**Case Study- Cricket Analysis Platform**

**SCENARIO**

Cricket is a sport that involves a lot of data. For every match, every Batsman, every bowler, and venue, different tables are required to store and maintain data. If not managed properly, it could cause a mess, making reading and analyzing the data difficult. Many platforms like Cricbuzz and Crex allow users to analyse data as they wish. Our case study is also based on similar platforms.

**PROPOSED SOLUTION**

**1.Data Handling & Processing**

**Pandas**

Used for reading, cleaning, filtering, and manipulating data tables like:

* Player performances (runs, wickets)
* Match summaries
* Win-loss records

**NumPy**

* Helps with efficient number crunching, like calculating batting averages, strike rates, economy rates, etc.

**2.Visualization**

* **Matplotlib and Seaborn**

Plotting graphs like:

* + Line graph for player performance over seasons
  + Bar Graph for runs in every over
  + Worm Graphs for score comparison between teams
  + Heatmaps for bowling line and length

**3.Predictive Modeling / Machine Learning**

* **scikit-learn**

If you want to predict:

* + Match winners
  + Player of the match
  + Number of runs or wickets
* Using classification models, regression models, clustering (e.g., clustering similar bowlers).
* xgboost, lightgbm

For more powerful and faster predictions, especially if you have large datasets.

**4.Ball Tracking and Image Analysis (Advanced)**

* **OpenCV**

To analyze live footage:

* + Detect the ball trajectory
  + Identify players
  + Automate no-ball detection

**OUTCOMES**

* Teams and coaches can use player trend data to plan batting orders, bowling changes, and strategies based on ground conditions and past patterns.
* Fans and commentators can use simple visualizations(MatplotLib) to better understand team dynamics, player form, and match strategies.
* Players with consistent performances could be tracked down easliy.
* Rightful players could be picked based on their performances in various formats like (T20,ODI,Test).

**REFERENCES**

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