USING MACHINE LEARNING TO PREDICT THE WINNER OF THE CRICKET MATCH

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ABSTRACT

In this paper, we predict the performance of the cricket team will win or lose depends not only on the performance of the team but also on the pitch (bowling condition), batman strength, and last score on this ground, so datasets have been made use for the train model Naïve Bayes, Decision Tree Regression, Support Vector Classifier (SVC), Random Forest Classifier and train all the two Datasets. The finding prompted a revolution of the balance between traditional prediction and advanced techniques to find the output of winning team chances. The evaluators the performance of each team's players by calculating accuracy and generating confusion matrices to visualize classification results. Each model has a different accuracy.

I.   INTRODUCTION

Cricket, second of the most popular sports in the world, has a massive fan following and garners attention from enthusiasts, bookmakers, and analysts alike. In machine learning technology gathering cricket data and building a prediction model for a better understanding of the cricket game. The condition of the pitch can favor either batsmen or bowlers and weather conditions can affect the game like swing for fast bowlers or turn for spinners. This machine learning model is trained with the help of a dataset of the stadium, the team's last performance, for giving good accuracy prediction. Predicting cricket match outcomes involves a combination of historical data analysis, team and player assessment, pitch and weather conditions, and various other factors. It's a complex process that combines both quantitative and qualitative aspects, and no prediction is ever foolproof due to the inherent.

Cricket, often referred to as a religion in some parts of the world, captivates millions of fans with its thrilling contests and unpredictable outcomes. The sport's intricacies, including player performance, pitch condition, and team dynamics, make predicting cricket match winners a challenging yet intriguing task. In recent years, the fusion of sports analytics and machine learning has provided a promising avenue for enhancing our ability to forecast the outcome of cricket matches. Cricket's popularity extends far and wide, with passionate fans following the sport across the globe. For cricket enthusiasts, the excitement of watching matches is often heightened when they have a stake in predicting the winner. This extends to sports analysts, bookmakers, and even cricket teams who seek data-driven insights to strategize effectively. Cricket is a complex sport influenced by numerous factors. The outcome of a match depends on the form of individual players, team dynamics, pitch conditions, and even the impact of weather. These intricate variables pose a formidable challenge when attempting to predict match results using conventional methods. Machine learning, a subset of artificial intelligence, offers a data-driven approach to overcoming the challenges of predicting cricket winners. By analyzing historical data, identifying patterns, and learning from vast datasets, machine learning algorithms have the potential to provide valuable insights and accurate predictions. Machine learning (ML) is a transformative field of artificial intelligence that empowers computers to learn from data and make predictions or decisions without being explicitly programmed. This abstract explores the essence of machine learning, its application, and its profound impact on various domains. At its core, machine learning leverages algorithms and statistical models to identify patterns and relationships within vast datasets. These algorithms and statistical models identify patterns and relationships within vast datasets. These algorithms enable machines to adapt and improve their performance over time as they encounter more data. The process can be categorized into supervised learning, unsupervised learning, and reinforcement learning, each with a distinct application.

II.   METHODOLOGY

In conducting this research, a critical first step was the thorough preprocessing of the dataset. Various data preprocessing steps are performed, truth us handling missing values, dropping accessory columns, creating

new features, and checking the dataset must be clean and no null values in datasets. For machine learning some libraries are used like the Num-py used for numerical operation, Pandas used for data manipulation and analysis, Matplotlib used for creating plots, Seaborn used for data visualization, Scikit-learn used for machine learning tasks. Other standard libraries are used for file handling and data processing. Code loads two datasets train matches and train deliveries which contain info about cricket matches and deliveries. Data loaded into pandas data frames. The code includes various exploratory data analysis tasks, such as visualizing the number of matches played by each team, analyzing toss winners and match winners, and more. For predicting the winner we evaluate the model like a Naïve Bayes, Decision Tree Regressor, Support Vector Classifier, and Random Forest Classifier. In model evaluation, each model is trained on the training data and evaluated on a test set, after that accuracy scores and confusion matrices are calculated to assess model performance testing also plays an important role in the model. The dataset (presumably for future cricket matches) is loaded and preprocessed using the same feature engineering steps as the training data.

Machine learning

Machine learning is to predict which team will win a cricket match based on various features and historical data. The performance of different machine learning models is assessed and compared for this prediction task. Demonstrates these prediction models and provides a basis for selecting the most appropriate model for predicting cricket match outcomes.
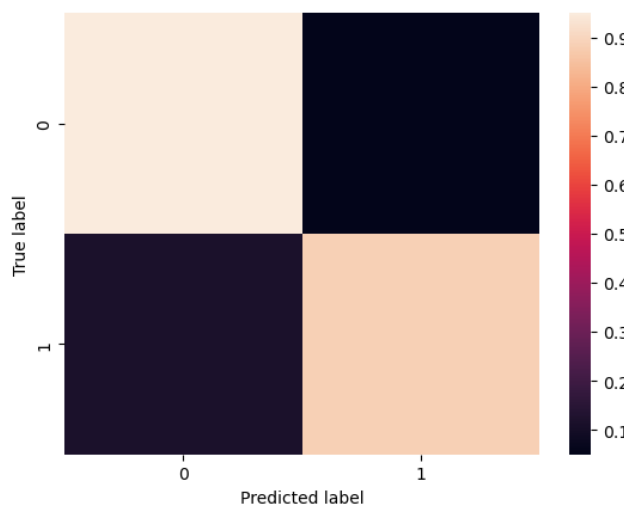
III.   RESULTS AND DISCUSSION

Accuracy.

After the model training, many models have a different accuracy of each model.

Table 1. Classification report

MODEL NAME	ACCURACY
NAVIE_BAYES ALGORITHM	91.0
DECISION TREE REGRESSOR	89.0
RANDOM FOREST ALGORITHM	88.0
SUPPORT VECTOR ALGORITHM	60.0

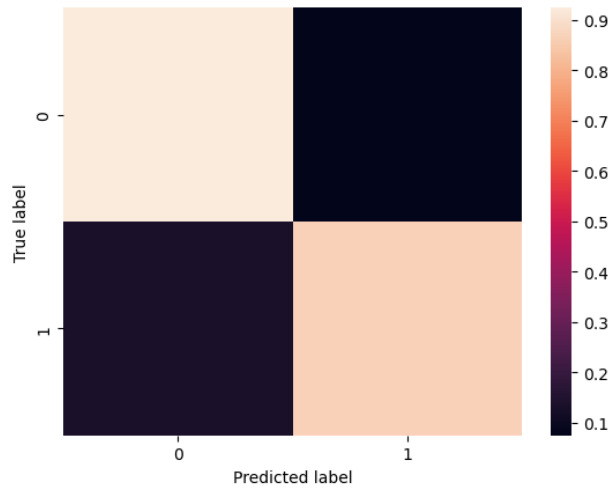
Figure 1: Naïve bayes algorithm
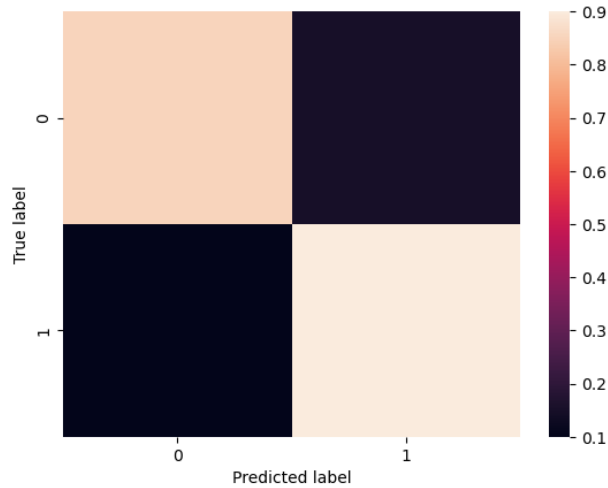
Figure 2: Decision tree regressor

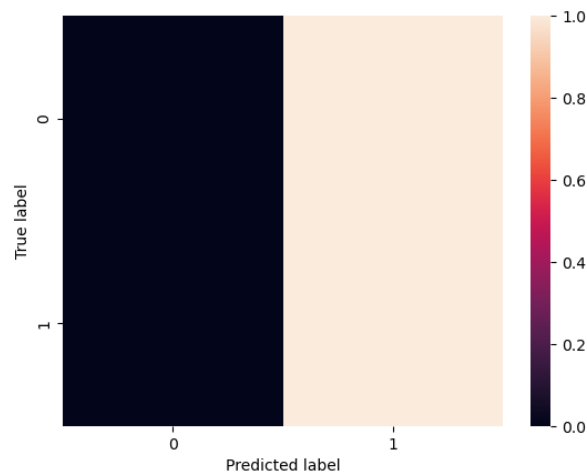**Figure 3:** Random forest algorithm

Figure 4: Support vector algorithm

IV.   CONCLUSION

In conclusion, the use of machine learning in predicting cricket match outcomes is a promising and valuable approach. Cricket is a complex sport influenced by various factors such as player performance, pitch conditions, and team dynamics, making it challenging to predict match results with conventional methods. Machine learning leverages historical data, algorithms, and statistical models to identify patterns and relationships,

providing valuable insights and accurate predictions. This research highlights the potential of machine learning in cricket match prediction and serves as a basis for selecting the most appropriate model for forecasting cricket match outcomes. However, it's essential to recognize that no prediction model is foolproof due to the inherent uncertainty in sports, and various factors can influence the game's outcome. Nevertheless, machine learning offers a data-driven approach to enhance the accuracy of cricket match predictions, benefiting cricket enthusiasts, analysts, bookmakers, and teams seeking data-driven insights for strategizing effectively.

V.   REFERENCES

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