**ABSTRACT**

Cricket, particularly the Indian Premier League (IPL), has become one of the most popular and competitive sports globally, drawing vast audiences and immense interest in predicting match outcomes and scores. The field of sports analytics has evolved significantly with advances in artificial intelligence and machine learning (AIML). This paper presents a model to predict IPL scores using the k-nearest neighbors (KNN) algorithm, a supervised machine learning technique known for its simplicity and effectiveness in classification and regression tasks.

The proposed model leverages historical IPL data, including player statistics, team compositions, match venues, weather conditions, and past performances, to predict the total runs scored in an IPL match. Preprocessing techniques such as data normalization and feature selection are applied to optimize input data quality and improve model accuracy. The KNN algorithm is then used to analyze the proximity of the input features to historical matches with similar conditions, allowing the model to make accurate predictions based on patterns in past data.

Evaluation of the model’s performance is conducted using metrics such as Mean Absolute Error (MAE) and Root Mean Square Error (RMSE) to assess prediction accuracy. Results demonstrate that KNN, when appropriately tuned, can be an effective approach to IPL score prediction, providing valuable insights for teams, analysts, and enthusiasts alike. The study also discusses the limitations of the KNN algorithm, such as its sensitivity to data scaling and the need for a large, diverse dataset to achieve optimal performance, suggesting avenues for future research, including the integration of more sophisticated AIML techniques for enhanced predictive accuracy.

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