IPL Data Analysis Project

1. Project Overview

This project analyzes historical IPL (Indian Premier League) data to uncover insights about team performances, player achievements, match outcomes, and seasonal trends. The analysis is presented through interactive Power BI dashboards, allowing exploration by team, season, player, and venue.

2. Data Sources

- **Matches Dataset** → match-level data (season, teams, toss, results, winner, venue, etc.)

- **Deliveries Dataset** → ball-by-ball data (runs, wickets, dismissals, player stats, etc.)
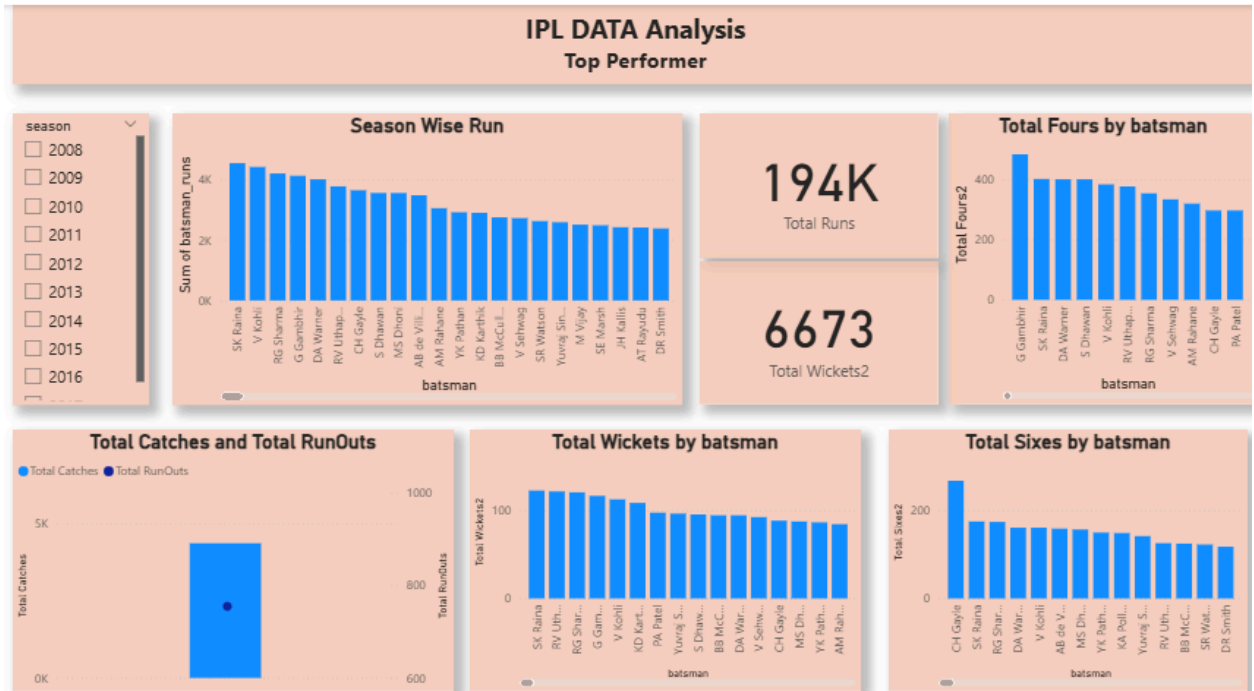
3. Project Deliverables

Power BI Dashboard containing:

- **Top Performers** → Leading run-scorers, wicket-takers, fielding stats.

- **Team Analysis** → Wins, toss vs outcome, win margins.

- **Venue Insights** → Matches per city, lucky stadiums, venue influence.

- **Seasonal Trends** → Winners by season, scoring trends, toss decisions.

Analytical Report with actionable insights and recommendations.

4. Dashboard Components

A. Top Performers

IPL DATA Analysis — Top Performer dashboard

- **Cards** → Top run scorer, top wicket taker.

- **Bar Charts** → Top 10 run scorers, top 10 wicket takers.

- **Table** → Economy Rate + Wickets.

- **Bar Charts** → Most Sixes/Fours, Most Catches/Run-outs.

Key Insights

Batting Insights

1. **Total Runs:**

   - Across all seasons, batsmen have scored **194,000+ runs**.

   - **SK Raina** and **V Kohli** stand out as the highest run scorers (season-wise trend shows consistency).

2. **Fours Hit:**

   - **G Gambhir, S Dhawan, V Kohli, and S Raina** dominate in hitting the most **boundaries (4s)**.

- ○ This shows their style of play is more about strike rotation and boundary hitting rather than only relying on sixes.

3. **Sixes Hit:**

   - ○ **CH Gayle** is the undisputed six-hitter with a huge margin.

   - ○ He is followed by **MS Dhoni, Yuvraj Singh, and Pollard**, showing power-hitting dominance.

Bowling Insights

4. **Total Wickets:**

   - ○ Bowlers have collectively taken **6,673 wickets** (excluding runouts counted separately).

   - ○ **SL Malinga** tops the wicket-takers chart, followed by **A Mishra, Harbhajan Singh, P Chawla, and D Bravo**.

   - ○ These are bowlers with long IPL careers and impact across seasons.

Fielding Insights

5. **Catches and Run-outs:**

   - ○ Fielders have made a **huge number of catches** (close to 5000+) compared to run-outs (~600+).

   - ○ This proves that catches are the dominant mode of dismissal in IPL fielding contributions.

   - ○ Standout fielders: likely SK Raina, AB de Villiers, and Pollard (from prior IPL trends).

Overall Takeaways

Raina, Kohli, and Dhawan → Consistent run machines.
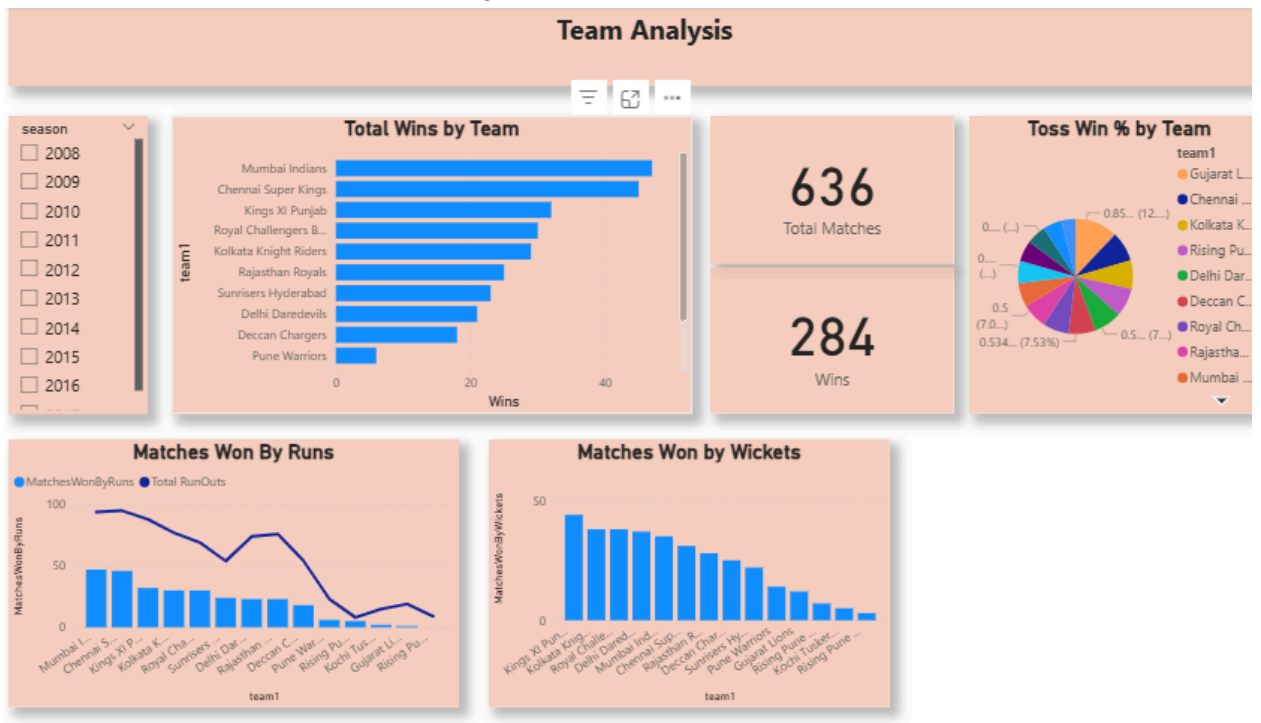 **Gayle** → Most destructive power hitter.
Malinga & Mishra → Match-winning bowlers with highest wickets.
Catches > Runouts → Fielding relies more on safe catching rather than direct hits.

B. Team Analysis

- **Wins & Win%** → Bar chart comparing teams across seasons.

- **Toss vs Match Outcome** → Clustered column showing toss win % vs match win %.

- **Runs vs Wickets Margin** → Histogram comparing `win_by_runs` vs `win_by_wickets`.

Key Insights

Wins by Team

1. **Mumbai Indians (MI)** → Most successful team with the **highest total wins**.

2. **Chennai Super Kings (CSK)** → Very close to MI in total wins, showing consistent top performance.

3. **Kings XI Punjab & Royal Challengers Bangalore (RCB)** → In mid-tier, but still significant contributors.

4. **Pune Warriors** → Least successful team with very few wins.

Overall Team Stats

- **Total Matches Played:** 636

- **Total Wins (across all teams):** 284 (remaining could be losses/no results).

- This means the average **win rate is less than 50% per team**, highlighting competitive balance.

Toss Win % by Team

- Toss wins seem fairly **balanced across teams**, but:

    - **Mumbai Indians, Chennai Super Kings, and Kolkata Knight Riders** appear slightly ahead in toss win percentage.

    - Teams like **Deccan Chargers & Pune Warriors** have relatively lower toss win rates.

Matches Won by Runs

- **Mumbai Indians, CSK, and KKR** dominate when it comes to **defending scores and winning by runs**.

- This shows these teams' **strong bowling & defending abilities**.

- Teams like **RCB and Punjab** often struggle in defending totals.

Matches Won by Wickets

- **Kings XI Punjab, Rajasthan Royals, and RCB** show higher success in **chasing targets** (winning by wickets).

- Indicates reliance on **batting depth & finishing power**.

- MI and CSK, while also good chasers, shine more when defending totals.

Final Takeaways

Mumbai Indians & CSK → Overall most balanced and successful teams.
KKR → Strong in defending totals with their bowling attack.
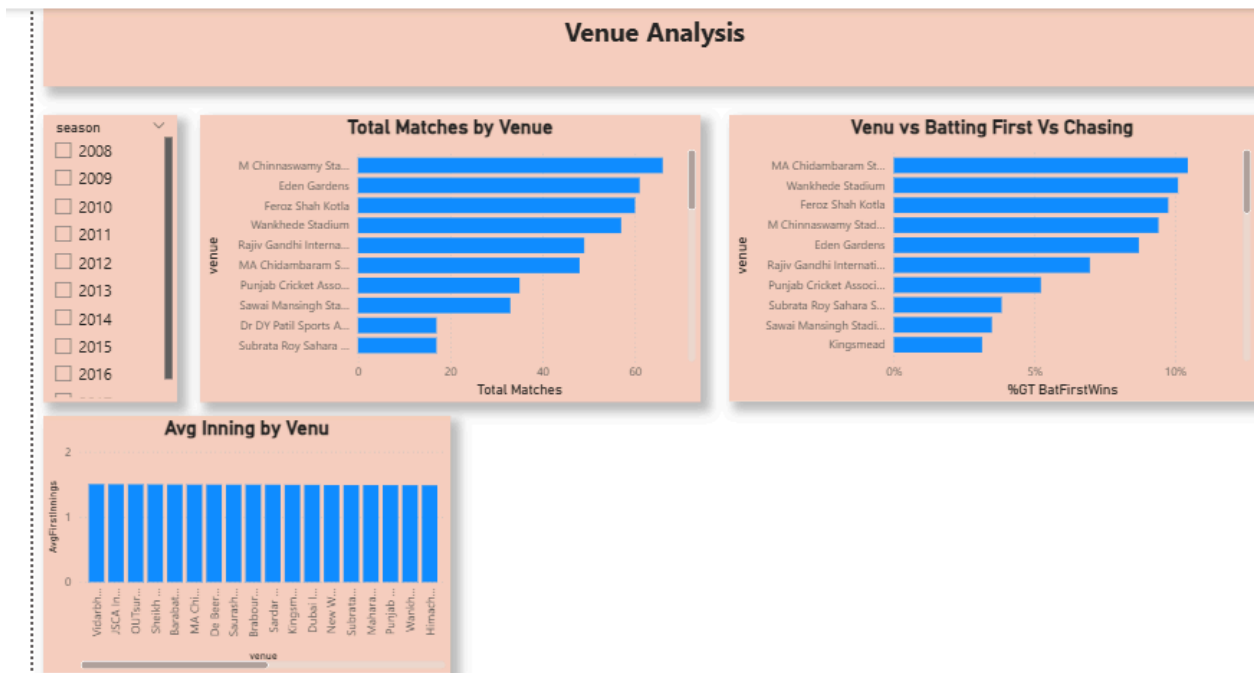**Punjab & RCB** → More successful when chasing rather than defending.
Pune Warriors & Deccan Chargers → Weakest performing teams historically.
Toss impact is limited, but MI and CSK still show slight advantage.

C. Venue Insights

- **Matches Hosted** → Bar chart: City/venue-wise.

- **Lucky Venues** → Heatmap linking venue with team win% (home advantage).

- **Batting/Bowling Outcomes** → Average runs & wickets per venue.

Key Insights

Total Matches by Venue

1. **M. Chinnaswamy Stadium (Bangalore)** → Hosted the most matches in IPL history.

2. **Eden Gardens (Kolkata), Feroz Shah Kotla (Delhi), and Wankhede Stadium (Mumbai)** → Other top venues with high match counts.

3. Venues like **Subrata Roy Sahara Stadium, Sawai Mansingh Stadium, and Dr. DY Patil Sports Academy** hosted fewer matches compared to the big four.

This shows the league's **dependence on certain iconic venues**.

Venue – Batting First vs. Chasing

- **MA Chidambaram Stadium (Chennai)** → Highest % of wins when **batting first** → suggests a **slow/turning pitch**, favoring defending totals.

- **Wankhede Stadium (Mumbai)** → Also slightly favors batting first, but chasing is still strong due to shorter boundaries.

- **Chinnaswamy Stadium (Bangalore)** → Despite being high-scoring, chasing teams often do well.

- **Eden Gardens & Feroz Shah Kotla** → Fairly balanced but lean slightly towards batting first.

- **Sawai Mansingh & Kingsmead** → More favorable for chasing sides.

Insight → Venue pitch and conditions strongly impact **team strategies (bat/field first)**.

Avg Inning by Venue

- Across venues, **average innings score is fairly consistent**, hovering around **150–160 runs**.

- Slight variations:

  - **Chinnaswamy (Bangalore)** → Usually higher due to batting-friendly pitch.

  - **Chennai (Chepauk)** → Usually lower because of spin-friendly, slower pitch.

This confirms **venue-based strategy is key** – batting depth at Chinnaswamy, spin strength at Chepauk.

Final Takeaways

Chinnaswamy & Wankhede → Batting-friendly, chasing often works.
Chepauk (Chennai) → Defending totals is more successful (slow/spin track).
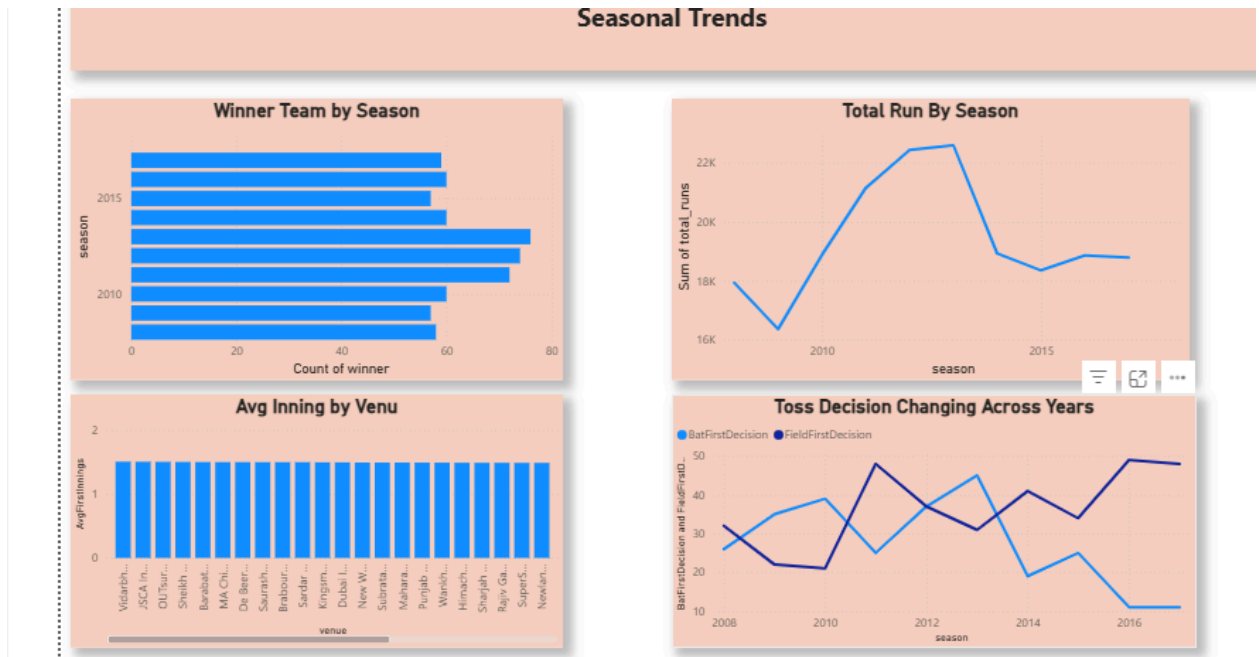**Eden Gardens & Kotla** → Balanced venues but lean towards batting first.
Avg innings ~150–160 runs → Teams should set targets accordingly.
Venues play a **decisive role in match outcomes**, impacting toss decisions and team selection (e.g., picking spinners vs. pacers).

D. Seasonal Trends

- **Winners by Year** → Table with season & champion team.

- **Scoring Trends** → Line chart (avg. runs/match, sixes/fours per season).

- **Toss Decisions Trend** → Stacked column (batting vs fielding after toss).

Key Insights

- Champions vary but CSK & MI dominate finals.

- Avg. runs per match have gradually increased → T20 becoming more batting-friendly.

- Toss decisions have shifted → early years (batting first), recent years (fielding first).

5. Recommendations

1. **Teams** should prioritize strong batting finishers as chasing success rate is high.

2. **Bowlers** with strong death-over economy (like Bumrah, Bravo) are critical in high-scoring venues.

3. **Home Advantage** plays a significant role → teams should leverage local pitch knowledge.

4. **Toss Strategy** → Choosing to field first has proven more effective in recent seasons.

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6. Final Deliverables

- **Power BI Dashboard** → interactive exploration.

- **PDF Report** → summary of findings (can export visuals + insights).

- **Data Dictionary** → mapping of columns used (matches, deliveries).

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