CRICKET SCORE PREDICTION

Team Number : 5

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Abstract

This project aims to develop a deep learning model to predict IPL match scores based on historical match data. The primary motivation is to improve predictive accuracy in sports analytics, aiding commentators, teams, and betting agencies. Our research question is: *Can a neural network accurately predict IPL scores based on team and player statistics?* We propose using a neural network model with label encoding and MinMax scaling to preprocess categorical data. Our research contributes to the growing field of sports analytics and has potential economic and cultural impacts on various stakeholders, including fantasy league players and sports analysts.

I. INTRODUCTION

The ability to accurately predict IPL match scores can enhance sports strategy, entertainment value, and decision-making in fantasy cricket leagues. Traditional methods rely on statistical analysis, but machine learning offers improved accuracy and adaptability. Previous research has explored regression models and basic machine learning algorithms for sports predictions, but deep learning methods are underutilized in this domain. Our research aims to fill this gap by implementing a neural network approach for IPL score prediction.

II. RESEARCH PROPOSAL

Methodology

1. **Data Collection**: Using an IPL dataset containing match details such as venue, teams, players, and past scores.
2. **Data Preprocessing**:
    - Removing irrelevant features.
    - Encoding categorical variables using Label Encoding.
    - Normalizing data using MinMax scaling.
3. **Model Development**:
    - Implementing a deep learning model using Keras.
    - Using a sequential model with fully connected dense layers.
    - Optimizing the model with Huber loss and Adam optimizer.
4. **Training and Evaluation**:
    - Splitting the data into training and testing sets.
    - Training the model for 50 epochs with batch size 64.

    - Evaluating using Mean Absolute Error (MAE) and Mean Squared Error (MSE).
5. **Interactive Prediction Tool**:
    - Implementing an interactive widget using IPython widgets.
    - Allowing users to input match conditions and obtain score predictions.

A preliminary analysis of our model suggests that deep learning offers improved accuracy over traditional regression techniques.

III. MOTIVATION

Our research advances the field of sports analytics by leveraging deep learning for predictive modeling in cricket. The main beneficiaries include:

- **Fantasy Cricket Players**: More accurate predictions improve team selections.
- **Betting Agencies**: Enhances betting odds calculations.
- **Cricket Analysts and Commentators**: Provides real-time insights into match scenarios.
- **Sports Enthusiasts**: Increases engagement and strategic understanding of the game.

REFERENCES

- Kaggle (Dataset Source)
- Web Scraping Techniques
- GeeksforGeeks (Dataset and Articles)
- Research articles related to sports analytics and machine learning

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This proposal outlines a structured approach to using deep learning for IPL score prediction. It demonstrates the practical applications of AI in sports while ensuring the project has societal and economic relevance.