

**STAT 11**  
**Requirements and Specification Document**  
**14.03.2023**  
**Version Major/Minor**

<b>Name of the member</b>	<b>Enrollment no.</b>	<b>Mobile no.</b>
Amandeep Singh	21411005	8860368851
Akhil Punia	21114008	8295489973
Manashree Kalode	21114057	8080930624
Nishita Singh	21114068	8826468735
Raiwat Bapat	21114078	7666191528
Subhajit Biswas	21114100	7432080915

# **Project Abstract**

Stat11 is a web application to be developed in Django and React. The two key tasks of the app include providing real-time statistics for cricket matches and corresponding score analysis using charts. Several user-friendly features such as a chart view for match analysis, open access (authentication won't be necessary) for the general public, and a clean UI with intuitive UX will be added. The application will be made as screen responsive as possible, making it fit for a wide range of devices.

## **Document Revision History**

Rev. 1.0 14.03.2023 - initial version

## **Customer**

### **Client**

SportLabs is a media organisation specialising in cricket that focuses on covering news, updates, and analysis related to cricket matches, players, and teams. Some of the organization's characteristics include:

1. The organization operates in Australia and wants to expand its business in India.
2. With a significant online presence, it provides cricket fans with access to the latest cricket-related content.
3. SportLabs has partnerships with various Australian local cricket clubs and leagues to provide exclusive coverage and access to events.

The company has a good social reach with a team of experienced journalists, writers, and analysts who are knowledgeable about cricket and can provide high-quality insightful coverage. They also have a strong social media presence, with a large following of cricket fans who engage with their content.

## General Consumer

Any general customer using the software will fall under one of the following categories:

1. Superuser
  - a. The person will have super admin rights i.e. he/she will have complete editing rights including admin rights for other users.
  - b. Can be an umpire.
2. Admin
  - a. The admin will have all rights except modifying any other user's admin rights.
  - b. Admin rights include adding tournaments, creating new matches, manipulating the scoreboard, adding/removing players from the match, etc.
  - c. Supposedly will be the scorer of the match.
3. Player
  - a. Anyone participating in the cricket match will be a player in the app.
  - b. Supposedly members of the teams playing in a match.
4. Audience
  - a. The person with view-only access to the app.
  - b. As the app will be hosted online, anyone with network access can be part of the audience (no authentication required).

# Competitive Landscape

## Competitors

### Similar Softwares

#### Cricbuzz

Cricbuzz provides live cricket scores, news, and player statistics. It is a popular platform for cricket enthusiasts to stay updated with the latest cricket news and scores.

#### Strengths

1. Cricbuzz is deployed on a large scale covering international and national cricket matches.
2. Being deployed on large scale, Cricbuzz has an expanded target user base
3. Extra features such as live broadcasts, news, and editorials related to matches are provided

#### Weaknesses

1. Cricbuzz provides no support for small-scale matches. Cricket matches below the national level aren't recorded. No option to create and manage your own cricket match is provided.
2. Being heavy software with a large database, performance issues occur under low network connectivity.
3. No score analysis has been provided making analysis via data tables a pretty cumbersome task.
4. UI is unresponsive and clustered.
5. UX and navigations through the app are also not intuitive.

## Cricheroes

Cricheroes provides live ball-to-ball updates and vivid player analytics even for local matches.

### Strengths

1. Cricheroes connects various cricket resource providers such as Trophy Vendors, Commentators, Umpires, etc. providing a freelancing platform.
2. Match, as well as player analytics, are included in the application
3. Daily feed and updates are provided
4. Cricheroes supports small-scale matches; new matches can be created and managed accordingly.

### Weaknesses

1. Mandatory authentication as a player is required to access the app. No provision for the non-playing audiences to receive updates has been provided.
2. Feed feature is not optimized (contains unmanaged/unrelated information)
3. Cricheroes is not maintained; has many unfixed bugs (crashed several times while using)

## Other Competitors

### Live Broadcast (T.V.)

The live broadcast is a common way for a user to access cricket matches and corresponding updates. It is usually accessible with a T.V. subscription.

### Strengths

1. T.V. broadcasts include both large and state-level matches.
2. Internet connectivity isn't necessary.
3. Live analysis and voice commentary is provided along with the match

## Weaknesses

1. No support for local matches has been provided (no feature to create and manage a local match).
2. Match analysis and commentary are momentarily available and cannot be revisited. Data is not stored and hence cannot be accessed once the match is over.
3. Requires a proper power supply and a TV subscription.
4. Lengthy advertisements during match broadcasts are not desirable for a user

# Stat11

## Strengths

1. Stat11 is a web application, hence increasing its accessibility and availability to a larger target user base (doesn't require download and installation)
2. As a software, Stat11 is focussed on the main objective with only necessary and precise information included in the application, preventing clustering of redundant data.
3. Being a light software, enhances its performance and speed.
4. The application is active on a small scale (for local and district-level matches) and hence addresses a different target user base.
5. The general audience doesn't need to authenticate to acquire access to match updates making it user-friendly.
6. UI is clean and responsive
7. Navigation and UX are kept as intuitive as possible
8. Different charts are used to present the match analysis calculated internally in the application.
9. An internet connection is the only necessary condition to access Stat11.

## Weaknesses

1. There are no current plans to deploy a mobile alternative (mobile version of the app) for the app. As of now for mobile users, Stat11 is accessible only via the web.
2. No support has been provided for large-scale matches. Admin users have to create and manage the cricket match which isn't really a practical approach for international or national-level matches.
3. Data is entered in the application manually making the information provided to be prone to human error.
4. Internet connectivity for the scorer is a core/sole necessity for the application to serve its purpose. In case the scorer loses his/her connection all data for the match will be stalled.

## Competitive Differentiators

1. Unlike other similar large-scale softwares, the target user base for Stat11 majorly includes people involved (in any way possible) in small-scale cricket matches (can be local matches or even district/state-level matches). The application targets those matches which don't get high-level (national or international-level) recognition, not enough to be included by big apps like Cricbuzz or broadcasted on T.V.
2. Stat11 is a light software focussed on the main objective i.e. providing match statistics and corresponding analysis precisely and efficiently.
3. The navigation and flow are kept as intuitive as possible along with asking for authentication only where necessary. This makes the application more user-friendly.
4. Charts are used extensively to enhance the understandability of stat analysis carried out for the matches.

## Barriers to Competition

As described in the sections above, the following will act as barriers to competition (will reduce competition) for Stat11,

1. Stat11 targets a different target user base i.e. people involved in small-scale matches (below state level)
2. Charts portrayal for match analysis enhance understandability and user experience.
3. Authentication isn't a necessity for the general audience. Asking for less personal information from users supposedly makes them feel safer and the software to be more publicly acceptable & desirable.

## System Requirements

### System Specifications

#### Functional Requirements

##### 1. Authentication:

Authentication must be required before any user can modify any data in the app, though users asking for view-only access need not authenticate. Allowing data updation without authentication will make data unreliable but unnecessary authentication for a general user will shrink the user base accessing the application.

##### 2. Access rights:

Access rights must vary with the user. Scorers must have editing rights to the app including the right to create/dissolve a tournament/match, create and add players to the team, and update the scoreboard. Any other general user must only have viewing access to the data provided in the app. The tournament management



committee should be able to choose the scorer. Keeping rights the same for all will reduce data reliability.

### 3. Create and manage tournaments:

Scorer must be able to create and manage tournaments so that new tournaments can be added and updated if required later on.

### 4. Create and manage matches

Scorer must be able to create and manage cricket matches so that new matches can be added and managed accordingly.

### 5. Manage the scoreboard and digitalize it as much as possible

Scorer must be able to modify the scoreboard for the current match, also the scoreboard updation process must be as digitalized as possible. The scorer should not be required to type in the same common terms used in the game again and again (optimize scorer inputs). This will reduce the efforts required to manage the scoreboard manually optimally.

### 6. A separate concise current scoreboard for quick review

Not every person will be interested in the complete tabular data of the match so a provision/feature for quick review (supposedly a concise scoreboard) must be provided along with the match stats.

### 7. Player-wise data for both teams

In-depth player-wise data must be recorded in the application for proper analysis. It will also ensure efficient conflict handling in case of any discrepancy later on.

### 8. Real-time updation of data present

Data must be updated in real-time and the user should not be required to reload the application again and again. Without real-time updation, the user experience will be bitter and the application will lose its user attraction.

## 9. Scoreboard Analysis

The scoreboard should be analysed internally and optimally. A large part of the user base won't be interested in analysing the complete tabular data manually, so a feature to analyse this tabular data must be there.

## 10. Team-wise and player-role-wise analysis charts

Charts must be used to present the analytics of the match. Furthermore, charts should be segregated team-wise as well as player-role-wise to make information communicated intuitive and understandable.

## 11. Data must persist even after the match is over

Data for all matches must persist in the application for later review/revisit.

# Non-functional Requirements

### 1. Security:

Stat11 must be secure and risks must be handled efficiently. Sensitive data must be hidden and its non-accessibility should be ensured because loose security might lead to illegal access and updation of data stored.

### 2. Capacity:

The application must be able to support a user base with a strength of 15k to 18k.

### 3. Compatibility

The software must be compatible with recent versions of search engines along with being screen-responsive i.e. UI should not crash with varying screens and devices.

#### 4. Reliability and availability

The application must not crash under moderate load (user count around 10k-12k) and if ever does, the application should get reloaded within 2-5 seconds. Proper availability must be ensured via the web.

#### 5. Maintainability

The administrator must have complete access to the application along with being able to modify access rights for any user. Also, the source code written must be easily maintainable, and normal bug fixes should not take more than 1-2 days.

#### 6. Scalability

In case the user base exceeds its estimated size, the database must be able to handle such strength with optimal performance i.e. the application must be able to handle a maximum workload of 20k users simultaneously accessing the app.

#### 7. Usability

UI must be as clean and segregated as possible. All the data should not be clustered on a single-page application. Navigation tabs and an intuitive user flow with proper hierarchy must exist in the application. A help tab should also be available for new users to understand the application.

#### 8. Performance requirements

Real-time updates must not exceed a second or two. Also, real-time updation must be provided for the complete scoreboard and not just the concise current scoreboard. If any time software crashes or any error occurs, the user must be informed appropriately with a proper message.

#### 9. Environmental requirements

Application must be at minimum fit for device sizes starting from a 13' tablet to big T.V. screens. Also, software must be kept light so that it can work appreciably even under low internet connectivity.

# Use Case Specifications

## Actors

1. General User
2. Player
3. Admin
4. SuperUser

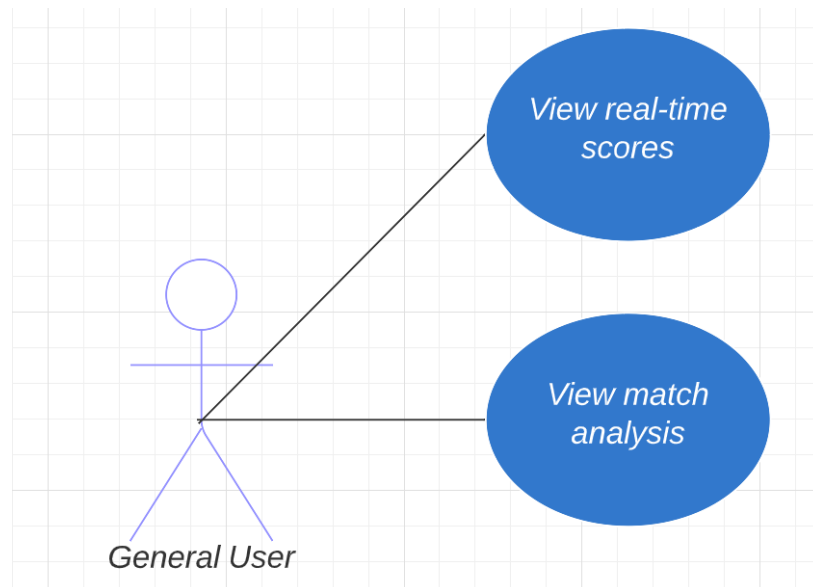
## Use Cases

### 1. General User:

**View Real-time scores** : Ball to Ball score updates are visible to the user

**View match analytics** : The user can access entire match analysis in the form of graphs and charts.

Diagram:

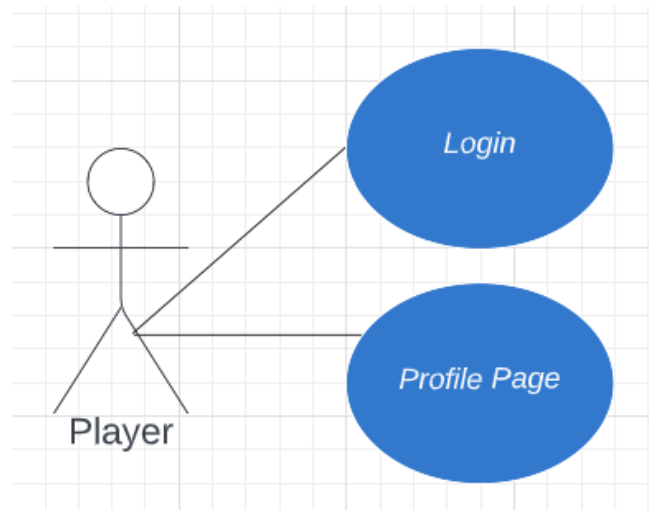


## 2. Player

**Login** : A player is able to log in the app and enter his details such as playing preferences etc.

**Access Profile page** : Using the details entered by the player a profile page is created for each player.

**Diagram:**



## 3. Admin

**Add a tournament** : Admin can start a new tournament and end at the desired time.

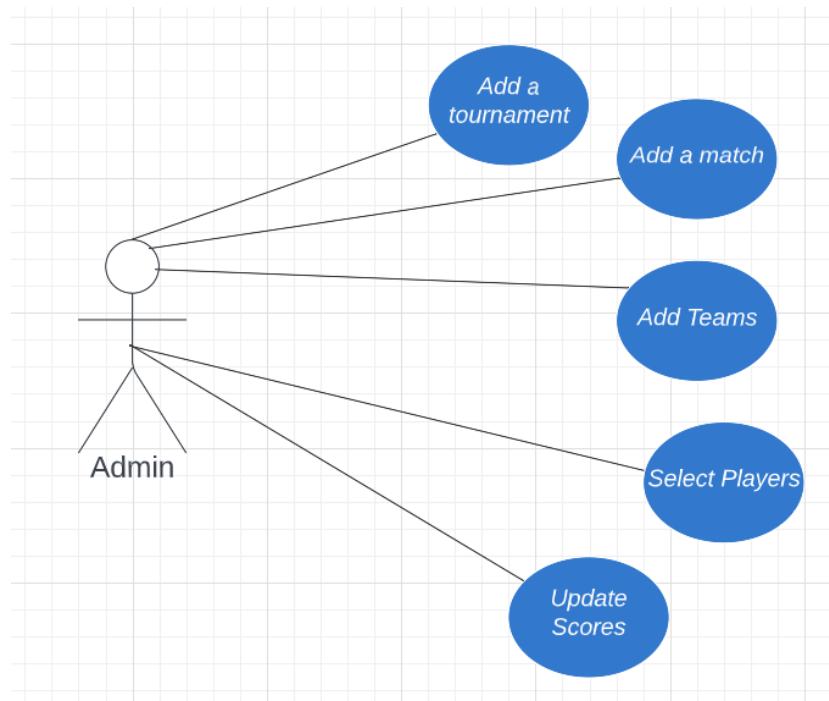
**Add a match** : Admin can start a new match and end at the desired time.

**Add teams** : Admin can then add team names to the match.

**Select players** : Admin selects the players involved in the match from the player database.

**Update Scores** : Once the match has started, admin updates the scores with complete details of the particular ball of the over.

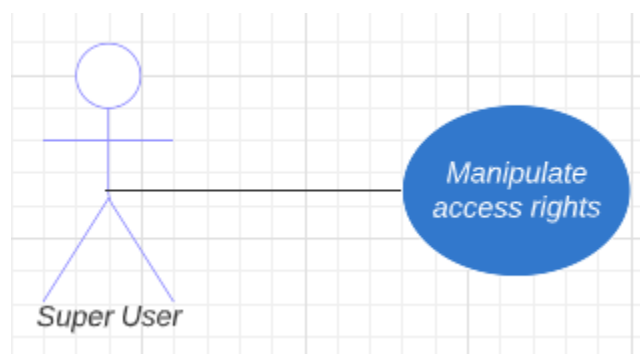
**Diagram:**



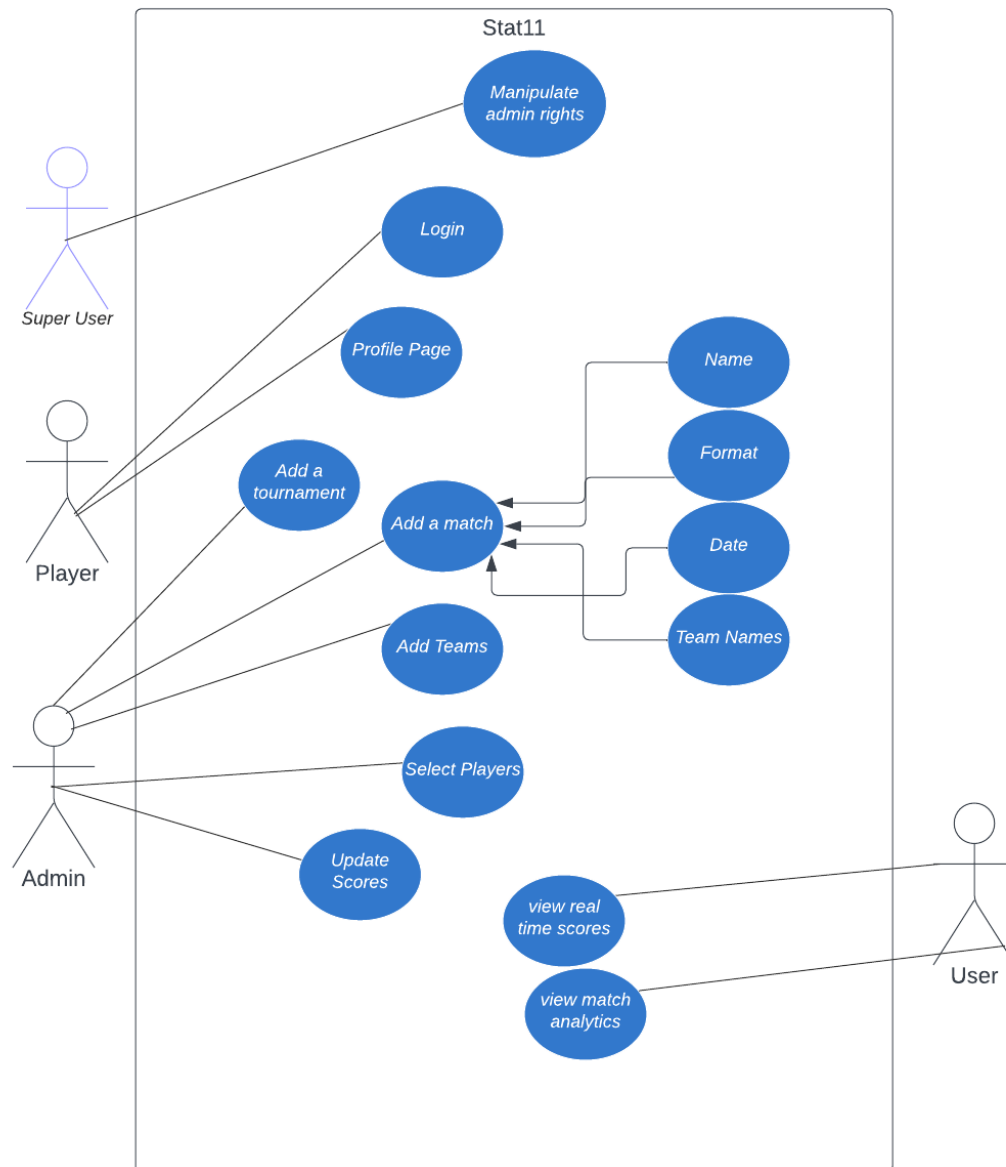
#### 4. Super user

**Manipulate admin rights** : Super user can manipulate rights of any user.

**Diagram:**



# Use Case Diagram



# GUI Requirements

## 1. Login Screen:

The application should have a login screen that allows scorers to sign in with their credentials. It should include fields for username and password, and a "remember me" option to make future logins easier.

## 2. Score Update Screen:

Once logged in, the scorer should be able to update the score of the match after each ball is bowled. The application should display the current score, number of overs, wickets, and other relevant information on this screen. The scorer should be able to update the score, add runs or wickets, and track the progress of the match.

## 3. Live Score Screen:

A general user should be able to view the live score updates without having to log in. The application should display the current score, number of overs, wickets, and other relevant information on this screen. The score should be updated in real-time so that users can keep track of the match as it progresses.

## 4. Match Statistics Screen:

A general user should be able to view the statistics of a match like run worms, runs distribution among the batsmen, runs conceded in each over, best batsman, best bowler, MVP, etc. The application should have a separate screen for displaying match statistics. This screen should include graphs, charts, and other visual aids to help users understand the data.

## 5. Navigation Menu:

The application should have a navigation menu that allows users to switch between different screens, such as the login screen, score update screen, live score screen, and match statistics screen. The menu should be easy to use and accessible from any screen in the application.



## 6. Responsive Design:

The application should have a responsive design that adapts to different screen sizes and devices. This will ensure that users can access the application on their mobile devices, tablets, or desktops without any issues.

# External Requirements

## 1. Web server:

Stat11 requires AWS cloud hosting services for hosting its services as it is affordable and easy to maintain.

## 2. Database:

Stat11 must use a Postgres and Redis database for data management and websocket support for real-time updation within the application.

## 3. Browser Compatibility:

The website should be compatible with all major web browsers, such as Google Chrome, Mozilla Firefox, Microsoft Edge, and Safari, to ensure that customers can access the site from any device and browser of their choice.