



IPL Performance Analytics Using SQL

Player Performance, Team Strategy, and Season-Level Insights (2008–2023)

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Problem Statement :

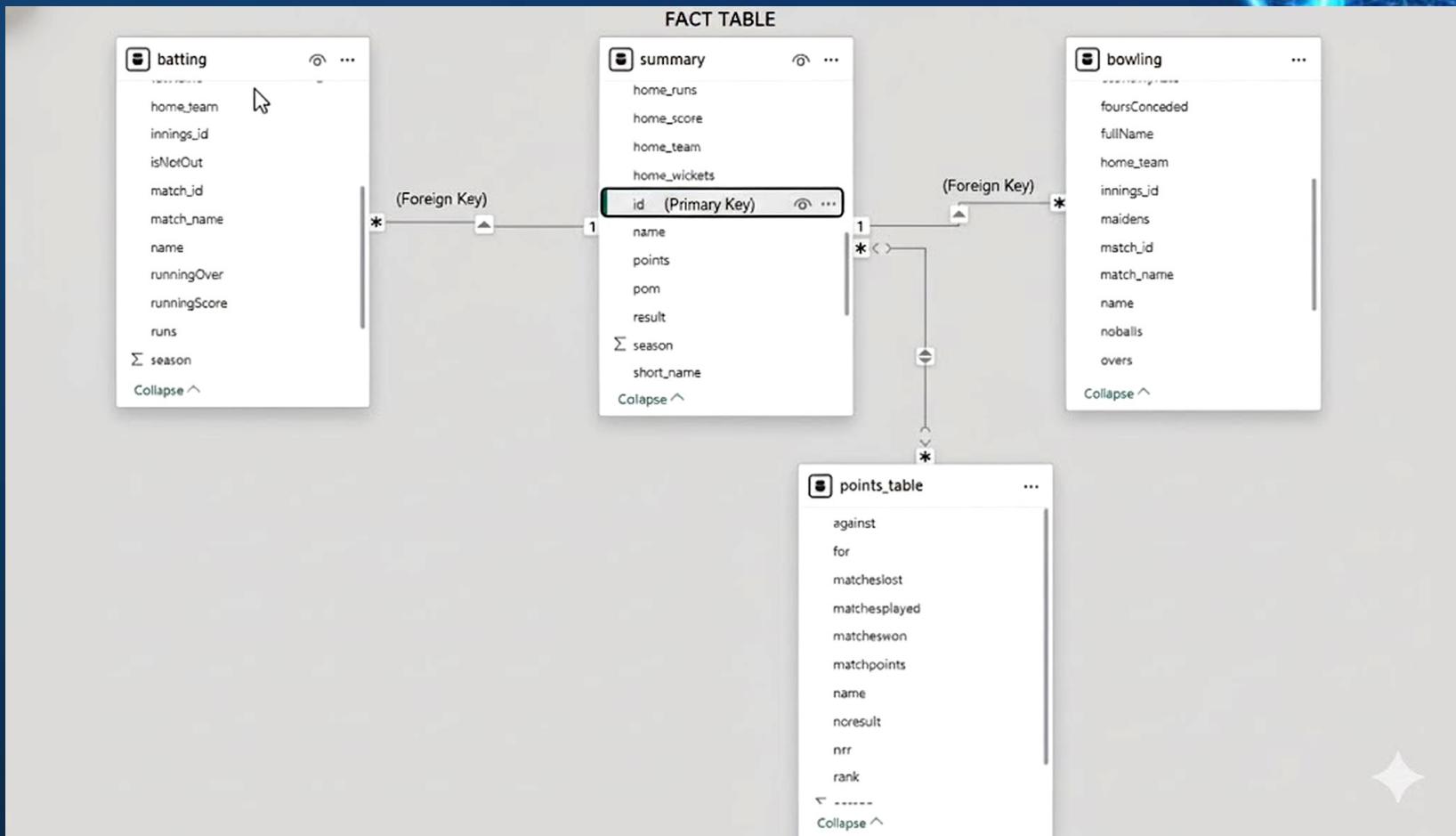
- The goal of this project is to analyze IPL match-level and player-level data (2008–2023) using SQL to generate actionable cricket insights. The dataset includes batting, bowling, match summaries, and points tables.
- The challenge is to transform raw cricket data into meaningful information that helps answer real-world questions
- This project focuses on building a complete SQL-based analytics system capable of supporting **talent scouting, team strategy, performance evaluation, and season insights**.



Objectives :

- **Measure individual player impact** through metrics like runs, strike rate, wickets, economy, and role-based performance.
- **Identify top performers across seasons** using MVP scoring, consistency detection, and match-winning contributions.
- **Discover auction-worthy players** from lower-ranked teams using statistical thresholds.
- **Analyze team dynamics** such as over-reliance on star players, bowling depth, batting-order strength, and win patterns.
- **Evaluate season trends** including scoring patterns, wicket distribution, venue influence, and toss decisions.
- **Assess team performance variations** across home vs. away matches, defending vs. chasing scenarios, and season-to-season improvements or declines.
- **Apply advanced SQL techniques** (joins, CTEs, window functions) to derive meaningful insights.

Table Description



Identify underrated players who maintained a high batting average despite limited match opportunities?

```
SELECT season, fullname, current_innings,  
SUM(runs) AS total_runs,  
COUNT(match_id) AS matches_played,  
(SUM(runs)/COUNT(match_id)) as batting_avg  
FROM Batting  
GROUP BY season, fullname, current_innings  
HAVING COUNT(match_id) between 3 and 5  
AND (SUM(runs)/COUNT(match_id)) >= 30  
ORDER BY season, batting_avg DESC;
```

season	fullname	current_innings	total_runs	matches_played	batting_avg
2008	Michael Hussey	CSK	168	3	56.0000
2008	Andrew Symonds	SRH	161	3	53.6667
2008	Matthew Hayden	CSK	189	4	47.2500
2008	Brendon McCullum	KKR	188	4	47.0000
2008	Ross Taylor	RCB	149	4	37.2500
2008	Luke Pomersbach	KXIP	152	5	30.4000
2009	Manish Pandey	RCB	168	4	42.0000
2009	Morne van Wyk	KKR	167	5	33.4000
2010	Shane Watson	RR	185	5	37.0000
2010	Shaun Marsh	KXIP	147	4	36.7500
2011	Ryan ten Doeschate	KKR	107	3	35.6667
2015	Quinton de Kock	DC	122	3	40.6667
2016	Nitish Rana	MI	104	3	34.6667
2019	Sarfraz Khan	KXIP	180	5	36.0000
2019	Gurkeerat Singh Mann	RCB	98	3	32.6667
2019	Riyan Parag	RR	160	5	32.0000
2020	Wriddhiman Saha	SRH	214	4	53.5000
2021	Evin Lewis	RR	151	5	30.2000
2021	Jason Roy	SRH	150	5	30.0000
2023	Quinton de Kock	LSG	143	4	35.7500

Which bowlers consistently maintained an excellent economy rate across a season while bowling a significant number of overs ?

```
select season, fullname, bowling_team,  
sum(conceded) as conceded, sum(overs) as overs,  
sum(conceded)/sum(overs) as economy  
from bowling group by season, fullname, bowling_team  
having sum(overs) > 10 and economy < 6 order by economy ;
```

season	fullname	bowling_team	conceded	overs	economy
2009	Muttiah Muralitharan	CSK	261	50	5.2200
2017	Mohammad Nabi	SRH	58	11	5.2727
2020	Rashid Khan	SRH	344	64	5.3750
2012	Lakshmipathy Balaji	KKR	162	30	5.4000
2011	Rahul Sharma	PWI	273	50	5.4600
2013	Sunil Narine	KKR	350	64	5.4688
2009	Jean-Paul Duminy	MI	93	17	5.4706
2012	Sunil Narine	KKR	324	59	5.4915
2009	Brett Lee	KXIP	111	20	5.5500
2022	Sunil Narine	KKR	312	56	5.5714
2009	Amit Singh	RR	95	17	5.5882
2013	Dale Steyn	SRH	384	68	5.6471
2009	Harbhajan Singh	MI	256	44	5.8182
2015	Ravichandran Ashwin	CSK	228	39	5.8462
2011	Ali Murtaza	MI	117	20	5.8500
2018	Ish Sodhi	RR	135	23	5.8696
2009	Anil Kumble	RCB	347	59	5.8814
2013	Shahbaz Nadeem	DC	259	44	5.8864
2009	Murali Kartik	KKR	201	34	5.9118
2020	Washington Sundar	RCB	298	50	5.9600
2022	Mohsin Khan	LSG	197	33	5.9697



Who are the top 10 wicket-takers in IPL history?

```
SELECT fullname,SUM(wickets) AS total_wickets  
FROM bowling  
GROUP BY fullname  
ORDER BY total_wickets DESC limit 10 ;
```

fullname	total_wickets
Yuzvendra Chahal	187
Dwayne Bravo	183
Piyush Chawla	179
Amit Mishra	173
Ravichandran Ashwin	171
Bhuvneshwar Kumar	170
Lasith Malinga	170
Sunil Narine	163
Ravindra Jadeja	152
Harbhajan Singh	150

Who was the highest wicket-taker in each IPL season?

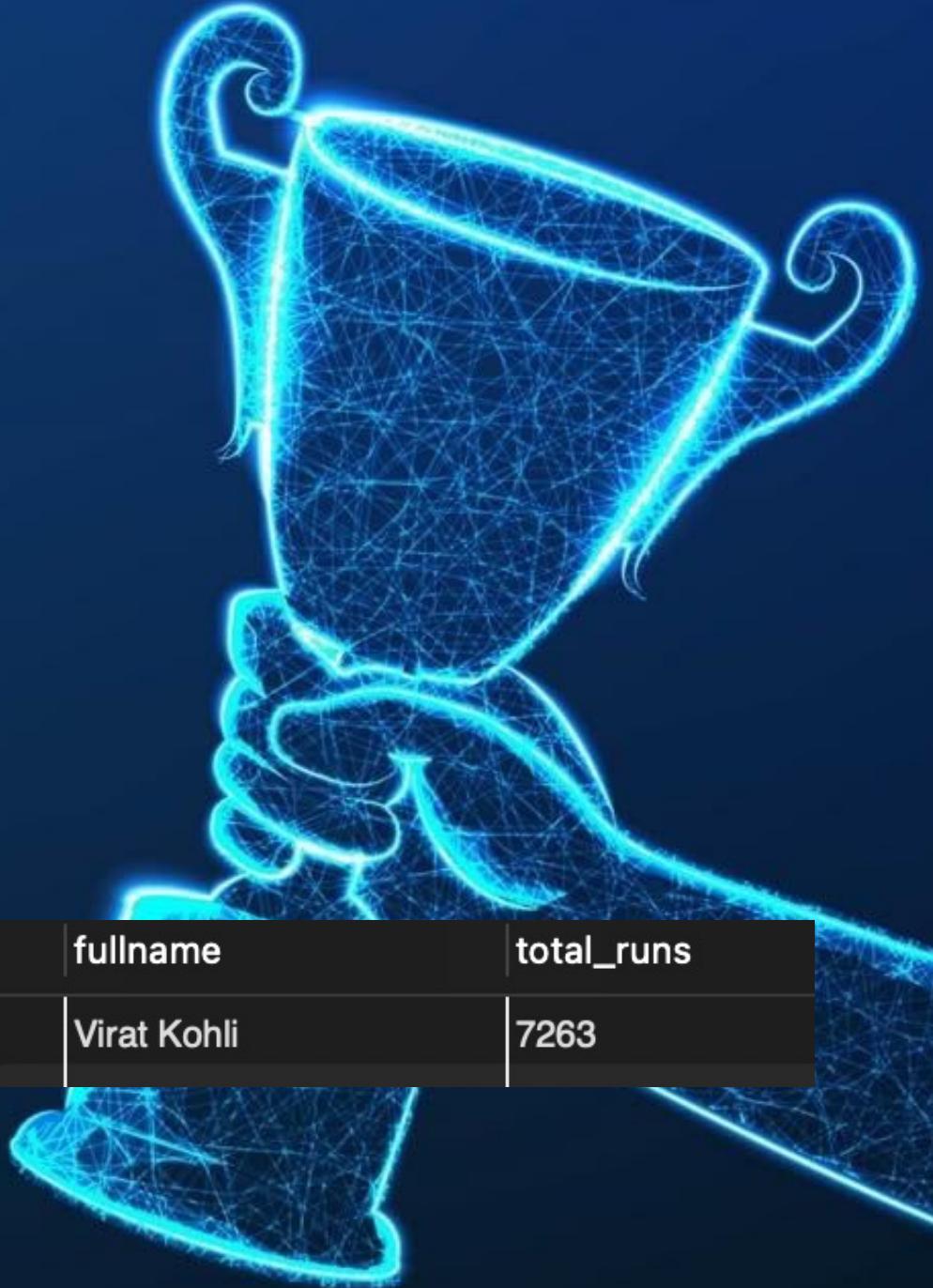
```
WITH season_wickets AS (SELECT season, fullname, SUM(wickets) AS total_wickets,  
RANK() OVER (PARTITION BY season ORDER BY SUM(wickets) DESC) AS rnk  
FROM bowling  
GROUP BY season, fullname)  
SELECT season, fullname, total_wickets FROM season_wickets  
WHERE rnk = 1 ORDER BY season;
```

season	fullname	total_wickets
2008	Sohail Tanvir	22
2009	RP Singh	23
2010	Pragyan Ojha	21
2011	Lasith Malinga	28
2012	Morne Morkel	25
2013	Dwayne Bravo	32
2014	Mohit Sharma	23
2015	Dwayne Bravo	26
2016	Bhuvneshwar Kumar	23
2017	Bhuvneshwar Kumar	26
2018	Andrew Tye	24
2019	Imran Tahir	26
2020	Kagiso Rabada	30
2021	Harshal Patel	32
2022	Yuzvendra Chahal	27
2023	Mohammed Shami	28

Who has scored the most runs in IPL history?

```
SELECT fullname, SUM(runs) AS total_runs  
FROM batting  
GROUP BY fullname  
ORDER BY total_runs DESC  
LIMIT 1;
```

fullname	total_runs
Virat Kohli	7263



Who scored the highest number of runs in each IPL season?

```
WITH ranked_batters AS
  (SELECT season, fullname, SUM(runs) AS total_runs,
  ROW_NUMBER() OVER (PARTITION BY season ORDER BY SUM(runs) DESC) AS rnk
  FROM batting
  GROUP BY season, fullname)
  SELECT season, fullname, total_runs
  FROM ranked_batters
  WHERE rnk = 1
  AND season BETWEEN 2008 AND 2023
  ORDER BY season;
```

season	fullname	total_runs
2008	Shaun Marsh	616
2009	Matthew Hayden	572
2010	Sachin Tendulkar	618
2011	Chris Gayle	608
2012	Chris Gayle	733
2013	Michael Hussey	733
2014	Robin Uthappa	660
2015	David Warner	562
2016	Virat Kohli	973
2017	David Warner	641
2018	Kane Williamson	735
2019	David Warner	692
2020	KL Rahul	670
2021	Ruturaj Gaikwad	635
2022	Jos Buttler	863
2023	Shubman Gill	890

Which bowler was the most economical in each IPL season among those who bowled a significant number of overs?

```
WITH season_economy AS (
SELECT season, fullname, SUM(conceded) AS conceded, SUM(overs) AS overs, SUM(conceded)/SUM(overs) AS economy,
RANK() OVER (PARTITION BY season ORDER BY SUM(conceded)/SUM(overs) ASC) AS rnk
FROM bowling GROUP BY season, fullname HAVING SUM(overs) > 50 )
SELECT season, fullname, economy FROM season_economy WHERE rnk = 1 ORDER BY season;
```

season	fullname	economy
2008	Glenn McGrath	6.6111
2009	Anil Kumble	5.8814
2010	Anil Kumble	6.4603
2011	Lasith Malinga	6.0484
2012	Sunil Narine	5.4915
2013	Sunil Narine	5.4688
2014	Axar Patel	6.1364
2015	Ashish Nehra	7.2419
2016	Mustafizur Rahman	6.9016
2017	Rashid Khan	6.6296
2018	Rashid Khan	6.7353
2019	Rashid Khan	6.2833
2020	Rashid Khan	5.3750
2021	Sunil Narine	6.4464
2022	Sunil Narine	5.5714
2023	Ravindra Jadeja	7.5614

Which bowlers maintained the best economy rate in each season?

```
select season, fullname, sum(conceded) as conceded,  
sum(overs) as overs,sum(conceded)/sum(overs) as economy  
from bowling  
group by season, fullname  
having sum(overs) > 10 and economy < 6 order by economy;
```

season	fullname	conceded	overs	economy
2009	Muttiah Muralitharan	261	50	5.2200
2017	Mohammad Nabi	58	11	5.2727
2020	Rashid Khan	344	64	5.3750
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2009	Anil Kumble	347	59	5.8814
2013	Shahbaz Nadeem	259	44	5.8864
2009	Murali Kartik	201	34	5.9118
2020	Washington Sundar	298	50	5.9600
2022	Mohsin Khan	197	33	5.9697

Which are the top 10 batsmen across all IPL seasons who have scored at least 2500 runs while maintaining a strike rate of 135 or higher?

```
SELECT fullName, SUM(runs) AS total_runs, SUM(ballsFaced) AS total_balls,  
(SUM(runs)/SUM(ballsFaced))*100 AS strike_rate  
FROM batting GROUP BY fullName  
HAVING SUM(runs) >= 2500 AND (SUM(runs)/SUM(ballsFaced))*100 >= 135  
ORDER BY strike_rate DESC, total_runs DESC LIMIT 10;
```

fullName	total_runs	total_balls	strike_rate
Glenn Maxwell	2719	1725	157.6200
Virender Sehwag	2728	1755	155.4400
AB de Villiers	5162	3403	151.6900
Chris Gayle	4965	3333	148.9600
Jos Buttler	3223	2173	148.3200
Rishabh Pant	2838	1918	147.9700
Kieron Pollard	3412	2316	147.3200
Suryakumar Yadav	3249	2267	143.3200
Yusuf Pathan	3204	2241	142.9700
David Warner	6397	4572	139.9200

Which batsman recorded the highest strike rate in each IPL season while scoring at least 500 runs?

```
WITH season_stats AS
(SELECT season, fullName, SUM(runs) AS total_runs, SUM(ballsFaced) AS total_balls, (SUM(runs)/SUM(ballsFaced))*100 AS strike_rate
FROM batting GROUP BY season, fullName HAVING SUM(runs) >= 500),
ranked AS (SELECT *, ROW_NUMBER() OVER(PARTITION BY season ORDER BY strike_rate DESC) AS rn FROM season_stats)
SELECT season, fullName, total_runs, total_balls, strike_rate FROM ranked WHERE rn = 1 ORDER BY season;
```

season	fullName	total_runs	total_balls	strike_rate
2008	Sanath Jayasuriya	514	309	166.3400
2009	Matthew Hayden	572	395	144.8100
2010	Suresh Raina	520	364	142.8600
2011	Chris Gayle	608	332	183.1300
2012	Chris Gayle	733	456	160.7500
2013	Chris Gayle	708	453	156.2900
2014	Glenn Maxwell	552	294	187.7600
2015	AB de Villiers	513	293	175.0900
2016	AB de Villiers	687	407	168.8000
2017	David Warner	641	452	141.8100
2018	Rishabh Pant	684	394	173.6000
2019	Andre Russell	510	249	204.8200
2020	Ishan Kishan	516	354	145.7600
2021	Glenn Maxwell	513	356	144.1000
2022	Jos Buttler	863	579	149.0500
2023	Suryakumar Yadav	605	334	181.1400

Which teams have the highest winning percentage across all IPL seasons based on total matches played and matches won?

```
SELECT name, SUM(matcheswon) AS total_wins, SUM(matchesplayed) AS matches_played,  
SUM(matcheswon)/SUM(matchesplayed)*100 AS Winning_Percentage  
FROM points_table GROUP BY name ORDER BY total_wins DESC;
```

name	total_wins	matches_played	Winning_Percenta...
Mumbai Indians	127	228	55.7000
Chennai Super Kings	114	200	57.0000
Kolkata Knight Riders	112	228	49.1200
Royal Challengers Bangalore	110	228	48.2500
Delhi Capitals	106	228	46.4900
Rajasthan Royals	99	200	49.5000
Kings XI Punjab	87	186	46.7700
Sunrisers Hyderabad	74	156	47.4400
Deccan Chargers	27	72	37.5000
Gujarat Titans	20	28	71.4300
Punjab Kings	19	42	45.2400
Lucknow Super Giants	17	28	60.7100
Rising Pune Supergiant	14	28	50.0000
Gujarat Lions	13	28	46.4300
Pune Warriors	12	46	26.0900
Kochi Tuskers Kerala	6	14	42.8600

Which was the worst-performing season for championship-winning teams (Mumbai Indians and Chennai Super Kings) based on lowest points and wins?

WITH ranked AS

```
(SELECT season, `name`, matchesplayed,matcheswon, matchpoints,  
ROW_NUMBER() OVER(PARTITION BY `name` ORDER BY matchpoints ASC, matcheswon ASC) AS rn  
FROM points_table WHERE `name` IN ('Mumbai Indians','Chennai Super Kings'))  
SELECT season, `name`,matchesplayed, matcheswon, matchpoints  
FROM ranked WHERE rn = 1;
```

season	name	matchesplay...	matcheswon	matchpoints
2022	Chennai Super Kings	14	4	8
2022	Mumbai Indians	14	4	8

Which team has recorded the highest number of match wins across all IPL seasons?

```
SELECT `name`,sum(matchesplayed) as matches_played , SUM(matcheswon) AS total_wins  
FROM points_table  
GROUP BY `name`  
ORDER BY total_wins DESC;
```

name	matches_played	total_wins
Mumbai Indians	228	127
Chennai Super Kings	200	114
Kolkata Knight Riders	228	112
Royal Challengers Bangalore	228	110
Delhi Capitals	228	106
Rajasthan Royals	200	99
Kings XI Punjab	186	87
Sunrisers Hyderabad	156	74
Deccan Chargers	72	27
Gujarat Titans	28	20
Punjab Kings	42	19
Lucknow Super Giants	28	17
Rising Pune Supergiant	28	14
Gujarat Lions	28	13
Pune Warriors	46	12
Kochi Tuskers Kerala	14	6

Which teams have the highest success rate while chasing targets in IPL matches, considering teams with significant match experience?

```
WITH chase AS
  (SELECT winner, (winner = home_team AND home_score = 2nd_inning_score) OR
   (winner = away_team AND away_score = 2nd_inning_score) AS chased_successfully
  FROM summary)
  SELECT winner AS team, SUM(chased_successfully) AS chase_wins, COUNT(*) AS total_matches,
  SUM(chased_successfully)/COUNT(*)*100 AS chase_win_percentage
  FROM chase GROUP BY team having total_matches >45 ORDER BY chase_win_percentage DESC;
```

team	chase_wins	total_matches	chase_win_percenta...
KKR	42	62	67.7400
DC	31	49	63.2700
RR	33	56	58.9300
CSK	40	75	53.3300
MI	35	66	53.0300
SRH	32	64	50.0000
RCB	28	66	42.4200

- Which teams have been most successful at defending targets in IPL matches, considering teams with significant match experience?

```
With defend as
(select winner,(winner = home_team AND home_score = 1st_inning_score) OR
(winner = away_team AND away_score = 1st_inning_score) AS defended_successfully
FROM summary)
select winner as team,SUM(defended_successfully) AS defend_wins, COUNT(*) AS total_matches,
sum(defended_successfully)/COUNT(*)*100 as Defend_win_perc
from defend group by team having total_matches >45 order by Defend_win_perc Desc;
```

team	defend_wins	total_matches	Defend_win_perc
RCB	38	66	57.5800
SRH	32	64	50.0000
MI	31	66	46.9700
CSK	35	75	46.6700
RR	24	56	42.8600
DC	17	49	34.6900
KKR	20	62	32.2600

Which innings has the highest overall team strike rate across IPL matches, considering a significant number of balls faced?

```
SELECT current_innings, SUM(runs) AS total_runs, SUM(ballsFaced) AS total_balls,  
       (SUM(runs) / SUM(ballsFaced)) * 100 AS team_strike_rate  
FROM batting GROUP BY current_innings HAVING SUM(ballsFaced) > 20000 ORDER BY team_strike_rate DESC;
```

current_innings	total_runs	total_balls	team_strike_rate
CSK	34325	26100	131.5100
RCB	35769	27315	130.9500
MI	37484	28734	130.4500
KXIP	28496	21951	129.8200
RR	30507	23670	128.8800
KKR	34636	26967	128.4400
DC	34758	27215	127.7200
SRH	35585	28086	126.7000

How dominant has Mumbai Indians been against Royal Challengers Bangalore in head-to-head IPL matches?

```
SELECT 'MI vs RCB' AS matchup, SUM(winner = 'MI') AS MI_wins,  
SUM(winner = 'RCB') AS RCB_wins, COUNT(*) AS total_matches  
FROM summary WHERE (short_name = 'MI v RCB' OR short_name = 'RCB v MI')  
AND ((home_team = 'MI' AND away_team = 'RCB')OR (home_team = 'RCB' AND away_team = 'MI'));
```

matchup	MI_wins	RCB_wins	total_matches
MI vs RCB	10	7	17

Which teams recorded the largest margins of victory by runs across IPL seasons?

```
select season,short_name,win_by_runs from summary order by win_by_runs desc;
```

season	short_name	win_by_runs
2016	RCB v GL	144
2008	RCB v KKR	140
2015	RCB v KXIP	138
2019	SRH v RCB	118
2023	RR v RCB	112
2011	KXIP v RCB	111
2018	KKR v MI	102
2010	DC v MI	98
2015	CSK v KXIP	97
2017	RPS v DC	97
2014	CSK v DC	93
2022	CSK v DC	91
2020	SRH v DC	88
2013	DC v CSK	86
2021	KKR v RR	86
2011	RCB v KXIP	85
2011	KXIP v DC	82
2016	RCB v KXIP	82
2017	KKR v RCB	82
2023	KKR v RCB	81
2009	KXIP v RR	78
2013	SRH v CSK	77
2023	DC v CSK	77
2009	RCB v RR	75
2022	LSG v KKR	75
2012	DC v CSK	74
2015	RR v RCB	71
2018	KKR v DC	71
2008	KXIP v MI	66
2018	CSK v RR	64
2022	LSG v GT	62

Which teams recorded the largest margins of victory by wickets across IPL seasons?

```
select season, short_name, win_by_wickets from summary order by win_by_wickets desc;
```

season	short_name	win_by_wickets
2008	MI v DC	10
2012	RR v MI	10
2015	DC v RCB	10
2017	GL v KKR	10
2017	KXIP v DC	10
2020	CSK v MI	10
2008	DC v RR	9
2008	SRH v DC	9
2008	KXIP v RCB	9
2008	MI v CSK	9
2008	CSK v KXIP	9
2009	RCB v MI	9
2010	RR v KXIP	9
2010	CSK v KKR	9
2010	KKR v MI	9
2011	RCB v MI	9
2011	RR v KKR	9
2011	RR v RCB	9
2012	SRH v DC	9
2013	DC v MI	9
2013	RR v DC	9
2014	KXIP v KKR	9
2015	RR v RCB	9
2015	SRH v MI	9
2016	KKR v DC	9

Thank You

