparing Evaluation Approaches

Usability Testing

Findings: Users provided useful feedback and pointed out overlooked components. Also pointed out errors in our layout to provide them with usable data.	Benefits: Learn if users can achieve goals set out by developers. Identify changes required to improve user performance and satisfaction.
Cost of operation increases if: Size of team. Number of participants and number of days for the test. Cost of participant compensation.	Limitations: Personal opinions can influence feedback. Users can provide incorrect feedback and requires team to filter out wasting time.

Controlled Testing

Findings: Team identified more errors in a controlled environment. Both users and developers provide useful input.	Benefits: Less distractions provide more valuable data. Users more engaged and can find more errors in the application
Cost: Can be more cost effective if done inhouse but requires users to travel to location. Increase cost for users' compensation but overall, less cost.	Limitations: Unable to identify ways the application UI fails in the field. What external factors cause problems for a user a controlled test would not catch.

3 SOFTWARE ENGINEERING

This section covers the software engineering aspect of how we began to break down our problem and build a solution. Using the information in this section we would be able to design and plan our solution to the problem we identified.

3.1 Roles and Responsibilities

To accomplish this project, the group leader gave distinct tasks and duties to each of us to distribute the project's needed process. We were assigned roles to ensure the workload was distributed evenly, so each of us were given the component we wanted to work with.

3.2 Communication

Communication is an important aspect of the software development process. By communication information about the user requirements is gathered allowing us to understand what is required for the software, that is why we gathered and presenting project requirements, information about system tracking players, matches and the leagues.

3.3 Goals

Establishing goals for this solution is vital in ensuring quality assurance in the testing phase of the SDLC and outlining them provides a great deal of clarity for the team. Our goals are [1]:

- Improve efficiency and accuracy of local cricket leagues match and player tracking.
- Create a leagues system so that league officials can easily update match information and generate reports for coaches and fans.
- Offer a smooth and simple user interface for a pleasant user experience.
- Make league data easily accessible.
- Show league data in a clean, elegant format.

3.4 User Requirements

Using the data gathering techniques used in HCI we have identified the follow user requirement to

- Every user will be assigned a distinct username that will be linked to their account.
- For users to access their accounts, each of them will need a password.
- Users must be able to exit the system.
- Each user will be assigned the authority level 'L. Official" or "Coach"
- League officials will have access to all functions the system provides.
- Coaches will have limited access. Only confirm team and in-depth Statistics.

3.5 Umbrella Activities

Umbrella activities are a series of steps that provides our team with the ability to maintain progress, quality, and the changes

3.5.1 Project management

- Determining how quickly each project phase should be completed
- Monitor and review the project's progress at each stage.
- Managing the quality of work produced in each project phase.
- At the end of each project phase, review the work completed.

3.5.2 Risk Management

- Completing this project may be challenging.
- The completed project may not meet all the project requirements.

3.5.3Software Quality Assurance.

- It is the process we use to ensure that the system software fulfils the defined quality requirements.
- This includes user experience, performance, load handling, and capacity, among other things.
- This method reduces the task at the conclusion of the development phase; we must work as a group to ensure that progress continues.

3.5.4 Technical reviews

- Bug test after each phase
- Correct Logical errors
- Evaluate quality after each sprint.

3.5.6 Measurements and matrices

- Creating product matrices to assist us in delivering applications that meet the needs of stakeholders.

3.5.7 Software Configuration Management.

- Using GitHub manage version of application and allow simultaneous feature development.

3.5.8 Reusability management.

- Establish reusable project resources.
- Work product preparation and production.
- Use google drive to share projects documentation resources.

3.5.9 Controlling Tools

- Our application will be created and coded using NetBeans.
- To create our diagrams, we will use Draw.io.

3.5.10 Document Preparation and Production

- It covers all of the tasks that are important to produce work products like models, documentation, logs, forms, and lists.

3.5.11 Software Project Tracking and Control

- We are allowed to keep track of software development through this activity.
- We work together to develop a software development plan before the actual development begins, and we work off of this plan as we develop. However, once some time has passed, it is important to evaluate the ongoing development to determine what steps must be taken.
- As a result, this process ensures the quality of the software system.

3.5.12 Assumptions

Assumptions must be made in some areas to compromise to ensure our application can be delivered in a timely manner.

- We lean on the conceptual model established in HCI and develop an application that feels familiar but easy to navigate.
- Any features we deem not required to solve the problem we established will be left out.
- The operating system on which the software system will operate has no limitations.
- Coaches and league officials will log in.

3.6 Requirements

3.6.1 Functional Requirements

The functional requirements for this product are as follows:

- Coaches and League officials required to log in.

- The system should then obtain league information and allow team members, coaches, and fans to get access to that information
- The system should also allow league directors to modify data, update and distribute data to the system so that team members, coaches, and fans can get access to them.

3.6.2 Non-functional Requirements

Here is the list of non-functional requirements for this project:

- The application should be able to manage the distribution and modification of league data during the league officials working hours and give access of that data to the users.
- Once a user's login credentials have been successfully confirmed, the system should immediately provide them access to the application.
- To reduce user confusion, the system should display team information next to each team name.

3.7 Stakeholders

Stakeholders are those who are actively participating in a software project, have the ability to influence it owing to their position, and whose interests may be affected by the project's success or failure [1]. So, for our project the stakeholders that are involved are:

League Organizers	Players
Coaches	Fans

3.8 Planning

3.8.1 Selected process method.

The agile approach is the process model that we have chosen to follow, which works by taking the problem at hand and breaking it down into smaller, more manageable parts, focusing on each part at a time. This method was chosen because of the amount of flexibility it provides when completing a project. The project is divided into sections, and each section is focused on for a short period of time.

3.8.2 Formal use cases

This section identifies, clarifies, and organizes the system requirements. It also has text summaries of the major sequence of events and a plethora of alternate flows [2].

These are the formal cases that will be discussed in this section.

- Log in
  Appendix B Figure 1
- View league data

  Appendix B Figure 2

3.8.3 Use case and class Diagram

- Refer to figure 9 for use case diagram, use case diagram illustrates the application's high-level functionality and scope [3]. As a result, a use case diagram was used in this project to collect system requirements that included both internal and external factors. These are design requirements; after analyzing the system to gather its functionalities, we developed use cases and defined actors. We chose to use a use-case diagram because it helped us capture functional requirements from the user's perspective and provides a clear consistent description of what the system should do

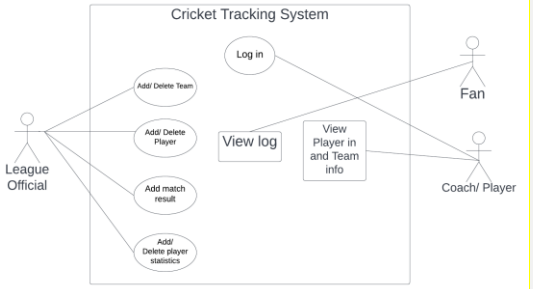


Figure 9: Sample Use Case diagram

- Refer to Appendix B Figure 6 for a class diagram, this figure displays the visual presentation of class objects in a model system classified by class type. To represent the components of the sport system, show how they relate to one another, and describe what they do, the UML class diagram was used for this project. We decided to use UML class diagrams since it helped in procedure clarification, modelling method structure, and documentation improvement.

3.8.3Controlling Tools

- NetBeans is used to design and code our application
- GitHub: a system for implementing version control and sharing project code resources.
- To create our diagrams, we use Draw.io

4 DATABASE

The way that our database structure is set up, is as follows: The four main categories of data fall under either teams, match, statistics, or players. The team keeps track of the

players. The matches are they to record the standings of the teams. The player's data is stored in a player database, and the statistics of the players such as the bowling and batting statistics are all kept in a statistics table for analysis and comparison. To avoid a many to many relationships, 2 bridge tables need to be set up between the teams and the matches.

4.1.1 Business Rule

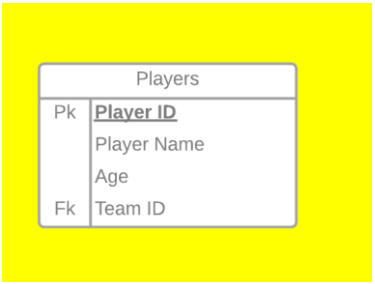
1) One Team has many Players, and not none.
   One Player has One Team, and not none.
2) One Player is linked to One Statistic, and not none.
   One Statistic is linked to One Player, and not none.
3) One Team is registered as Many Team A, and not none.
   Team A is associated with One Team, and not none.
4) One Team is registered as Many Team B, and not none.
   Team B is associated with One Team, and not none.
5) One Match is played by One Team B, and not none.
   Team B can play Many Matches, and not none.
6) One Match is played by One Team A, and not none.
   Team A can play Many Matches, and not none.

4.1.2 Attributes and Entities

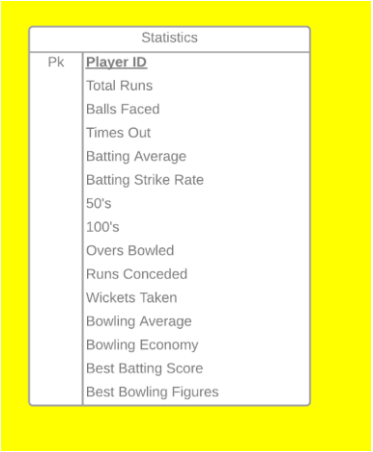
The entities are below, with the attributes displayed in the matching figure in brackets, which can be found in appendix B.

- Teams

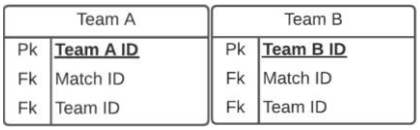
- Players



- Statistics



- Team A Team B



- Match

4.1.3 Relationships

The relationships provide a greater insight into how the applications databases interact. Using the ERD diagram below in Figure 11

Entity	Relationship	Connectivity	Entity
Teams	Contains	1:M	Players
Players	Has	1:1	Statistics
Teams	Forms	1:M	Team A
Teams	Forms	1:M	Team B

Team A	Plays	1:M	Match
Team B	Plays	1:M	Match

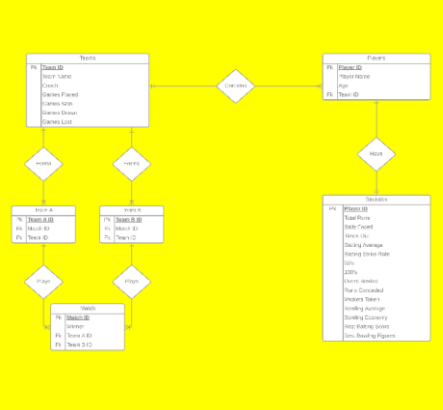


Figure 11: ERD diagram(Crows foot)

-- Database: `capstone db` Table structure for table `matches`

```
CREATE TABLE `matches` (
  `Match ID` int(5) NOT NULL,
  `Winner` varchar(30) NOT NULL,
  `Team A ID` int(11) NOT NULL,
  `Team B ID` int(11) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

-- Table structure for table `players`

```
CREATE TABLE `players` (
  `Player ID` int(3) NOT NULL,
  `Player Name` varchar(30) NOT NULL,
  `Age` int(2) NOT NULL,
  `Team ID` int(11) NOT NULL,
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

-- Table structure for table `statistics`

```
CREATE TABLE `statistics` (
  `Player ID` int(11) NOT NULL,
  `Total Runs` int(11) NOT NULL,
  `Balls Faced` int(11) NOT NULL,
  `Times Out` int(11) NOT NULL,
  `Batting Average` float NOT NULL,
  `Batting Strike Rate` float NOT NULL,
  `Fifties` int(11) NOT NULL,
  `Hundreds` int(11) NOT NULL,
  `Overs Bowled` int(11) NOT NULL,
  `Runs Conceded` int(11) NOT NULL,
  `Wickets Taken` int(11) NOT NULL,
  `Bowling Average` float NOT NULL,
  `Bowling Economy` float NOT NULL,
  `Best Batting Score` int(11) NOT NULL,
  `Best Bowling Figures` varchar(6) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

-- Table structure for table `team a`

```
CREATE TABLE `team a` (
  `Team A ID` int(5) NOT NULL,
  `Team ID` int(5) NOT NULL,
  `Match ID` int(5) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4
```

-- Table structure for table `team b`

```
CREATE TABLE `team b` (
  `Team B ID` int(5) NOT NULL,
  `Team ID` int(5) NOT NULL,
  `Match ID` int(5) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

-- Table structure for table `teams`

```
CREATE TABLE `teams` (
  `Team ID` int(5) NOT NULL,
  `Team Name` varchar(30) NOT NULL,
  `Coach` varchar(30) NOT NULL,
  `Games Played` int(2) NOT NULL,
  `Games Won` int(2) NOT NULL,
  `Games Drawn` int(2) NOT NULL,
  `Games Lost` int(2) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

Commented [GR1]: Renamed

Commented [GR2]: Removal of Stats ID field

Commented [GR3]: Removal of Stats ID field

-- Indexes for table `matches`

ALTER TABLE `matches`

ADD PRIMARY KEY (`Match ID`);

-- Indexes for table `players`

ALTER TABLE `players`

ADD PRIMARY KEY (`Player ID`);

-- Indexes for table `statistics`

ALTER TABLE `statistics`

ADD PRIMARY KEY (`Stat ID`);

-- Indexes for table `team a`

ALTER TABLE `team a`

ADD PRIMARY KEY (`Team A ID`);

-- Indexes for table `team b`

ALTER TABLE `team b`

ADD PRIMARY KEY (`Team B ID`);

-- Indexes for table `teams`

ALTER TABLE `teams`

ADD PRIMARY KEY (`Team ID`);

COMMIT;

Appendix A

Volere Shell

Requirements #: 2

Req type: Functional Event/Use Case :1

Description: The product should store data entered by the league official after each match to the database.

Rationale: After a match the data needs to be stored onto a database to ensure no information about the match is lost. Resulting in incomplete data of the day.

Source: League Officials

Fit Criterion: After each game the system would communicate with the Database to ensure data is stored and kept up-to-date and update the log, player, and team statistics.

Customer Satisfaction: 5

Customer Dissatisfaction: 5

Conflicts: Statistics and Log updates.

Supporting Documents: Interview of League official

Requirements #: 3

Requirement type: Functional

Event/Use Case :3

Description: After each match the log that track teams' position is updated.

Rationale: After each match the system calculates the latest position and updates the required information on the database to ensure the information generated is the latest.

Source: Admin

Fit Criterion: This ensures that the system always has the latest information provided by league officials if any information is required by management or couches.

Customer Satisfaction: 4

Customer Dissatisfaction: 3

Dependencies: None

Conflicts: None.

Supporting Documents: Observation of interview process

History: None

Requirements #: 4

Requirement type: Functional

Event/Use Case :4

Description: Player's statistics should be available to couches after each match.

Rationale: After each match the couch can request player information from the system to help couches manage their teams and provide feedback after each game.

Source: Couch

Fit Criterion: To allow couches to better manage their team to ensure they always improving their skills so that in training the teams work on skills that need to be better.

Customer Satisfaction: 4

Customer Dissatisfaction: 4

Dependencies: Updated statistics and Log Page.

Conflicts: None.

Supporting Documents: Observation of interview process

History: None

Requirements #: 5

Requirement type: Functional

Event/Use Case :5

Description: Generate weekly reports after all matches have specific outcomes.

Rationale: At the end of the game week the team are presented with a final up-to-date information of all the games that took place over the week. This ensure all teams are on the same page and management.

Source: League official

Fit Criterion: The league ensures that all teams are kept up to date about the league they participate in and using this system it can better manage and run the league more efficient.

Customer Satisfaction: 4

Customer Dissatisfaction: 5

Dependencies: Player statistics.

Conflicts: None.

Supporting Documents: Observation of interview process

History: Interview of League official

Requirements #: 6

Requirement type: Functional

Event/Use Case :6

Description: Teams statistics should be available to couches after each game week.

Rationale: After each game week the couch can request team information from the system to help couches understand the performance of the team.

Source: Couch

Fit Criterion: To allow couches to better understand the form their teams are in and if the training and practice they are applying is working.

Customer Satisfaction: 3

Customer Dissatisfaction: 4

Dependencies: Updated statistics.

Conflicts: None.

Supporting Documents: Observation of interview process

History: Interview of League official

Appendix B

Figure 1

Use Case (1).

- Use Case Name:

Login

- Description:

League official wants to login to update scheduling or the result of games

- Goal level: User goal
- Actor: League official
- Precondition:

Must be a League official and have customers password and username.

- Main success scenario:

1. League official enters username
2. League official enters password.
3. League official clicks log in.

- Failure Extension:

League official logged in:

a) League official enters incorrect username or password

b) Not a League official.

c) League official provided information that is not registered.

d) The log in process fails due to technical difficulties.

Error handling:

a) Incorrect login details:

1. The application displays error message to notify the user.
2. Refill the details on the login screen.

b) Make sure that you're registered to the system as the League official.

c) Make sure the person is the league official

d) Reload the page and try logging in again.

Figure 2

Use Case (2).

- Use Case Name:

Login

- Description:

Coach/ player/ fan wants to login to check scheduling or the result of games

- Goal level: User goal
- Actor: coach/ player/ fan
- Precondition:

Must be a coach or player or fan and have customers password and username.

- Main success scenario:
    4. User enters username
    5. User enters password.
    6. User clicks log in.
- Failure Extension:

League official logged in:

a) User incorrect username or password

b) Not a coach, player, or fan.

c) User provided information that is not registered.

d) The log in process fails due to technical difficulties.

Error handling:

a) Incorrect login details:

3. The application displays error message to notify the user.

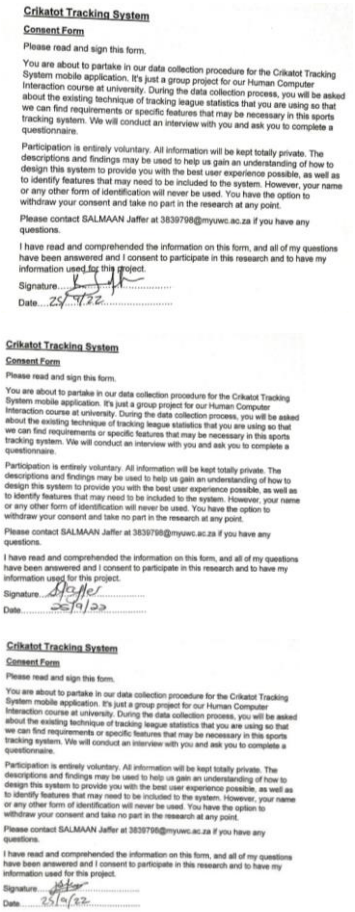
4. Refill the details on the login screen.

b) Make sure that the user is registered to the system as the coach, player, or fan.

c) Make sure the user is registered.

d) Reload the page and try logging in again.

Figure 4



Crikatot Tracking System

Consent Form

Please read and sign this form.

You are about to partake in our data collection procedure for the Crikatot Tracking System mobile application. It's just a group project for our Human Computer Interaction course at university. During the data collection process, you will be asked about the existing technique of tracking league statistics that you are using so that we can find requirements or specific features that may be necessary in this sports tracking system. We will conduct an interview with you and ask you to complete a questionnaire.

Participation is entirely voluntary. All information will be kept totally private. The descriptions and findings may be used to help us gain an understanding of how to design this system to provide you with the best user experience possible, as well as to identify features that may need to be included to the system. However, your name or any other form of identification will never be used. You have the option to withdraw your consent and take no part in the research at any point.

Please contact SALMAAN Jaffer at 3839798@myuwc.ac.za if you have any questions.

I have read and comprehended the information on this form, and all of my questions have been answered and I consent to participate in this research and to have my information used for this project.

Signature.....

Date....29/9/22.....

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Signature.....

Date.....29/9/22.....

Figure 5

Questions

1) What is your role within the Cricket team? (Couch, League official or fan/Supporter)
2) Does the sport include any technologies at this point in time?
3) How do you keep track of the players, teams and league of this sport?

4) Would you be interested in using an application/website to keep track of this league?
5) What are some of the features you would like the application to have?
6) Would you be interested in more than just the team's performance?
7) Are player statistics of interest to you?
8) How helpful do you think this application will be to you?
9) For your idea of the application do you see a benefit in having it at all?
10) How will the application improve your personal/teams' performance when having some of those features are implemented?
11) Do you think that this application will intrigue more fans to the sport? If yes elaborate.

More Specific for each category of user

Couch

1) As a coach do you want to see other teams' performance statistics also or is your own team preferred?
2) Do specific player statistics need to be present or just basic information preferred?
3) What information would you like to keep track of?

League official

1) What features do you want to be added to keep track of the games?
2) Is specific player statistics a feature you want keep track of?

Figure 6

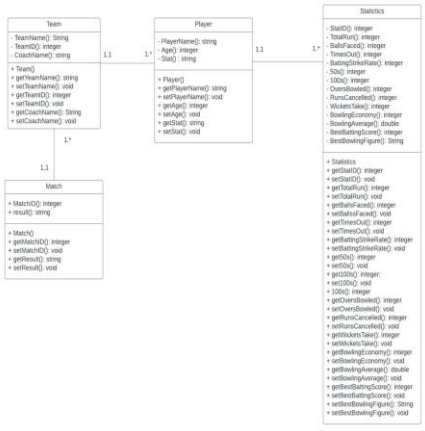


Figure 6: UML class diagram

Figure 7: Updated UI design

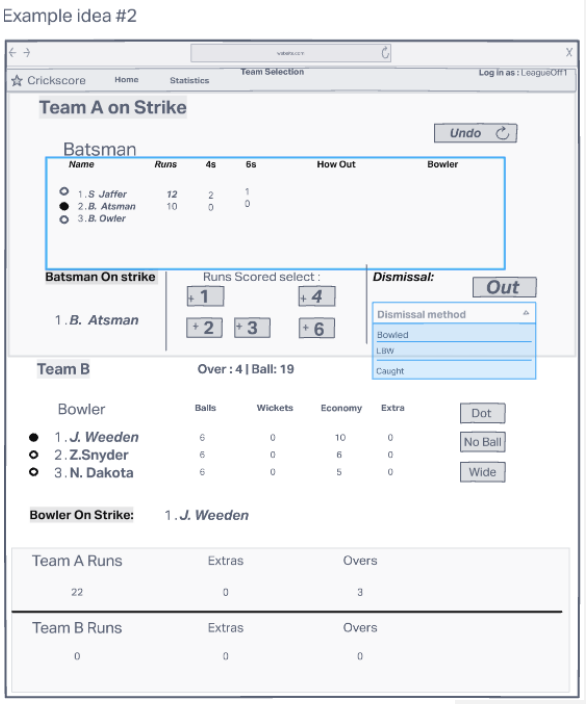
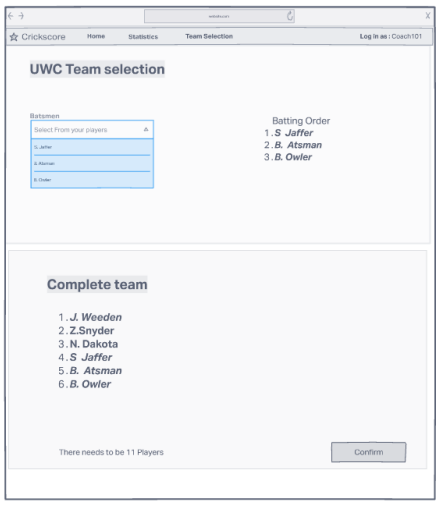
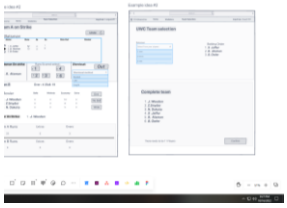


Figure 9: coach select team:

Example idea #2





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[4] "Defining the Goal and Scope of the Software," 2002. [Online]. Available: https://cours.etsmtl.ca/log792/private/restreint/Chapitre_Livre_Cours/QSPM_Chapter_07.pdf.

Project title **Group Number**	Cricket League Management System Group 16 Enron		**TOTAL MARKS** **/ 50**
STUDENT NO.	**STUDENT NAME(Confirm if Agree)**		Responsible for:
3930303	KEAGAN Bruce(Confirm)		Human computer interaction
4026320	SINOXOLO Lomani(Confirm)		Software Engineering
3843368	GREGORY Robson (Confirmed)		Databases
3944942	THALENTE GIFT Sithole(Confirm)		Software Engineering
3839798	SALMAAN Jaffer (Confirm)		Editing and assisted with all parts, Human computer Interaction, Databases and Software Engineering.

	Possible Mark	*Excellent*	*Good*	*OK*	*Poor*	*0*
Revise previous and format	**5**	5	3	2	1	0
Presentation and demo	**5**	5	3	2	1	0
HCI 1) Standard task sheet (at least 4 tasks).	**4**	4	3	2	1	0
2) Informed consent	**4**	4	3	2	1	0
3,4) Three users: note problems, timing, etc.	**4**	4	3	2	1	0
5) Plan for either controlled or field study.	**4**	4	3	2	1	0
6) Benefits of controlled vs. field.	**4**	4	3	2	1	0
DB 1) You'll be marked on the following: Draw up an ERD in Crow's foot notation using the entities, business rules and important attributes you identified in the previous assignment	**10**	10	8	5	3	0
SE 1) Document application of SE principles and UML.	**10**	10	8	5	3	0
TOTAL	**50**					