🏏 IPL Match Prediction & Commentary Project Summary

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# 1. Project Overview

This project involves building a deep learning-based prediction system for IPL matches.   
It predicts the final score in real-time using GRU and generates commentary using GPT-3.5. It includes spot-checking across DL models and a live match simulation dashboard.

# 2. Completed Phases

## 2.1 Phase 1 - Score Prediction (Option A)

- Preprocessed `deliveries.csv` for 1st innings scoring trends.  
- Reshaped cumulative runs into 20-step sequences.  
- Trained the following DL models on scaled data:  
 • GRU  
 • LSTM  
 • BiLSTM  
 • 1D\_CNN  
- Performance Comparison (MAE & RMSE): GRU performed best.  
- All models saved in Drive: `gru\_score\_predictor.h5`, etc.

## 2.2 Phase 2 - Live Match Simulation (Option B)

- Used actual match data (2 innings, 1st innings > 150).  
- Used GRU model to predict score over-by-over.  
- Calculated win probability using sigmoid based on target score.  
- Exported simulation to CSV and plotted actual vs predicted vs win probability.  
- Saved match dashboard as PNG and CSV.

## 2.3 Phase 3 - GenAI Commentary Integration (Ongoing)

- Used GPT-3.5 Turbo via `openai>=1.0.0` for generating commentary.  
- Commentary reflects overs, runs, predicted score, and win chance.  
- Sample commentary generated for each over.  
- Planning to save commentary CSV and visualize alongside dashboard.