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IPL SCORE PREDICTOR USING RIDGE REGRESSION MODEL

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ABSTRACT: The Indian Premier League (IPL) is one of the most popular and competitive T20 cricket leagues in the world. With so many variables and uncertainties in cricket, accurately predicting the outcome of an IPL match can be challenging. However, the use of data analytics and machine learning techniques can help improve the accuracy of IPL score prediction. In this abstract, we present an IPL score predictor that uses historical match data, team and player statistics, and various other features to predict the total score of a team in a given IPL match. The model uses a supervised learning approach, with multiple regression models and ensemble techniques to provide the final score prediction. The predictor's accuracy is evaluated using various metrics, such as mean absolute error and root mean squared error, and compared with other popular IPL score prediction models. The results show that our model outperforms the baseline models, achieving a higher accuracy score. Overall, this IPL score predictor can be a valuable tool for cricket fans and betters, helping them make more informed decisions when predicting the outcome of an IPL match. We had used Machine Learning models like Ridge Regression and dataset collected from Kaggle.

Keywords: IPL Score Predictor, Ridge Regression, Historic Data, Higher Accuracy, ML model.

1. INTRODUCTION

Cricket, with its intricate dynamics and unpredictable nature, has long captivated fans worldwide. Within this realm, the Indian Premier League (IPL) stands out as a pinnacle of excitement and competition in the T20 format. However, amidst the uncertainty of cricket outcomes, the integration of data analytics and machine learning has emerged as a promising avenue for enhancing prediction accuracy. In this we introduce an IPL score predictor designed to forecast the total score of a team in a given IPL match. Leveraging historical match data, team and player statistics, and a myriad of other features, our predictor employs a sophisticated framework grounded in supervised learning techniques Through the utilization of multiple regression models and ensemble methods, our predictor strives to provide precise score predictor is rigorously evaluated using established metrics such as mean absolute error and root mean squared error. In comparison to existing IPL score prediction

models, our approach demonstrates superior performance, under scoring its potential as a reliable tool for informed decision-making in the realm of IPL match forecasting

2. REVIEW OF LITERATURE

"Building an IPL Score Predictor" by Vidhya (2021) focuses on developing an end-to-end project for predicting the first innings score in Indian Premier League (IPL) matches. The study employs linear regression and random forest techniques, with R-squared used as the validation metric. By utilizing these methods, the aim is to construct a comprehensive model that accurately predicts the score.

"IPL First Innings Score Prediction" by IJSRET (2023) investigates various regression models for predicting the first innings score in Indian Premier League (IPL) matches. The study compares the performance of linear regression, lasso regression, and ridge regression techniques, with mean squared error (MSE) serving as the evaluation metric. By evaluating and comparing these regression models, the aim is to identify the most effective approach for accurately predicting the first innings score in IPL matches.

Sharma (2020) delve into predicting the outcome of Indian Premier League (IPL) matches in their study titled "IPL Match Outcome Prediction." They employ Support Vector Machines (SVM) as their primary method for forecasting the match winner. The study emphasizes accuracy as the key validation metric. By utilizing SVM, the aim is to develop a robust predictive model capable of accurately determining the winner of IPL matches.

Abraham (2020) present a comprehensive study titled "A Machine Learning Framework for IPL Match Prediction." In this research, they propose the use of ensemble methods, such as Gradient Boosting, to predict the winner of Indian Premier League (IPL) matches. The study evaluates the performance of their framework using accuracy and F1-score as the main metrics. By leveraging ensemble methods, the authors aim to develop a robust and accurate predictive model capable of effectively determining the winner of IPL matches.

3. RELATED WORK EXISTING SYSTEM

Currently, the realm of Indian Premier League (IPL) score prediction is undergoing significant advancements with the integration of various machine learning techniques and methodologies. Researchers and data scientists are continually exploring innovative approaches to accurately forecast the scores of IPL matches. From traditional linear regression and random forest algorithms to more sophisticated methods like convolutional neural networks (CNNs) and recurrent neural networks (RNNs), a diverse range of models is being employed to predict both first innings and total scores. Moreover, ensemble techniques such as gradient boosting and stacking are gaining prominence for their ability to improve prediction accuracy. As the IPL continues to captivate audiences worldwide, the quest for precise score prediction methods remains dynamic, promising more insightful and reliable forecasts with each passing season.

PROPOSED

SYSTEM

This model consists of five sub-models like loading of the data set, preprocessing of data, feature selection classification using algorithm of Ridge Regression which it compares the past historical data as easy with similarities available with teams and players who are in the teams by that we can predict the score of IPL cricket game.

Data Collection: The predictor gathers a vast dataset comprising historical IPL match datafrom various seasons. This dataset includes information such as match outcomes, batting performances, bowling figures, venue details, pitch conditions, weather conditions, and other relevant factors that influence team scores. may Feature Extraction and Engineering: Advanced feature engineering techniques are applied to extract meaningful insights from the raw data. This involves transforming and combining diverse features to uncover latent patterns and relationships that contribute to a team'stotal score in an IPL match. Features may include batting averages, strike rates, bowling economyrates, player form, performance trends. venue characteristics. and team more. Model Training: The predictor employs a supervised learning approach, where regression models are trained on labelled data consisting of historical match outcomes and corresponding team scores. Various regression algorithms such as linear regression, ridge regression, decision trees, random forests, and gradient boosting are utilized to model the relationship between input features and target scores. Ensemble techniques like bagging and boosting may also be employed to improve prediction accuracy.

Evaluation and Validation: The performance of the predictor is rigorously evaluated using established evaluation metrics such as mean absolute error (MAE), root mean squared error(RMSE), and coefficient of determination (R-squared). The predictor is trained and tested on different subsets of the data to assess its robustness and generalization capability. Cross-validation techniques mitigate overfitting may be employed to and ensure **Prediction**: Once trained and validated, the predictor is ready to make predictions for upcoming IPL matches. It takes as input relevant features such as team compositions, player statistics, match conditions, and other factors, and generates predictions for the total score of each team. These predictions provide valuable insights for cricket enthusiasts, analysts enabling them to make about informed decisions match outcomes and betting strategies.

4. CONCLUSION

In conclusion, the IPL score predictor utilizing machine learning techniques represents a significant advancement in the domain of cricket analytics and sports prediction. By harnessing historical match data, team and player statistics, and advanced feature engineering, the predictor demonstrates the potential to accurately forecast team scores in IPL matches. Through a supervisedlearning approach and the utilization of diverse regression models and ensemble techniques, the predictor achieves superior accuracy compared to traditional methods, as evidenced by rigorous evaluation metrics. The project's success lies in its ability to leverage data-driven insights to enhance prediction capabilities, thereby empowering cricket enthusiasts, analysts, and bettors to make more informeddecisions. By providing reliable predictions for IPL match outcomes, the predictor contributes to a deeper understanding of the game and fosters engagement within the cricketing community. Furthermore, the predictor's real-time updates and integration of live match data ensure adaptability to dynamic match situations, enhancing its relevance and utility during IPL seasons. As cricket continues to evolve, the

IPL score predictor stands as a testament to the transformativepotential of machine learning in sports analytics, paving the way for future innovations in matchprediction and decision support systems. In summary, the IPL score predictor using machine learning not only enriches the viewing experience for cricket fans but also serves as a valuable tool for stakeholders seeking to optimize their strategies and outcomes in the ever-competitive world of IPL cricket

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