A Data-Driven Fantasy Sports Analytics Platform
Cricsights

A synopsis submitted

in Partial Fulfillment of the Requirements

for the Degree of

BACHELOR OF TECHNOLOGY

in

Department of Artificial Intelligence and Machine Learning

by

Srujan Kulkarni

Anand Gandhamwar

Avinash Parchake

Guided by

Swati Barik

G H raisoni COLLEGE Engineering and Management Pune

G H Raisoni College of Engineering and Management, Wagholi, Pune

(An Empowered Autonomous Institute (Accredited by NAAC A+ Grade), Affiliated to SPPU, Pune

January 2025

Synopsis

1 Abstract

Cricsights is an advanced analytics platform designed to empower fantasy sports enthusiasts by providing real-time, pre-match, and post-match insights. Leveraging cutting-edge technologies such as machine learning and data visualization, Cricsights delivers actionable insights through interactive and user-friendly interfaces. The platform offers comprehensive analytics, including player-specific, venue-specific, and matchup statistics, enabling informed decision-making for fantasy cricket players. With features like real-time updates during matches and meaningful visualizations, Cricsights bridges the gap between raw data and strategic decisions. The subscription-based model ensures accessibility for all users while catering to premium needs with live match analytics. By transforming complex data into intuitive insights, Cricsights sets a new standard for fantasy sports engagement and decision-making.

2 Introduction

Crisights is a new platform designed to empower fantasy cricketers with data-driven tools to make smarter decisions. It offers comprehensive analytics, including real-time, pre- and post-match insights, with comprehensive statistics and an abundance of stunning graphics highlighting key elements such as players and play, location specific details, and on individual player performance, to enhance the CriSights gaming experience The platform provides tailored actionable insights for its interactions It also builds user engagement through intuitive images, ensuring that users can quickly and confidently make informed choices. [1].

3 Objectives

Objectives will come here.

1. To design self-service analytical tools for fantasy players..
2. To provide real-time, pre-match, and post-match insights..
3. To empower users through meaningful data visualizations and interactive statistics..

4 Literature Review

4.1 Research Trends in Sports Analytics

- **Rise of Data-Driven Decision Making**:
  - Adoption of data analytics in sports for performance optimization and strategy planning.
  - Increasing reliance on predictive modeling for match outcomes and player performance.
- **Machine Learning (ML) in Sports**:
  - Use of ML algorithms for player performance prediction, injury risk assessment, and tactical analysis.
  - Popular algorithms include regression models, decision trees, and neural networks.
- **Data Visualization Tools**:
  - Tools like Power BI and Tableau used for creating interactive dashboards and visual insights.
  - Real-time visualizations help in understanding game dynamics and player statistics.

4.2 Comparison of Existing Solutions in Fantasy Sports

- **Current Solutions**:
  - Platforms like Dream11 and FanDuel provide generic predictive insights based on basic statistics.
  - Limited customization for user-specific decision-making.
  - Lack of real-time updates and interactive analytics for live matches.
- **Limitations**:
  - Over-reliance on textual data and static reports.
  - Inadequate visualization of complex data patterns.
  - Minimal focus on venue-specific or player matchup statistics.

4.3 Architecture of Cricsights

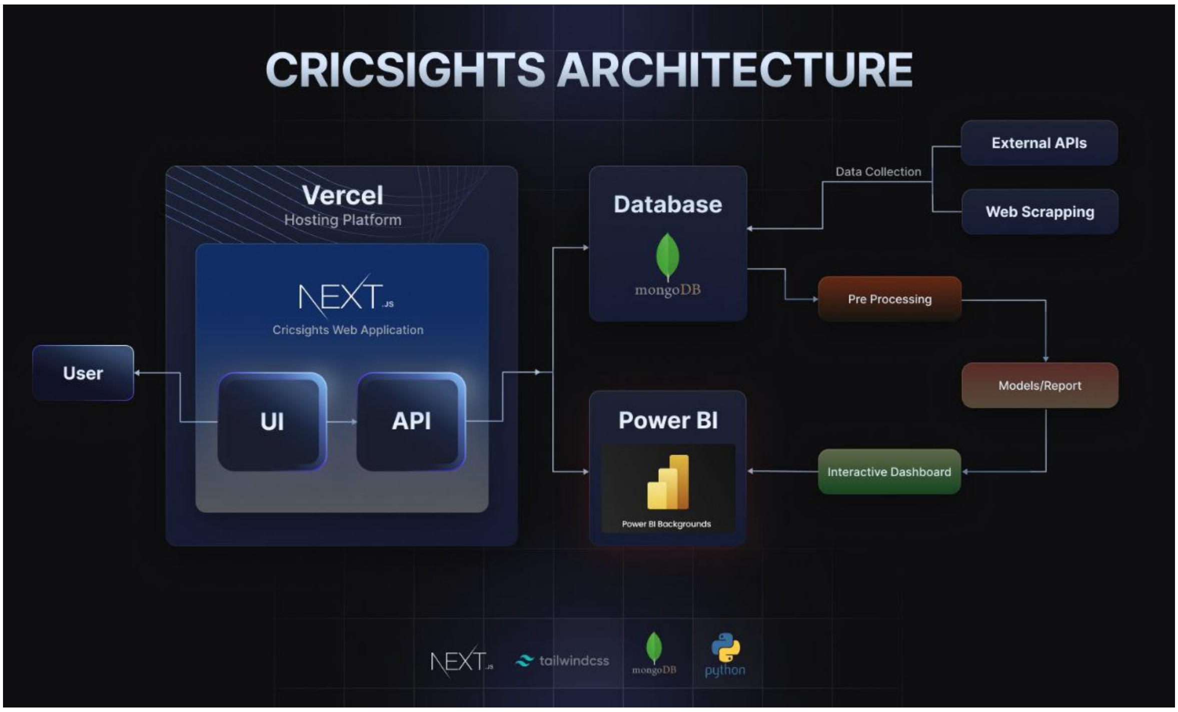

Figure 1: Cricsights System Architecture

5 Methodology

5.1 Data Collection

- **Sources:** Data is gathered from *external APIs* and *web scraping* techniques to ensure comprehensive coverage of player statistics, match details, and venue specifics.
- **Tools:** Python libraries like `requests` and `BeautifulSoup` are employed for scraping, while APIs are accessed through secure endpoints.

5.2 Preprocessing

- The collected data undergoes cleaning and transformation to ensure consistency and usability.
- **Steps:**
  - Handling missing or inconsistent data.
  - Formatting data into structured formats suitable for database storage.

- **Tools:** `Pandas` and `NumPy` in Python are utilized for data wrangling.

5.3 Database Management

- **Database Used:** MongoDB is used to store the preprocessed data in a NoSQL format for scalability and quick querying.
- **Storage Structure:**
  - Player-specific data.
  - Match-specific analytics.
  - Historical data for venue performance.

5.4 Analytics and Reporting

- **Dashboard Integration:** Power BI is employed for generating interactive dashboards, providing real-time insights and historical analytics for users.
- **Models and Reports:**
  - Predictive analytics models are applied to deliver pre-match and post-match insights.
  - Statistical reports for players and venues are generated.

5.5 Frontend Development

- **Framework:** Next.js and React.js are utilized to build a dynamic and responsive user interface (UI).
- **Styling:** Tailwind CSS is used to design an intuitive and user-friendly frontend for presenting analytics and dashboards.
- **Hosting:** Vercel is chosen for seamless hosting and deployment.

5.6 Backend Development

- **Framework:** Node.js and Express.js are used for developing robust backend APIs.
- **API Functions:**
  - Fetching real-time data for live match analysis.
  - Serving pre-processed data for user dashboards.

5.7 Authentication

- **Methods:** Firebase and OAuth are implemented for secure and reliable user authentication.
- **Features:**
  - User login and session management.
  - Role-based access control for premium features.

5.8 User Interaction

- Users access the platform via a responsive web application, interacting with features such as:
  - Real-time insights during live matches.
  - Pre-match predictions and post-match analysis.
  - Player and venue-specific statistics.

6 Project Plan and Timeline

Activity/ Months	**Jan.'25**	**Feb.'25**	**Mar.'25**	**Apr.'25**
Problem Statement Identification	✓			
Literature Review	✓			
Requirement Analysis	✓			
Designing		✓		
Experimental Analysis		✓		
Module-wise Implementation		✓	✓	
Testing and Debugging			✓	
Project Report Preparation				✓

7 Expected Outcomes

- Development of an analytics platform tailored for fantasy sports enthusiasts.
- Enhanced user experience through interactive and meaningful insights.
- Real-time decision-making capabilities, empowering users during live matches.

8 Business Model

The revenue model for the platform includes free and premium services to cater to a wide range of users:

- **Post-Match Analysis:**
  - This feature is free of charge and serves as an entry point to attract users to the platform.
- **Pre-Match Analysis:**
  - Available as a subscription-based service priced at $x.
  - Provides users with valuable insights and data to make informed decisions before a match.
- **Live Match Analysis:**
  - Offered as a premium feature priced at $1.5x.
  - Delivers real-time insights during cricket matches to enable dynamic and strategic decisions.

References

[1] G. D. Greenwade, "The Comprehensive Tex Archive Network (CTAN)," *TUGBoat*, vol. 14, no. 3, pp. 342–351, 1993.

[2] IEEE, "Analysis and prediction for the indian premier league," *IEEE Explore*, p. N/A, 2020. [Online]. Available: https://ieeexplore.ieee.org/document/9153972

[3] ——, "Analysis and winning prediction in t20 cricket using machine learning," *IEEE Explore*, p. N/A, 2022. [Online]. Available: https://ieeexplore.ieee.org/document/9807929

[4] I. J. of Innovative Engineering Technologies and A. (iieta.org), "Player performance predictive analysis in cricket using machine learning," *RIA*, p. N/A, 2021. [Online]. Available: https://iieta.org/journals/ria/paper/10.18280/ria.380208

Cricket analytics has been extensively explored in literature. For example, an analysis of the Indian Premier League (IPL) was carried out in [2]. Similarly, machine learning methods have been applied for winning predictions in T20 cricket [3]. Furthermore, player performance analysis using machine learning is discussed in [4], and IPL data visualization techniques using Microsoft Power BI are presented in [**?**].

Guide Name	**Dr. V. Y. Baviskar** **Dr. T. N. Mohota**	**Dr. R. Y. Sable**
Project Guide	*Project Coordinator*	*HoD, AI and AIML*