IPL Team Analysis – RCB Strategy for Mega Auction 2017

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Problem Statement

RCB is preparing for the 2017 Mega Auction and wants to build a strong, well-balanced team. To achieve this, we need to analyze past IPL seasons and identify:

✅ Players who have consistently performed well.
✅ Strengths and weaknesses in RCB's current squad.
✅ Insights from data that can help in selecting the right players.

This study focuses on data-driven decision-making using SQL-based analysis.

Database Schema

The dataset consists of multiple tables that store IPL match details, player stats, and performance metrics.

Main Tables Used:

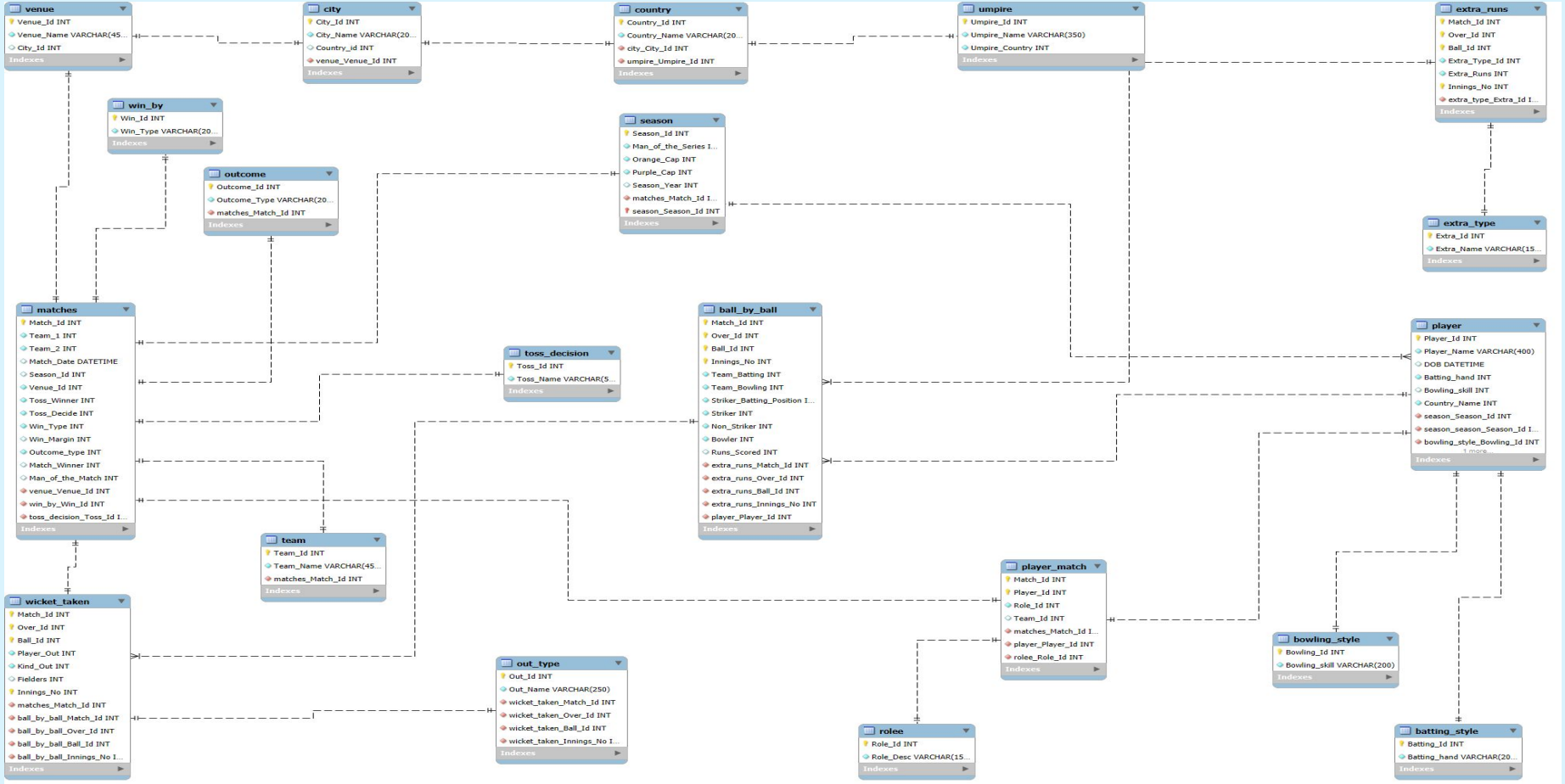
- matches – Stores match details such as match date, teams, venue, winner, and toss decision.

- ball_by_ball – Contains detailed information for every ball bowled, including runs, extras, batsman, bowler, and over details.

- player – Includes player details such as player name, team, and playing role (batsman, bowler, all-rounder).

- wickets_taken – Records details of every wicket taken, including the bowler and the dismissed batsman.
- extra_runs – Stores information on extra runs given (wides, no-balls, leg byes).
- venue – Provides information about match venues and their respective cities.
- season – Lists all IPL seasons along with their unique season IDs.
- batting_style – Defines whether a player is a right-handed or left-handed batsman.
- bowling_style – Stores information on players' bowling types (e.g., right-arm fast, left-arm spin).
- player_match – Links players to the matches they played in.

Entity Relationship Diagram



Players with High Strike Rate

Objective:

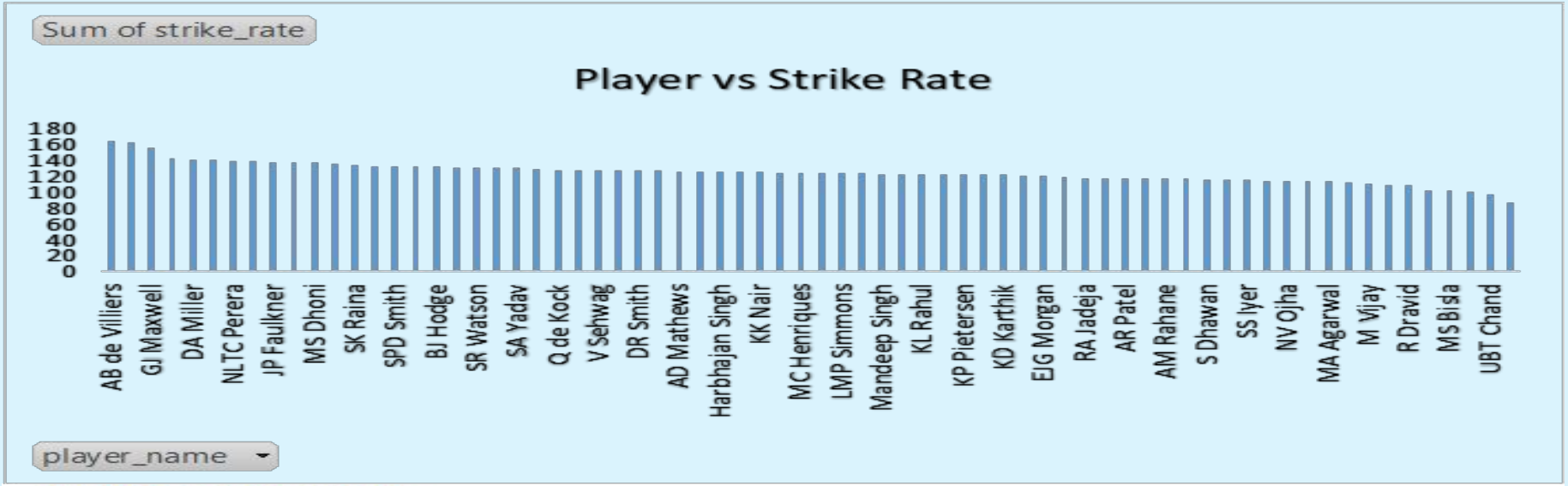
To identify aggressive batsmen who can score runs quickly.

Method:

✅ We calculate Strike Rate (SR) = (Total Runs / Balls Faced) × 100
✅ Considered batsmen who have played at least 250 balls for reliability.
✅ Sorted players in descending order of strike rate.

Findings:

- Top performers include **AB de Villiers**, **Chris Gayle**, and **MS Dhoni**.
- These players can accelerate the scoring rate and change the game quickly.




```sql
SELECT p.player_name,
       SUM(bb.runs_scored) AS total_runs,
       COUNT(bb.ball_id) AS balls_faced,
       ROUND((SUM(bb.runs_scored) / COUNT(bb.ball_id)) * 100, 2) AS strike_rate
FROM ball_by_ball bb
JOIN player p ON p.player_id = bb.striker
GROUP BY p.player_name
HAVING COUNT(bb.ball_id) >= 250
ORDER BY strike_rate DESC;
```

Best Batting Average

Objective:

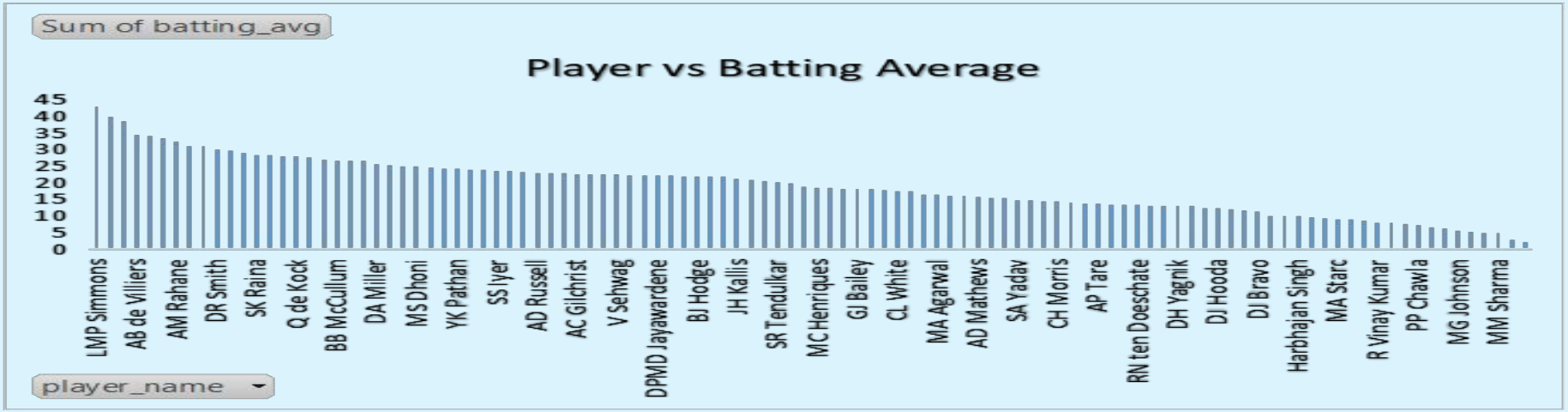
To find batsmen who consistently score runs across seasons.

Method:

✅ Batting Average = Total Runs / Innings Played
✅ Used data from multiple IPL seasons for better accuracy.

Findings:

- Players like SE Marsh and LMP Simmons have the highest batting averages.
- These batsmen are valuable for building partnerships and stabilizing the innings.




```sql
SELECT p.player_name,
       SUM(bb.runs_scored) AS total_runs,
       COUNT(DISTINCT bb.match_id) AS innings_played,
       ROUND(SUM(bb.runs_scored) / COUNT(DISTINCT bb.match_id), 2) AS batting_avg
FROM ball_by_ball bb
JOIN player p ON p.player_id = bb.striker
GROUP BY p.player_name
ORDER BY batting_avg DESC;
```

Best Bowling Average

Objective:

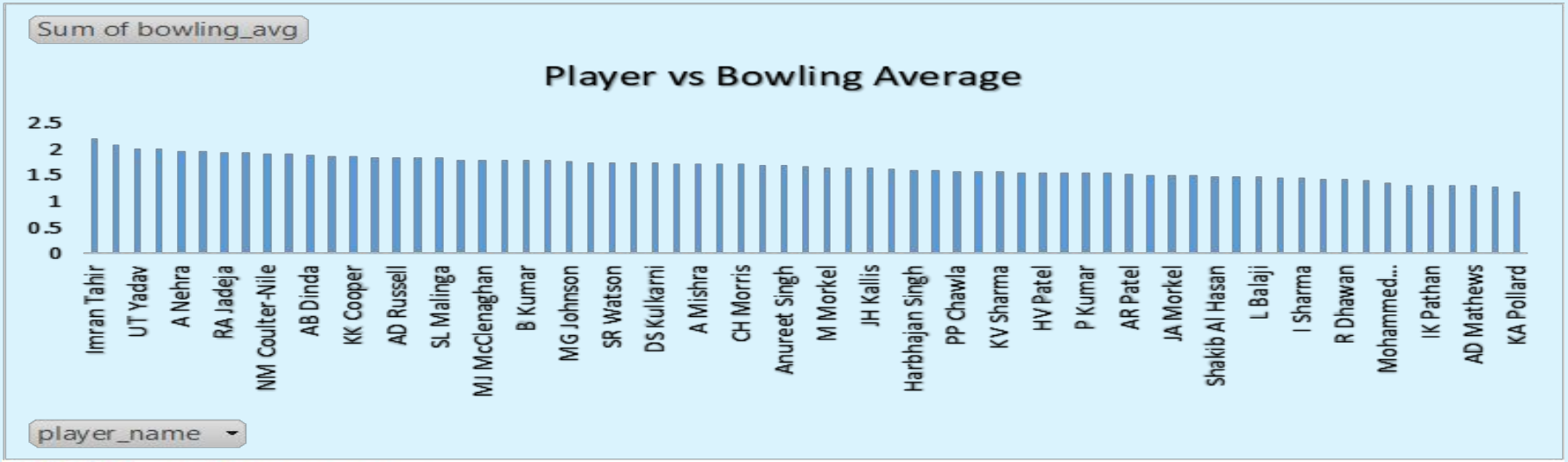
To identify bowlers who are most effective in taking wickets.

Method:

✅ Bowling Average = Total Wickets / Matches Played
✅ Focused on players who have bowled in at least 10 matches.

Findings:

- Bowlers like **DAJ Bracewell** and **YA Abdulla** have the best bowling averages.
- These bowlers should be targeted in the auction for their consistent wicket-taking ability.




```sql
SELECT p.player_name,
       COUNT(wt.player_out) AS total_wickets,
       COUNT(DISTINCT wt.match_id) AS matches_played,
       ROUND(COUNT(wt.player_out) / COUNT(DISTINCT wt.match_id), 2) AS bowling_avg
FROM wicket_taken wt
JOIN ball_by_ball bb ON bb.match_id = wt.match_id AND bb.innings_no = wt.innings_no
AND bb.over_id = wt.over_id AND bb.ball_id = wt.ball_id
JOIN player p ON p.player_id = bb.bowler
GROUP BY p.player_name
HAVING COUNT(DISTINCT wt.match_id) >= 10
ORDER BY bowling_avg DESC;
```

Home Ground Performance

Objective:

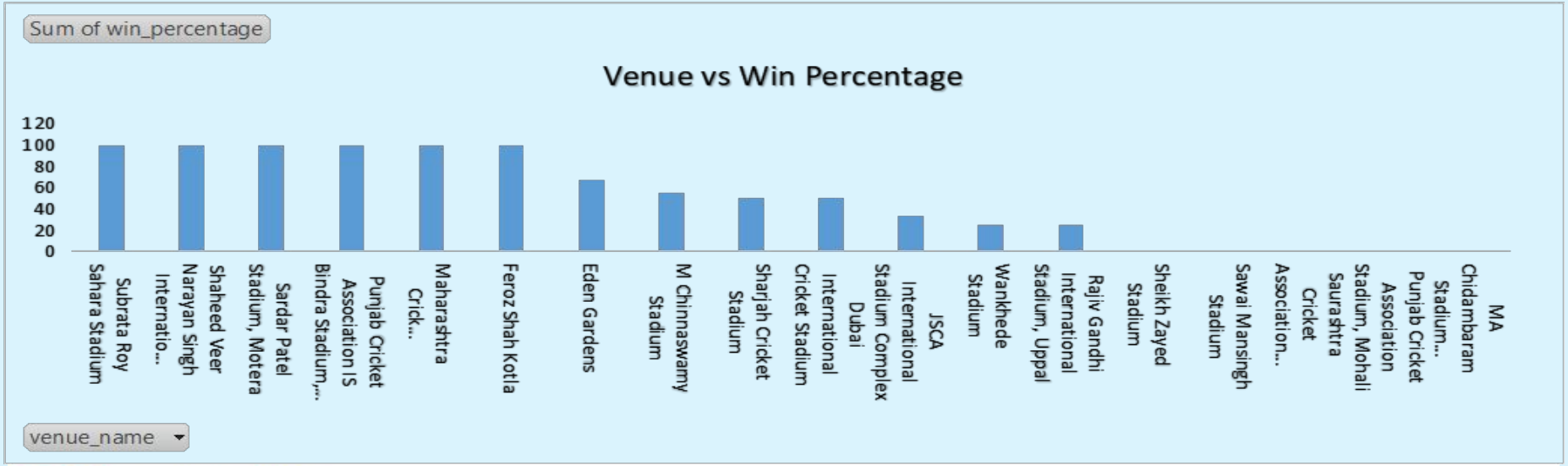
To analyze RCB’s win percentage at their home ground.

Method:

✅ Filtered matches where RCB played at M. Chinnaswamy Stadium.
✅ Compared the number of wins and losses.

Findings:

- RCB has a strong record at **M. Chinnaswamy Stadium**.
- Home advantage plays a crucial role in their performance.




```sql
SELECT v.venue_name,
       COUNT(*) AS total_matches,
       SUM(CASE WHEN m.match_winner = 2 THEN 1 ELSE 0 END) AS wins,
       ROUND(SUM(CASE WHEN m.match_winner = 2 THEN 1 ELSE 0 END) / COUNT(*) * 100, 2) AS win_percentage
FROM matches m
JOIN venue v ON m.venue_id = v.venue_id
WHERE m.team_1 = 2 OR m.team_2 = 2
GROUP BY v.venue_name
ORDER BY win_percentage DESC;
```

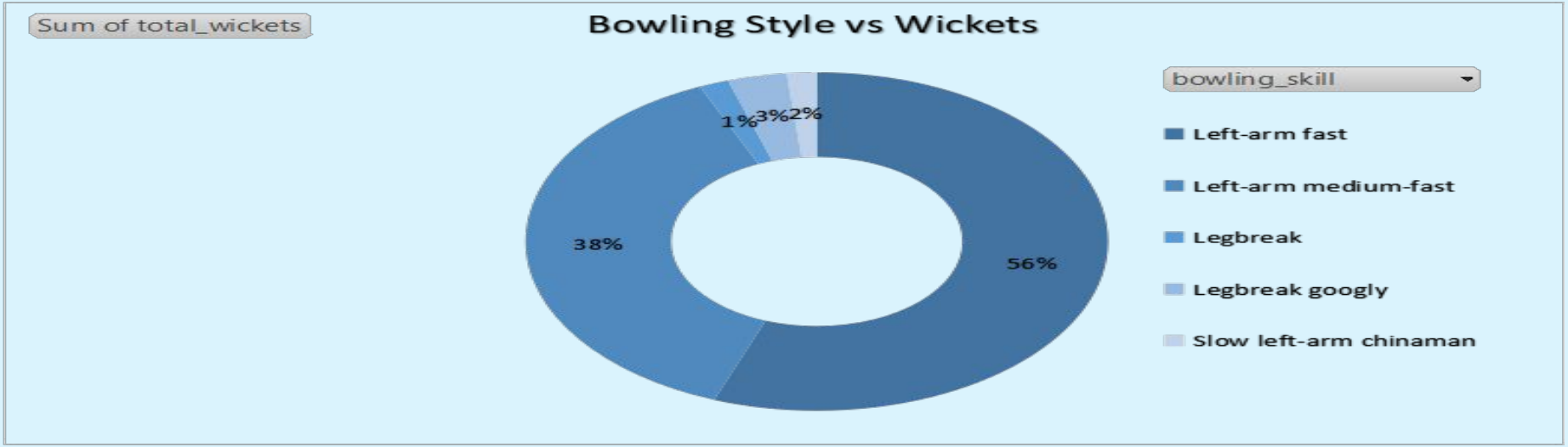
Bowling Style Analysis

Objective:

To determine which bowling styles are most effective in IPL.

Findings:

- **Right-arm medium pacers** took the **highest** number of wickets.
- RCB should focus on recruiting bowlers with this style.




```sql
SELECT bs.bowling_skill, COUNT(wt.player_out) AS total_wickets
FROM wicket_taken wt
JOIN ball_by_ball bb ON bb.match_id = wt.match_id AND bb.innings_no = wt.innings_no
AND bb.over_id = wt.over_id AND bb.ball_id = wt.ball_id
JOIN player p ON p.player_id = bb.bowler
JOIN bowling_style bs ON p.player_id = bs.bowling_id
GROUP BY bs.bowling_skill
ORDER BY total_wickets DESC;
```

Toss Impact and Venue Analysis

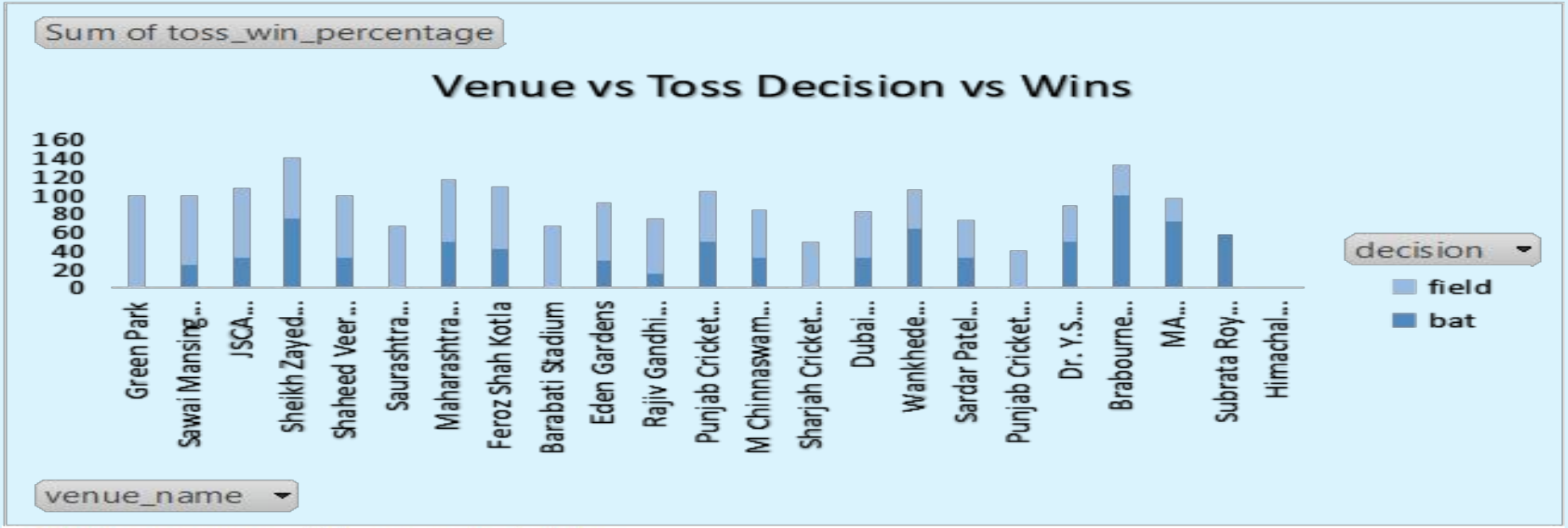
Objective:

To see if winning the toss helps teams win more matches.

Findings:

At some venues, toss winners have a high win percentage.

RCB should consider batting first at home to maximize their chances.




```sql
SELECT v.venue_name, td.toss_name as decision,
       ROUND(SUM(CASE WHEN m.match_winner = m.toss_winner THEN 1 ELSE 0 END) / COUNT(*) * 100, 2) AS toss_win_percentage
FROM matches m
JOIN toss_decision td on td.toss_id = m.toss_decide
JOIN venue v ON m.venue_id = v.venue_id
GROUP BY v.venue_name, decision
ORDER BY toss_win_percentage DESC;
```

KPI's for RCB

To evaluate RCB's overall performance, we have calculated key metrics that highlight strengths and areas of improvement.

KPIs Considered:

1. Batting Performance Metrics:

Average Runs per Match → Measures RCB's consistency in scoring.**(27.43)**

Strike Rate → Determines how aggressively the team scores runs.**(137.6)**

Boundary Percentage → Percentage of total runs coming from boundaries.**(56.8%)**

2. Bowling Performance Metrics:

Economy Rate → Average runs conceded per over.**(163.4)**

Wicket-taking Ability → Wickets per match.**(6.4)**

Death-Over Economy → Performance in the final 4 overs of an innings.**(10.9)**

3. Overall Team Performance Metrics:

Win Percentage at Home → Effect of venue on performance.**(58.3%)**

Toss Win Impact → Matches won when RCB won the toss.**(54.6%)**

Conclusion & Recommendations

Key Takeaways:

✅ Retain top performers like Kohli, Gayle, and de Villiers.

✅ Invest in death-over bowlers with low economy rates.

✅ Prioritize all-rounders for a balanced squad.

✅ Use home-ground advantage by focusing on batting first.

THANK YOU