International Journal of Research Publication and Reviews

Prediction System for Indian Premium League using Machine Learning Algorithms

Shriya Hundekari [a], Nidhish Kadam [b], Chetana More[c] , Sharayu. N. Patil[d]

[a,b,c] *Student Computer Science and Engineering,* [d] *Asst. Professor Computer Science and Engineering*
D.Y. Patil College of Engineering and Technology, Kasaba Bawada, Kolhapur, India,416006.

A B S T R A C T

This project aims to utilize machine learning algorithms to predict the winner of the Indian Premier League (IPL) cricket tournament. Leveraging historical data including team performance, player statistics, match outcomes, and various contextual factors, the project employs a combination of regression and classification techniques to model and forecast match results. Through comprehensive data analysis and feature engineering, coupled with rigorous model evaluation and optimization, the project strives to provide accurate predictions for IPL match winners, facilitating strategic decision-making for stakeholders and enthusiasts alike.

Keywords: Indian Premier League (IPL), Machine Learning, Predictive Modeling, Historical Data Analysis, Team Performance Analysis, Player Statistics, Match Outcome Prediction, Cricket

INTRODUCTION

Cricket is the second most-watched program on television. The sport is experiencing a surge in popularity across South East Asian nations such as India, Pakistan, Bangladesh, and Sri Lanka. A significant concern arises as the projected score displayed during the first inning of matches often deviates from the actual outcome. This has prompted the development of a model aimed at providing a more accurate estimation of the projected score. This will help the audience to know what to expect from the current match. Inaccurate projected scores could raise expectations among spectators, potentially resulting in disappointment if those expectations are not met, leading to social criticism of the players involved.

In the exciting world of cricket, our project is all about creating a smart system to analyze matches and predict scores. Using Machine Learning, we've gathered a bunch of data to help the system understand the game better. With this information, our system not only tells you what the expected scores might be but also tries to predict the team that's likely to win. It's like having a cricket fortune teller, but way more accurate, thanks to the power of Machine Learning. This project aims to make watching cricket more fun and insightful by using technology to anticipate match outcomes based on the data we've gathered.

This IPL winner prediction project endeavors to leverage the power of data analytics and machine learning to forecast outcomes in one of cricket's most electrifying tournaments. With this initiative, we aim to dive deep into historical match data, player statistics, and contextual factors to unravel patterns and trends that influence IPL results. By harnessing advanced algorithms, our goal is to provide stakeholders with valuable insights into potential winners, empowering teams, fans, and analysts alike with strategic foresight. This project stands at the intersection of sports and technology, poised to revolutionize how we perceive and predict the outcomes of the Indian Premier League.

2. Objective and Scope

Objective:

1) As we have data about the team matches played, it was possible to predict the winner based on the past matches.

2) Many features given in the data set like venue, bowler to batsman ball by ball performance, can be used to somewhat predict the winner of the match.

3) Thus, we could predict the winner of the next match International ODI or T20 match based on the right feature selection.

4) This increasing accuracy with dynamic feature selection is real motivation.

Scope:

The project aims to develop a comprehensive system tailored for cricket match analysis and score prediction. Leveraging provided datasets, the system will employ machine learning algorithms to generate test results and predict match outcomes. Through intuitive user interfaces, stakeholders can access insightful analyses and confidently anticipate match winners, enhancing decision-making processes within the realm of cricket.

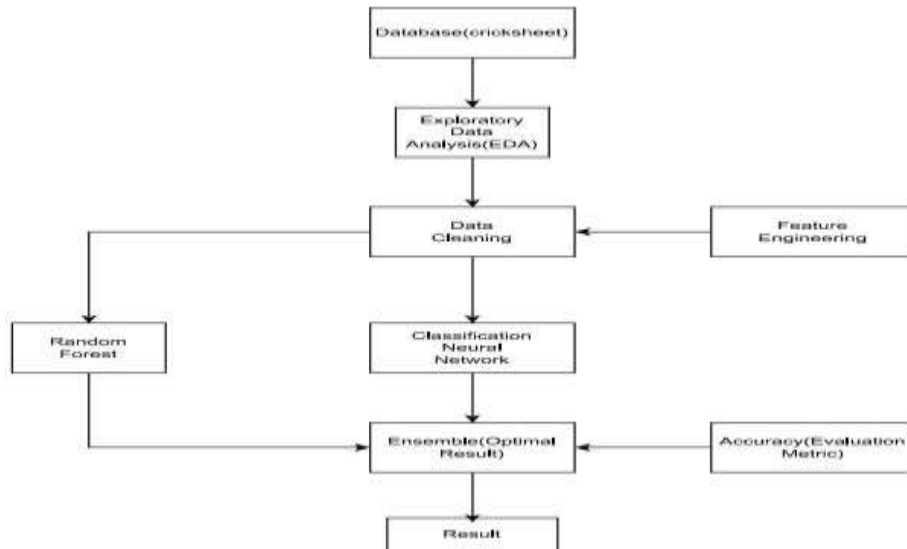## 3. Proposed System Architecture

Fig. 1. Proposed System Architecture

In fig.1 Proposed Systems Architecture is a broad field aimed at managing entities known as "systems," whether they already exist or are in the process of being developed. Its primary focus is on facilitating the analysis of the structural characteristics of these entities. Systems Architecture emerges as a solution to the challenges, both theoretical and practical, encountered in describing and designing intricate systems.

4. Modules

1. **Machine learning model technique:** This module uses the scikit-learn library to train a machine learning model for predicting IPL scores based on historical match data. The chosen algorithm is a Random Forest Regressor. The trained model is saved for future use.

2. **Web Application Development:** This module uses Flask, a web framework for Python, to create a web application. It manages user interactions, including the submission of feature values via an HTML form. The module also integrates the trained machine learning model to make predictions based on user inputs.

3. **Frontend User Interface:** This module defines the structure and layout of the web pages. The HTML template provides a user-friendly form for entering features and displays the predictions made by the machine learning model**.**

4. **User Interaction and Prediction Display:** This module manages the interaction with the user, handling input features, making predictions using the trained model, and displaying the predictions on the web interface.

5. Conclusion

Condition, a lot of uncertainties are involved. One can easily predict the winner of the match at the beginning with a 50% accuracy as, either of the team has the equal chances of winning. Creation of better datasets which takes into account various details like runs, wickets, overs, runs in previous 5 over, wickets in previous 5 overs can be fruitful. Other than prediction the main focus of project is also feature engineering as this research might obtain some features which are more valuable and can be used in real life for actual sports prediction improvement The suggested project has the potential to assist in accurately predicting the projected score during the course of an ongoing match. It is successfully implemented as a web application with the help of Flask.

References

1) "Business Logistics Management: Planning, Organizing and Controlling The Supply Chain, 4th ed:", Ballou, R.H. (1999) Prentice-Hall International, London.

2) "Postponement, speculation, and the structure of distribution channels", Policy on computerized stock-out reactions 2006 New York University Published by Elsevier Inc. Bucklin, L. (1965) Journal of Marketing Research, Vol. 2 Nos. 1.

3) https://en.wikipedia.org/wiki/W3Schools

4) https://www.w3schools.com/sql/

5) https://www.tutorialspoint.com/java/index.html

6) https://www.appify.digital/post/flutter-app-development

7) Books - Flutter for Beginners: An introductory guide to building cross-platform mobile applications with Flutter and Dart 2 | Alessandro Biessek (Author)

8) Course - Beginning Flutter: Android Mobile App Development

9) https://www.educative.io/courses/beginning-flutter-android-mobile-appdevelopment?aff=x06V.