IPL Analysis Dashboard – Power BI

1. Introduction

The Indian Premier League (IPL) is one of the most competitive and followed T20 cricket leagues globally. This project aims to analyze IPL statistics using Power BI, offering an interactive dashboard that enables users to explore player performances, team victories, and key highlights for each season.

2. Objective

To build a dynamic and interactive Power BI dashboard that:
- Displays season-wise IPL statistics
- Highlights top-performing players (Orange & Purple Cap holders)
- Provides player-specific batting and bowling metrics
- Helps derive actionable insights with visual clarity

3. Tools & Technologies Used

- Microsoft Power BI (Desktop)
- DAX (Data Analysis Expressions) for calculated measures
- Slicers for interactivity
- Custom visuals and images for enhanced presentation
- Data modeling with multiple linked tables

4. Dashboard Overview

The dashboard is visually divided into several segments:
- **Top KPIs**: Season-specific details like Title Winner, Orange Cap, Purple Cap, Total 6's, and Total 4's.
- **Bar Chart**: Number of wins by each team in the selected season.
- **Batting Stats**: Player-specific stats like runs, 4s, 6s, and strike rate for the selected season.
- **Bowling Stats**: Player-specific stats like wickets, economy, maiden overs, and bowling strike rate for the selected season.
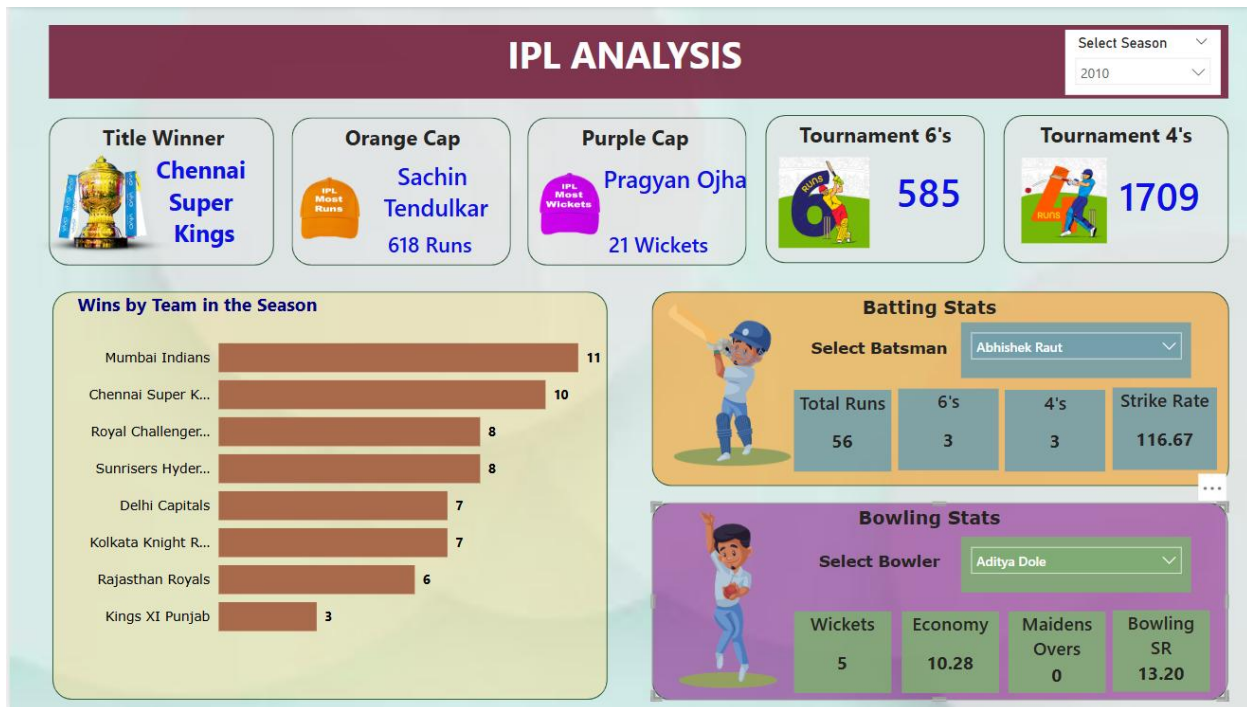
Fig: IPL Dashboard

5. Interactive Functionality

Season Selector
- Dropdown filter that updates the entire dashboard.
- Changes the title winner, top run-scorer, top wicket-taker, total 6s, total 4s, and wins per team.

Batting Stats (Player Filter)
- Selecting a batsman updates the cards to show:
    o Total Runs
    o Number of 4s and 6s
    o Strike Rate
- Example: Batsman: *Abhishek Raut*
    o Runs: 56
    o 4s: 3
    o 6s: 3
    o Strike Rate: 116.67

Bowling Stats (Player Filter)
- Selecting a bowler updates the stats to show:
    o Wickets taken
    o Economy rate
    o Maiden overs
    o Bowling strike rate
- Example: Bowler: *Aditya Dole*
    o Wickets: 5
    o Economy: 10.28
    o Maidens: 0
    o Bowling SR: 13.20

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6. Technical Implementation

Data Modeling
- Tables used:
  - All season batting card
  - All season bowling card
  - All season summary
  - Match data
  - Points Table
- Relationships created to allow dynamic filtering across visuals based on selected season/player.

DAX Measures
- Strike Rate = (Total Runs / Balls Faced) * 100
- Economy Rate = Total Runs Conceded / Overs Bowled
- Bowling Strike Rate = Balls Bowled / Wickets

Visuals Used
- Cards for KPIs (Runs, Wickets, etc.)
- Bar Chart for team wins
- Dropdown Slicers for user interaction
- Images for design and clarity (e.g., trophy, player icons)

7. Visual Breakdown with Screenshots

7.1 Title Winner, Orange Cap, Purple Cap, Tournament 6's and 4's

Description: This section contains dynamic KPI cards that automatically update when a user selects a particular IPL season from the dropdown menu.

- **Title Winner**: Displays the team that won the IPL for the selected season. For example, if 2013 is selected, the winner is shown as *Mumbai Indians*.
- **Orange Cap**: Highlights the player who scored the most runs that season, along with the total run tally. E.g., *Michael Hussey – 733 Runs* in 2013.
- **Purple Cap**: Shows the top wicket-taker of the season, along with the number of wickets taken. E.g., *Dwayne Bravo – 32 Wickets*.
- **Tournament 6's**: Displays the total number of sixes hit during the selected season. This gives an idea of how aggressive or high-scoring the season was. E.g., *672 sixes in 2013*.
- **Tournament 4's**: Shows the total number of boundaries (fours) hit in the entire tournament. Helps assess batting dominance and playing style across all teams. E.g., *2,053 fours in 2013.*

Interactivity: All these cards are tied to the season slicer, meaning their values change dynamically based on the season selected by the user. This gives an at-a-glance summary of key individual and team performances.
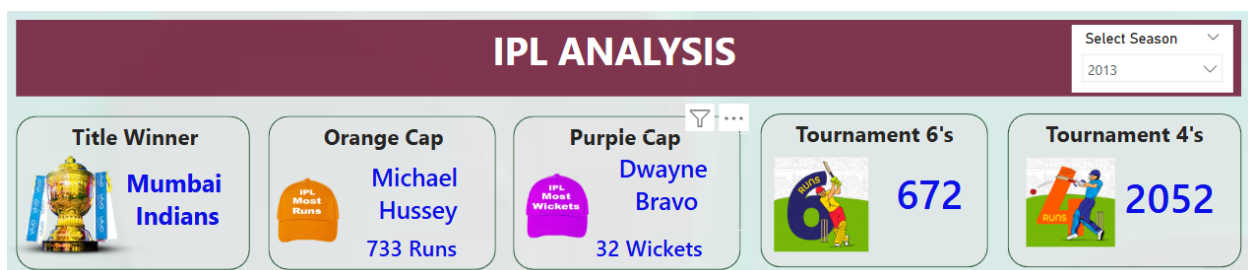

Fig: KPI Section

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7.2 Team Wins by Season

Description: This horizontal bar chart visualizes the number of matches won by each team in the selected IPL season. The chart helps users compare team performances within that particular year. For example, in 2013, Mumbai Indians won 13 matches, followed by Chennai Super Kings with 12.

Interactivity: When the user selects a different year using the season filter, the bar chart updates automatically to reflect the win distribution for that year. This enables a comparative understanding of team consistency and performance trends over time.
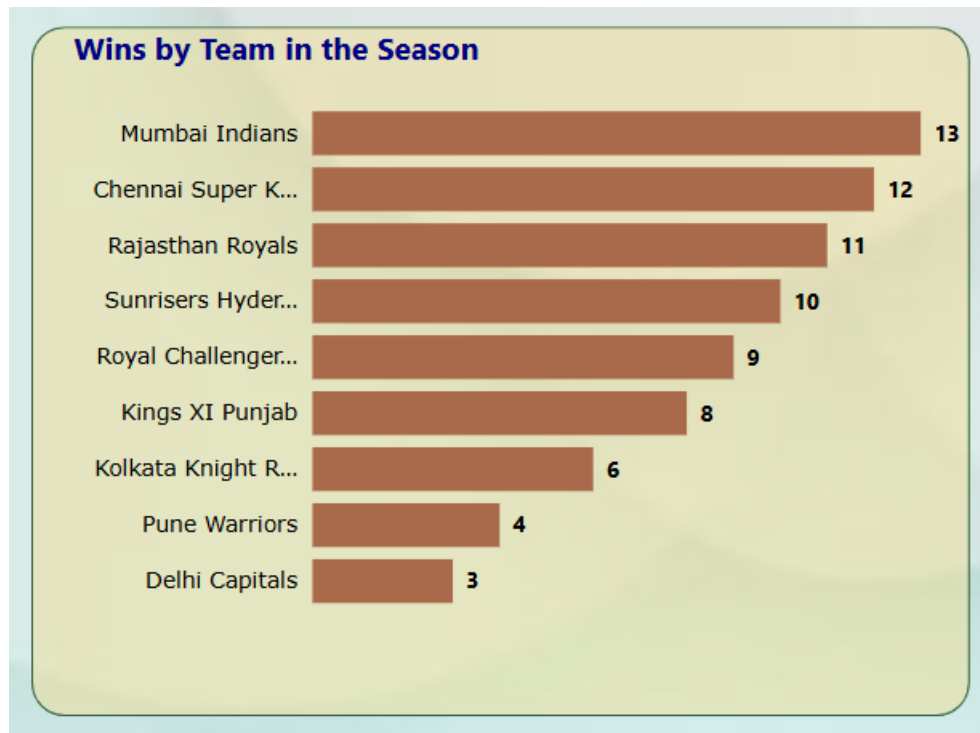

Fig: Teams Win chart

7.3 Batting Stats by Player

Description: This section includes a player dropdown menu that allows users to view individual batting performance for a selected batsman in the chosen season.

- Displays:
  - Total Runs Scored
  - Number of 6s
  - Number of 4s
  - Strike Rate
- For example, for *Virat Kohli* in 2014:
  - Runs: 634
  - 6s: 24
  - 4s: 64
  - Strike Rate: 138.73

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Interactivity: Changing the batsman from the dropdown immediately updates all the associated metrics. This helps users explore performance stats for any player in the dataset for that specific year.
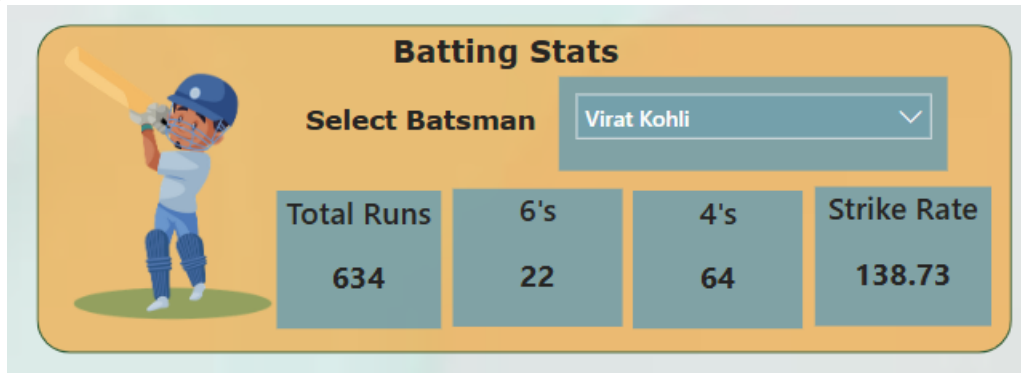

Fig: Batting Stats

7.4 Bowling Stats by Player

Description: This visual provides a bowler selector dropdown and shows bowling statistics for the selected player in the selected season.

- Displays:
  - Total Wickets Taken
  - Economy Rate
  - Maiden Overs Bowled
  - Bowling Strike Rate
- Example for *Ravichandran Ashwin in 2014*:
  - Wickets: 15
  - Economy: 7.66
  - Maidens: 1
  - Bowling Strike Rate: 23.20
  -

Interactivity: Once a bowler is chosen, the cards automatically reflect their bowling performance for the selected season. This helps in evaluating how economical and effective a bowler was.
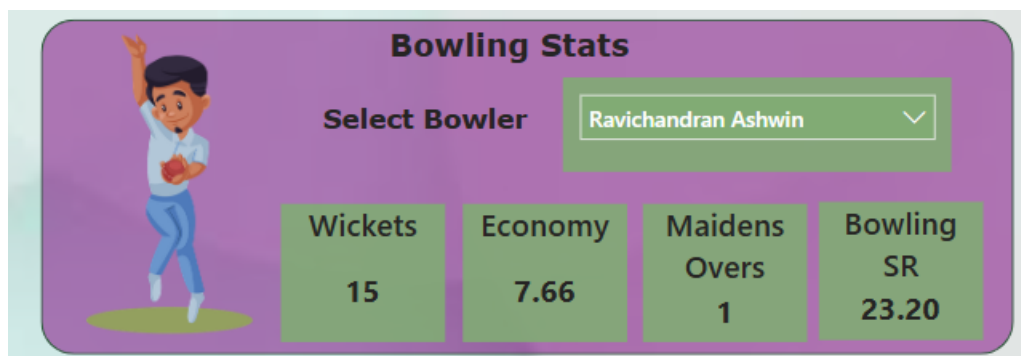

Fig: Batting Stats

8. Challenges Faced

- Power BI Web Publish feature was restricted, so the dashboard is presented via PPT and screenshots.

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- Ensured data relationships worked correctly to reflect filters across multiple visuals.
- Managing layout to ensure responsiveness for all slicer selections.

9. Key Insights

- Quickly identify the top performers in any season.
- See which teams were the most successful.
- Dive into individual player statistics for deeper analysis.
- Understand trends like increasing 6's or team dominance over years.

10. Conclusion

This IPL Analysis Dashboard demonstrates how Power BI can be used for effective sports analytics. It combines data modeling, interactivity, and visualization to create a compelling, user-friendly interface for exploring cricket performance data.

The project showcasing:

- Interactive dashboard building
- Use of DAX for custom metrics
- Clean UI/UX principles in Power BI

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