IPL Data Analysis Dashboard Using Power BI

The domain of the Project
SQL and POWER BI

Under the guidance of
Ms. Siddhika Shah (Software Engineer At HCL in Power BI)

By
Mr. Sri Harsha Jampani (B.Tech CSE Graduate)

Period of the project
August 2024 to November 2024

SURE TRUST

PUTTAPARTHI, ANDHRA PRADESH

DECLARATION

The project titled "IPL DATA ANALYSIS" has been mentored by Siddhika Shah, organised by SURE Trust, from January 2025 to June 2025, for the benefit of the educated unemployed rural youth for gaining hands-on experience in working on industry relevant projects that would take them closer to the prospective employer. I declare that to the best of my knowledge the members of the team mentioned below, have worked on it successfully and enhanced their practical knowledge in the domain.

Name **Signature**

Mr. SRI HARSHA JAMPANI

Mentor's **Signature**

Ms. Siddhika Shah

Seal & Signature

Prof. Radhakumari
Executive Director &
Founder
SURE Trust

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Executive Summary

This project is a comprehensive Power BI dashboard analyzing all IPL seasons from **2008 to 2024**, covering over 1,200 matches and 400+ players. It integrates **interactive visualizations, AI-powered insights, and custom KPIs** to help users explore trends, compare performances, and derive data-driven insights.

Key Stats Covered:

- 1,200+ Matches
- 400+ Players
- 30+ Venues
- 200,000+ Deliveries Analyzed
- 1,000+ Tosses and Match Outcomes Studied
- 50+ Impact Players (2023–24)

Unique Insights Offered:

- Toss Success Rate by Venue
- Decline in Bowling Economy over years
- Player Form Curves (Rolling 5-match average)
- Most Successful Captains by Win %
- Phase-wise Strike Rate Comparison (Powerplay vs Death)

Target Users:

- Sports Analysts & Broadcasters
- Fantasy League Strategists
- Coaches and Scouts
- General Cricket Enthusiasts

Introduction

4.1. Background and Context

The IPL, being one of the world's largest cricket tournaments, produces extensive data per season including match stats, player performances, and team dynamics. Harnessing this data using Business Intelligence tools like Power BI enables decision-makers, analysts, and fans to extract meaningful insights. This dashboard project explores such an opportunity by transforming raw IPL data into a professional, interactive analytical platform.

- Offers visualization tools to broadcasters, sports journalists, and team coaches.
- Enables performance trend analysis by team, player, and venue.
- Serves as a foundation for AI-driven future dashboards.

4.2. Problem Statement

Although IPL data is available publicly, it lacks structured and dynamic presentation layers. Traditional scorecards fail to compare statistics across seasons or filter key performance metrics. There is a pressing need for a flexible, user-centric visualization model to support cricket analytics.

- Raw datasets lack structured visuals and interactivity.

❖ Existing platforms (e.g., Cricbuzz) focus on live stats but lack historical comparative views.

❖ Project addresses the gap by offering:
  - Dynamic dashboards
  - User-driven filters
  - Aggregated insights

4.3. Scope

Current cricket platforms offer limited flexibility in exploring player/team performance across seasons. Users lack custom analytics, visual comparison tools, and granular filters.

- Include: Match results, toss outcomes, batting/bowling stats, partnerships, venue impact.
- Exclude: Real-time feeds, weather factors, player contracts or fitness levels.

Users: Sports enthusiasts, data analysts, IPL teams, and educators.

4.4. Limitations

- No real-time/live data integration.
- Fantasy scoring model not included.
- Some 2024 data entered manually due to lack of public datasets.
- Player bio-data such as age or injuries are not included.
- Predictive analytics are out of scope for this version.

4.5. Innovation

- Dynamic dashboards with slicers and drilldowns.
- Created advanced DAX-based dynamic metrics.
- Uses custom DAX measures for metrics like Toss Impact %, Dot Ball %, and Economy Trends.
- Conditional formatting applied to heatmaps and matrices.
- Custom filters for match phases: Powerplay, Middle Overs, Death Overs.
- Tooltips reveal detailed match-level insights on hover.

Project Objectives

5.1. Project Objectives and Expected Outcomes

Primary Goals

- Deliver a no-code, drag-and-filter interface using Power BI
- Enable year-over-year comparisons for players and teams
- Track momentum swings during seasons
- Assess captaincy impact, player consistency, and tactical wins

Secondary Goals

- Embed smart narratives to auto-summarize key points
- Offer forecasting with Power BI's AI tools (e.g., projected scores)
- Support slicers for: hand preference, player type, experience level

5.2. Deliverables

- Cleaned IPL dataset from Kaggle.
- Power BI dashboard with 4 main pages:
    1. Match Overview
    2. Batting Analysis
    3. Bowling Insights
    4. Match Dynamics
- Deployment steps for Power BI Service.
- Use of KPIs, filters, and slicers to enable non-technical exploration.

Methodology and Results

Methods/Technology Used

- Data cleaning: Excel Power Query
- Data modeling: Power BI Relationships and DAX formulas.
- Visualization: Bookmarks, smart tooltips, and AI Narratives.

Tools/Software Used

- Power BI Desktop
- Microsoft Excel
- Python (Pandas, optional)
- GitHub for version control

Data Collection Approach

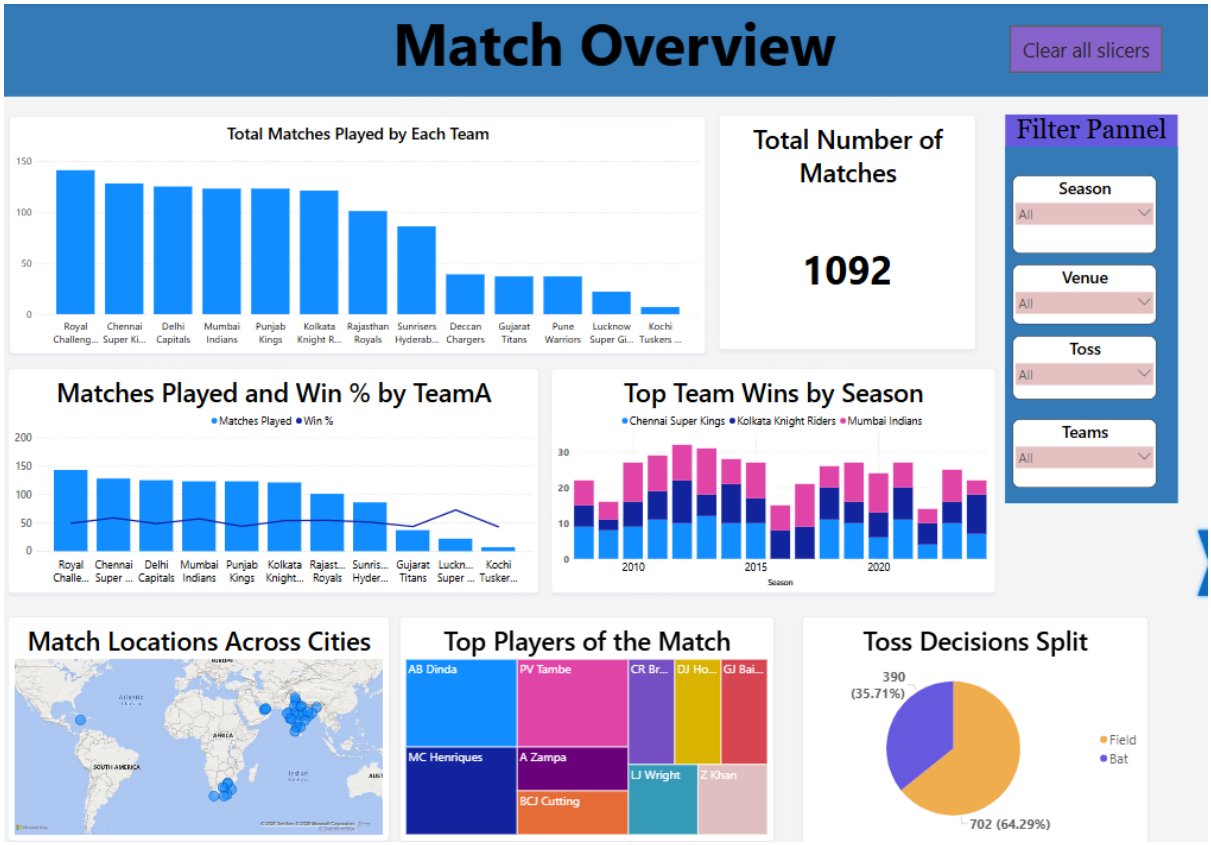
- Source data from Kaggle (IPL seasons up to 2023).
- Manually extracted 2024 data from ESPN and Cricbuzz.
- Standardized inconsistent team and player names.
- Mapped delivery-level data for granular analysis.

GitHub Link

https://github.com/harsha1498/Sure-Trust-Internship.git

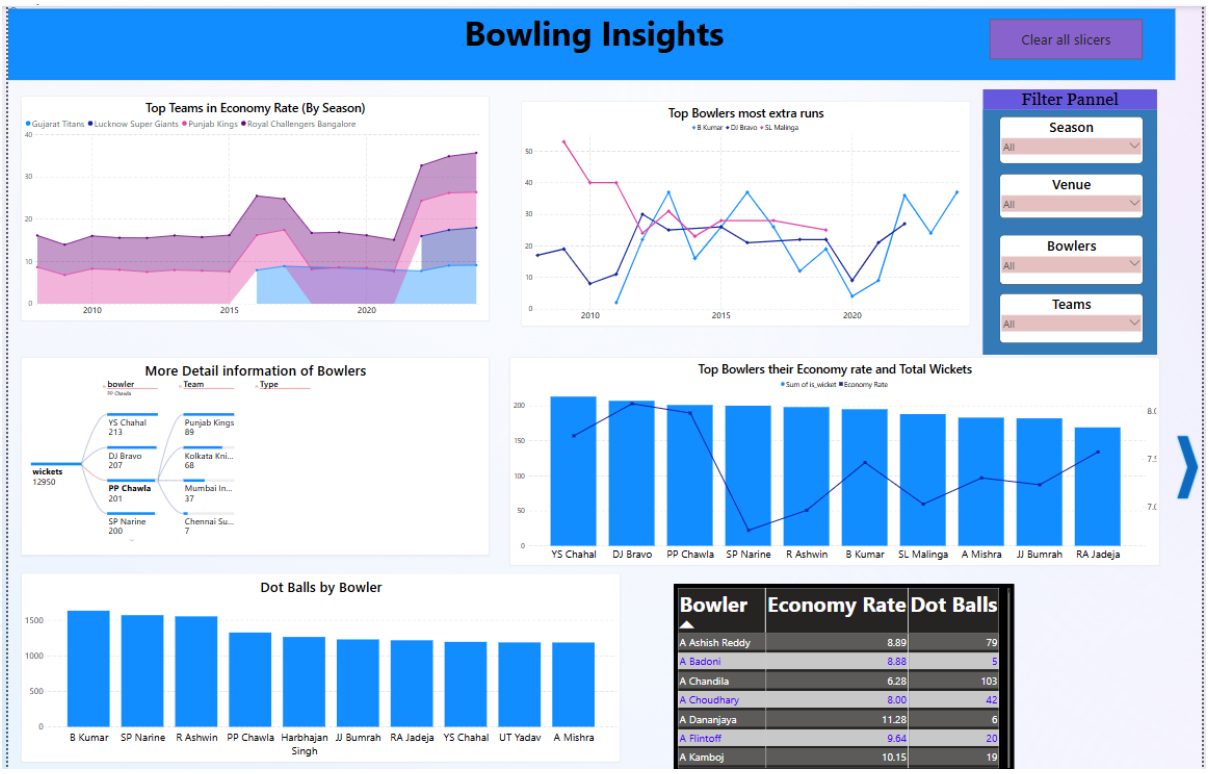
Final Project Working Screenshots

- Screenshot 1: Match Overview Dashboard

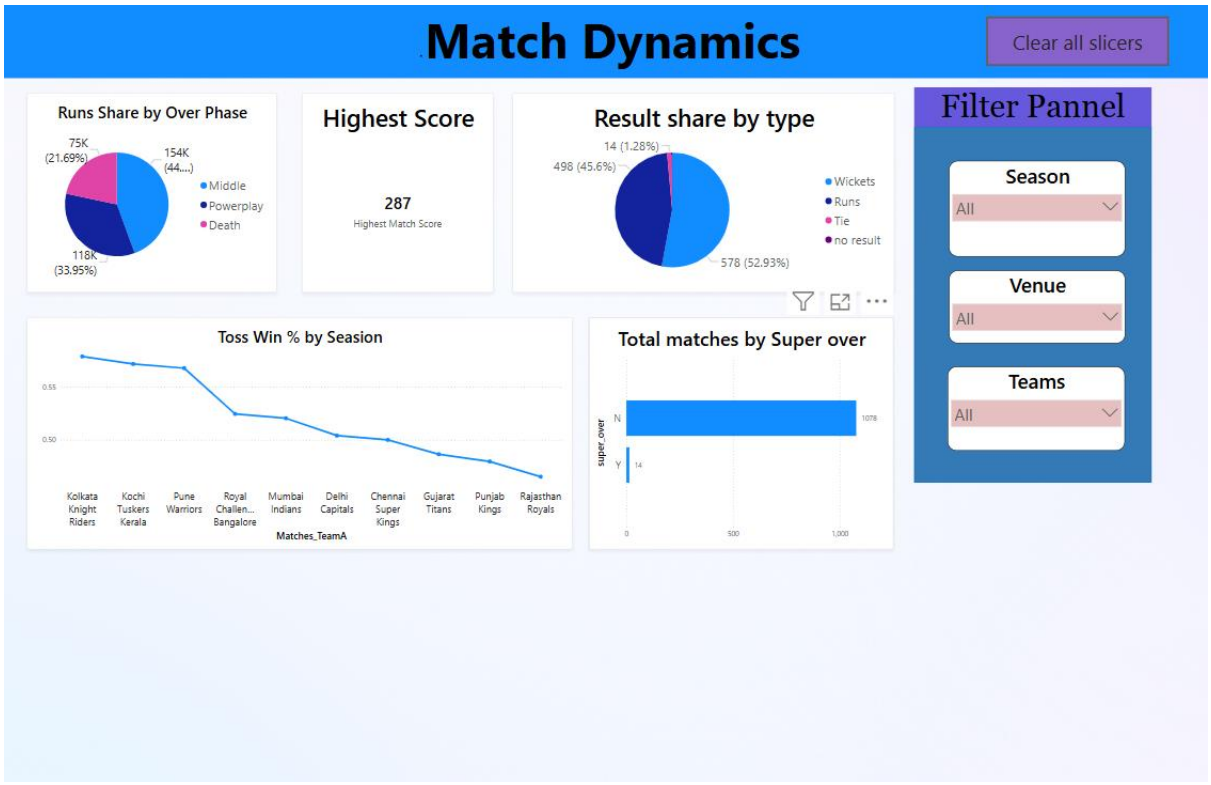


- Screenshot 2: Batting Insights Dashboard

- Screenshot 3: Bowling Insights Dashboard



- Screenshot 4: Match Dynamics Dashboard



Learning and Reflection

7.1. Learning and Reflection

Team Member Learnings (Solo Contributor)

As the sole contributor, I managed all aspects of this project and gained multi-disciplinary expertise:

- **Data Engineering**
  - Learned Power Query M functions and optimized large datasets
  - Managed complex data joins and modeled many-to-many relationships
  - Standardized inconsistent player and team names across seasons
- **Power BI Development**
  - Built Smart Narratives and tooltip-driven visuals
  - Designed drill-throughs and filters to enhance storytelling
  - Learned performance tuning in Power BI with large datasets

7.2. Experience

Working on this project helped develop professional-level skills in transforming raw data into a user-friendly, meaningful interface. It enhanced not only technical skills but also the ability to communicate data visually.

Conclusion and Future Scope

8.1. Objectives

Objectives of converting IPL data into meaningful insights using Power BI were successfully achieved.

8.2. Achievements

- Built a fully functional, interactive BI report.
- Implemented 20+ charts and 15+ custom DAX measures.
- Delivered a professional cricket analytics dashboard.
- Ensured scalability by modeling data for multiple seasons.

8.3. Conclusion

The Power BI dashboard proved to be a powerful medium for extracting insights from IPL data. It brought forward clear patterns in player performance, team strategies, and match dynamics that were otherwise hidden in spreadsheets.

8.4. Future Scope

- Integrate AI visuals to predict match winners based on toss & venue.
- Add web scraping to auto-fetch new season data.
- Cross-league analysis: Compare IPL performance with BBL, PSL.
- Add filters for:
  - Captain
  - Match stage (Eliminator, Final)
  - Player nationality
- Integrate player health metrics and auction data.
- Publish as a cloud-based or mobile-enabled app.
- Collaborate with broadcasters for real-time analytics.