# 🏏 Cricket Player Performance Prediction

This project predicts the performance of cricket players (batsmen and bowlers) using machine learning models like Decision Tree and LightGBM. It processes player stats and match-related features to forecast player output, helping with strategy, selection, and game analysis.

## 📂 Project Structure

├── data/  
│ ├── batsman.csv # Batsman statistics dataset  
│ ├── bowler.csv # Bowler statistics dataset  
│ └── X\_predict.csv # Sample input for making predictions  
├── models/  
│ └── README.md # Info on training models  
├── notebooks/  
│ └── code\_playerrunspred.ipynb # Model training and prediction notebook  
├── presentations/  
│ └── Cricket-Player-Performance-1.pptx # Project presentation  
└── README.md

## 🧠 How It Works

- Data Preprocessing: Cleans and merges batsman and bowler data.  
- Feature Engineering: Extracts relevant features for prediction.  
- Model Training: Trains ML models using Decision Tree and LightGBM.  
- Prediction: Predicts future performance of players using test data.

## 🏋️‍♂️ How to Train the Model

1. Open the notebook notebooks/code\_playerrunspred.ipynb.  
2. Run all cells to:  
 - Load data  
 - Train models  
 - Evaluate performance  
3. Save trained models (optional):

import joblib  
joblib.dump(model, 'model\_name.pkl')

Alternatively, you can modify the notebook to experiment with different ML models or hyperparameters.

## 📈 Accuracy & Results

- Decision Tree Accuracy: ~91% on training set   
- LightGBM Accuracy: ~95% on training set   
- Predictions are based on structured input like past performance, opposition, match conditions, etc.

## 🔍 How to Make Predictions

1. Prepare a dataset similar to data/X\_predict.csv.  
2. Load your trained model (or use one from the notebook).  
3. Use the model to predict:

prediction = model.predict(new\_data)  
print(prediction)

## 🗂️ Dataset Source & Disclaimer

- The datasets were compiled manually for academic purposes.   
- This project is intended for educational and demonstrative use only.   
- Predictions are not to be used for betting or commercial decisions.

## 📌 Author

Mohammad Shafee ur Rahaman

LinkedIn: https://www.linkedin.com/in/mohammad-shafee05/