

# Indian Premier League T20 Analysis

Data Science Professional Certificate Program from HarvardX - CYO

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## Introduction

This is the submission for the choose-your-own project for the Harvard's multi-part Data Science Professional Certificate series. The goal of this project is to rank players and predict the winner of a match. T20 is a modern format of the original game of cricket where each ball and strike count. A team can acquire players through any of the three ways: the annual player auction, trading players with other teams during the trading windows, and signing replacements for unavailable players. Players sign up for the auction and also set their base price, and are bought by the franchise that bids the highest for them.

## About Cricket

<https://en.wikipedia.org/wiki/Cricket>

[https://en.wikipedia.org/wiki/Indian\\_Premier\\_League](https://en.wikipedia.org/wiki/Indian_Premier_League)

## Data Set

IPL ball by ball <https://www.kaggle.com/patrickb1912/ipl-complete-dataset-20082020?select=IPL+Ball-by-Ball+2008-2020.csv>

IPL Matches <https://www.kaggle.com/patrickb1912/ipl-complete-dataset-20082020?select=IPL+Matches+2008-2020.csv>

## Executive Summary:

The goal of this project is to rank players by performance. This gives the IPL teams a pool of players as per caliber from which to pick from. We will also build a model to predict the winner of a match.

## Steps of Analysis

- **Data Preparation** - We will load the data,
- **Data Exploration** - We will explore the data, plot histograms, create tables and graphs , As part of the data exploration process we will look at three key stats. Bowler Stats, Batsmen Stats and Team Stats
- **Modeling** - We Will create two Models , one to create a pool of playes teams can choose from and predict match winner
- **Conclusion** - We will summarize the results of modeling

## Data Preparation

**Install and load libraries and MovieLens Dataset** To install the required packages, we use `if(!require` and load the packages from `http://cran.us.r-project.org`. Load Libraries and the IPL dataset

Import data sets from kaggle into R (I have downloaded the data from kaggle to my github repository)

We will now inspect the data set to view column names

Lets check how the data looks in the two data sets

```
## [1] "id"           "inning"       "over"         "ball"
## [5] "batsman"      "non_striker" "bowler"       "batsman_runs"
## [9] "extra_runs"   "total_runs"   "non_boundary" "is_wicket"
## [13] "dismissal_kind" "player_dismissed" "fielder"      "extras_type"
## [17] "batting_team" "bowling_team"

## [1] "id"           "city"         "date"         "player_of_match"
## [5] "venue"        "neutral_venue" "team1"        "team2"
## [9] "toss_winner"  "toss_decision" "winner"       "result"
## [13] "result_margin" "eliminator"    "method"      "umpire1"
## [17] "umpire2"

##      id      city      date player_of_match
## 1 335982 Bangalore 2008-04-18 BB McCullum
## 2 335983 Chandigarh 2008-04-19 MEK Hussey
## 3 335984 Delhi 2008-04-19 MF Maharoor
## 4 335985 Mumbai 2008-04-20 MV Boucher
## 5 335986 Kolkata 2008-04-20 DJ Hussey
## 6 335987 Jaipur 2008-04-21 SR Watson
##
##              venue neutral_venue
## 1              M Chinnaswamy Stadium 0
## 2 Punjab Cricket Association Stadium, Mohali 0
## 3              Feroz Shah Kotla 0
## 4              Wankhede Stadium 0
## 5              Eden Gardens 0
## 6              Sawai Mansingh Stadium 0
##
##      team1      team2
## 1 Royal Challengers Bangalore Kolkata Knight Riders
## 2 Kings XI Punjab Chennai Super Kings
## 3 Delhi Daredevils Rajasthan Royals
## 4 Mumbai Indians Royal Challengers Bangalore
## 5 Kolkata Knight Riders Deccan Chargers
## 6 Rajasthan Royals Kings XI Punjab
##
##      toss_winner toss_decision      winner      result
## 1 Royal Challengers Bangalore field Kolkata Knight Riders runs
## 2 Chennai Super Kings bat Chennai Super Kings runs
## 3 Rajasthan Royals bat Delhi Daredevils wickets
## 4 Mumbai Indians bat Royal Challengers Bangalore wickets
## 5 Deccan Chargers bat Kolkata Knight Riders wickets
## 6 Kings XI Punjab bat Rajasthan Royals wickets
##
## result_margin eliminator method umpire1 umpire2
## 1          140          N <NA> Asad Rauf RE Koertzen
## 2           33          N <NA> MR Benson SL Shastri
## 3           9          N <NA> Aleem Dar GA Pratapkumar
```

```
## 4          5          N <NA> SJ Davis      DJ Harper
## 5          5          N <NA> BF Bowden    K Hariharan
## 6          6          N <NA> Aleem Dar     RB Tiffin
```

```
##      id inning over ball      batsman non_striker      bowler batsman_runs
## 1 335982      1   6   5   RT Ponting BB McCullum AA Noffke          1
## 2 335982      1   6   6   BB McCullum RT Ponting AA Noffke          1
## 3 335982      1   7   1   BB McCullum RT Ponting  Z Khan           0
## 4 335982      1   7   2   BB McCullum RT Ponting  Z Khan           1
## 5 335982      1   7   3   RT Ponting BB McCullum  Z Khan           1
## 6 335982      1   7   4   BB McCullum RT Ponting  Z Khan           1
##  extra_runs total_runs non_boundary is_wicket dismissal_kind player_dismissed
## 1          0          1          0          0          <NA>          <NA>
## 2          0          1          0          0          <NA>          <NA>
## 3          0          0          0          0          <NA>          <NA>
## 4          0          1          0          0          <NA>          <NA>
## 5          0          1          0          0          <NA>          <NA>
## 6          0          1          0          0          <NA>          <NA>
##  fielder extras_type      batting_team      bowling_team
## 1  <NA>          <NA> Kolkata Knight Riders Royal Challengers Bangalore
## 2  <NA>          <NA> Kolkata Knight Riders Royal Challengers Bangalore
## 3  <NA>          <NA> Kolkata Knight Riders Royal Challengers Bangalore
## 4  <NA>          <NA> Kolkata Knight Riders Royal Challengers Bangalore
## 5  <NA>          <NA> Kolkata Knight Riders Royal Challengers Bangalore
## 6  <NA>          <NA> Kolkata Knight Riders Royal Challengers Bangalore
```

The data matches data set shows all matches played between 2008 and 2020 between teams with a unique match id, we also see have other data that are described by each column in the matches dataset. The ball\_by\_ball data set has each delivery bowled in the ipl matches and the match id corresponds to the match id in the matches dataset. An over consists of 6 deliveries by a bowler.

Let us check the data set for any anomalies, eg. duplicates, spellings etc. For this we will use the Factor function. Factor is a data structure used for fields that takes only predefined, finite number of values (categorical data). For example: a data field such as marital status may contain only values from single, married, separated, divorced, or widowed.

```
## [1] "Chennai Super Kings"      "Deccan Chargers"
## [3] "Delhi Capitals"           "Delhi Daredevils"
## [5] "Gujarat Lions"           "Kings XI Punjab"
## [7] "Kochi Tuskers Kerala"     "Kolkata Knight Riders"
## [9] "Mumbai Indians"           "Pune Warriors"
## [11] "Rajasthan Royals"         "Rising Pune Supergiant"
## [13] "Rising Pune Supergiants"  "Royal Challengers Bangalore"
## [15] "Sunrisers Hyderabad"
```

```
## [1] "Chennai Super Kings"      "Deccan Chargers"
## [3] "Delhi Capitals"           "Delhi Daredevils"
## [5] "Gujarat Lions"           "Kings XI Punjab"
## [7] "Kochi Tuskers Kerala"     "Kolkata Knight Riders"
## [9] "Mumbai Indians"           "Pune Warriors"
## [11] "Rajasthan Royals"         "Rising Pune Supergiant"
## [13] "Rising Pune Supergiants"  "Royal Challengers Bangalore"
## [15] "Sunrisers Hyderabad"
```

The following are the teams that play the IPL currently Chennai Super Kings, Delhi Capitals, Gujarat Titans, Kolkata Knight Riders, Lucknow Super Giants, Mumbai Indians, Punjab Kings, Rajasthan Royals, Royal Challengers Bangalore, Sunrisers Hyderabad. We will still need to keep the other teams that were playing the IPL previously to get the top players so the pool from which the teams can choose from is bigger.

Let is now conditionally replace the anomalies we see in the data

```
## [1] "Chennai Super Kings"      "Deccan Chargers"
## [3] "Delhi Capitals"           "Gujarat Titans"
## [5] "Kochi Tuskers Kerala"     "Kolkata Knight Riders"
## [7] "Lucknow Super Giants"     "Mumbai Indians"
## [9] "Punjab Kings"             "Rajasthan Royals"
## [11] "Royal Challengers Bangalore" "Sunrisers Hyderabad"
```

```
## [1] "Chennai Super Kings"      "Deccan Chargers"
## [3] "Delhi Capitals"           "Gujarat Titans"
## [5] "Kochi Tuskers Kerala"     "Kolkata Knight Riders"
## [7] "Lucknow Super Giants"     "Mumbai Indians"
## [9] "Punjab Kings"             "Rajasthan Royals"
## [11] "Royal Challengers Bangalore" "Sunrisers Hyderabad"
```

Let us check if the same type of errors exist in “matches” dataset also for team1, team2, winner, toss\_winner and venue variables.

```
## [1] "Barabati Stadium"
## [2] "Brabourne Stadium"
## [3] "Buffalo Park"
## [4] "De Beers Diamond Oval"
## [5] "Dr DY Patil Sports Academy"
## [6] "Dr. Y.S. Rajasekhara Reddy ACA-VDCA Cricket Stadium"
## [7] "Dubai International Cricket Stadium"
## [8] "Eden Gardens"
## [9] "Feroz Shah Kotla"
## [10] "Green Park"
## [11] "Himachal Pradesh Cricket Association Stadium"
## [12] "Holkar Cricket Stadium"
## [13] "JSCA International Stadium Complex"
## [14] "Kingsmead"
## [15] "M Chinnaswamy Stadium"
## [16] "M.Chinnaswamy Stadium"
## [17] "MA Chidambaram Stadium, Chepauk"
## [18] "Maharashtra Cricket Association Stadium"
## [19] "Nehru Stadium"
## [20] "New Wanderers Stadium"
## [21] "Newlands"
## [22] "OUTsurance Oval"
## [23] "Punjab Cricket Association IS Bindra Stadium, Mohali"
## [24] "Punjab Cricket Association Stadium, Mohali"
## [25] "Rajiv Gandhi International Stadium, Uppal"
## [26] "Sardar Patel Stadium, Motera"
## [27] "Saurashtra Cricket Association Stadium"
## [28] "Sawai Mansingh Stadium"
## [29] "Shaheed Veer Narayan Singh International Stadium"
## [30] "Sharjah Cricket Stadium"
```

```

## [31] "Sheikh Zayed Stadium"
## [32] "St George's Park"
## [33] "Subrata Roy Sahara Stadium"
## [34] "SuperSport Park"
## [35] "Vidarbha Cricket Association Stadium, Jamtha"
## [36] "Wankhede Stadium"

## [1] "Barabati Stadium"
## [2] "Brabourne Stadium"
## [3] "Buffalo Park"
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## [5] "Dr DY Patil Sports Academy"
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## [12] "Holkar Cricket Stadium"
## [13] "JSCA International Stadium Complex"
## [14] "Kingsmead"
## [15] "M. A. Chidambaram Stadium"
## [16] "M.Chinnaswamy Stadium"
## [17] "Maharashtra Cricket Association Stadium"
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## [3] "Delhi Capitals"           "Delhi Daredevils"
## [5] "Gujarat Lions"           "Kings XI Punjab"
## [7] "Kochi Tuskers Kerala"     "Kolkata Knight Riders"
## [9] "Mumbai Indians"           "Pune Warriors"
## [11] "Rajasthan Royals"         "Rising Pune Supergiant"
## [13] "Rising Pune Supergiants"   "Royal Challengers Bangalore"
## [15] "Sunrisers Hyderabad"

## [1] "Chennai Super Kings"      "Deccan Chargers"

```

## [3] "Delhi Capitals"	"Delhi Daredevils"
## [5] "Gujarat Lions"	"Kings XI Punjab"
## [7] "Kochi Tuskers Kerala"	"Kolkata Knight Riders"
## [9] "Mumbai Indians"	"Pune Warriors"
## [11] "Rajasthan Royals"	"Rising Pune Supergiant"
## [13] "Rising Pune Supergiants"	"Royal Challengers Bangalore"
## [15] "Sunrisers Hyderabad"	

## [1] "Chennai Super Kings"	"Deccan Chargers"
## [3] "Delhi Capitals"	"Delhi Daredevils"
## [5] "Gujarat Lions"	"Kings XI Punjab"
## [7] "Kochi Tuskers Kerala"	"Kolkata Knight Riders"
## [9] "Mumbai Indians"	"Pune Warriors"
## [11] "Rajasthan Royals"	"Rising Pune Supergiant"
## [13] "Rising Pune Supergiants"	"Royal Challengers Bangalore"
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## [1] "Chennai Super Kings"	"Deccan Chargers"
## [3] "Delhi Capitals"	"Delhi Daredevils"
## [5] "Gujarat Lions"	"Kings XI Punjab"
## [7] "Kochi Tuskers Kerala"	"Kolkata Knight Riders"
## [9] "Mumbai Indians"	"Pune Warriors"
## [11] "Rajasthan Royals"	"Rising Pune Supergiant"
## [13] "Rising Pune Supergiants"	"Royal Challengers Bangalore"
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## [1] "Chennai Super Kings"	"Deccan Chargers"
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## [5] "Kochi Tuskers Kerala"	"Kolkata Knight Riders"
## [7] "Lucknow Super Giants"	"Mumbai Indians"
## [9] "Punjab Kings"	"Rajasthan Royals"
## [11] "Royal Challengers Bangalore"	"Sunrisers Hyderabad"



## Methods & Analysis - Data Exploration & Results:

Let us start our exploration of data with finding out a few unique facts about our data.

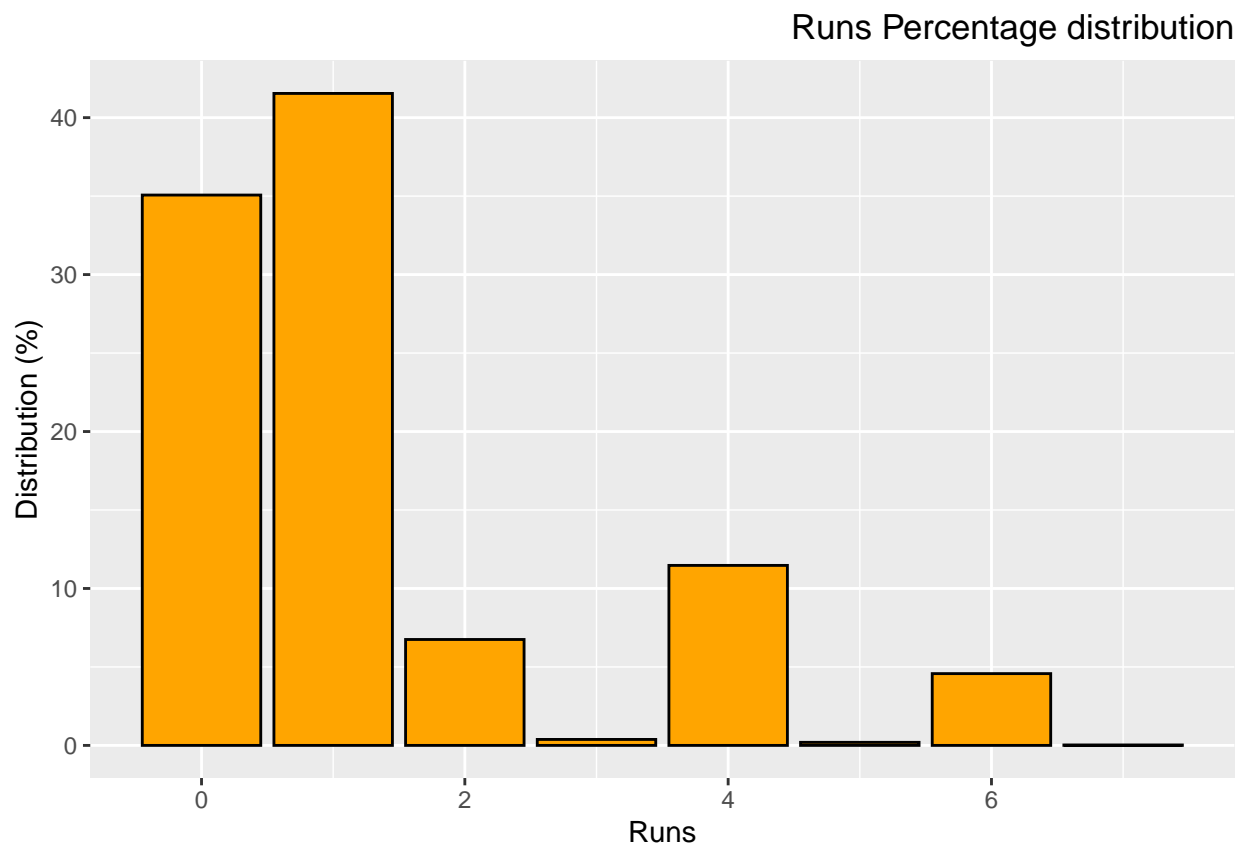
```
## [1] 507
```

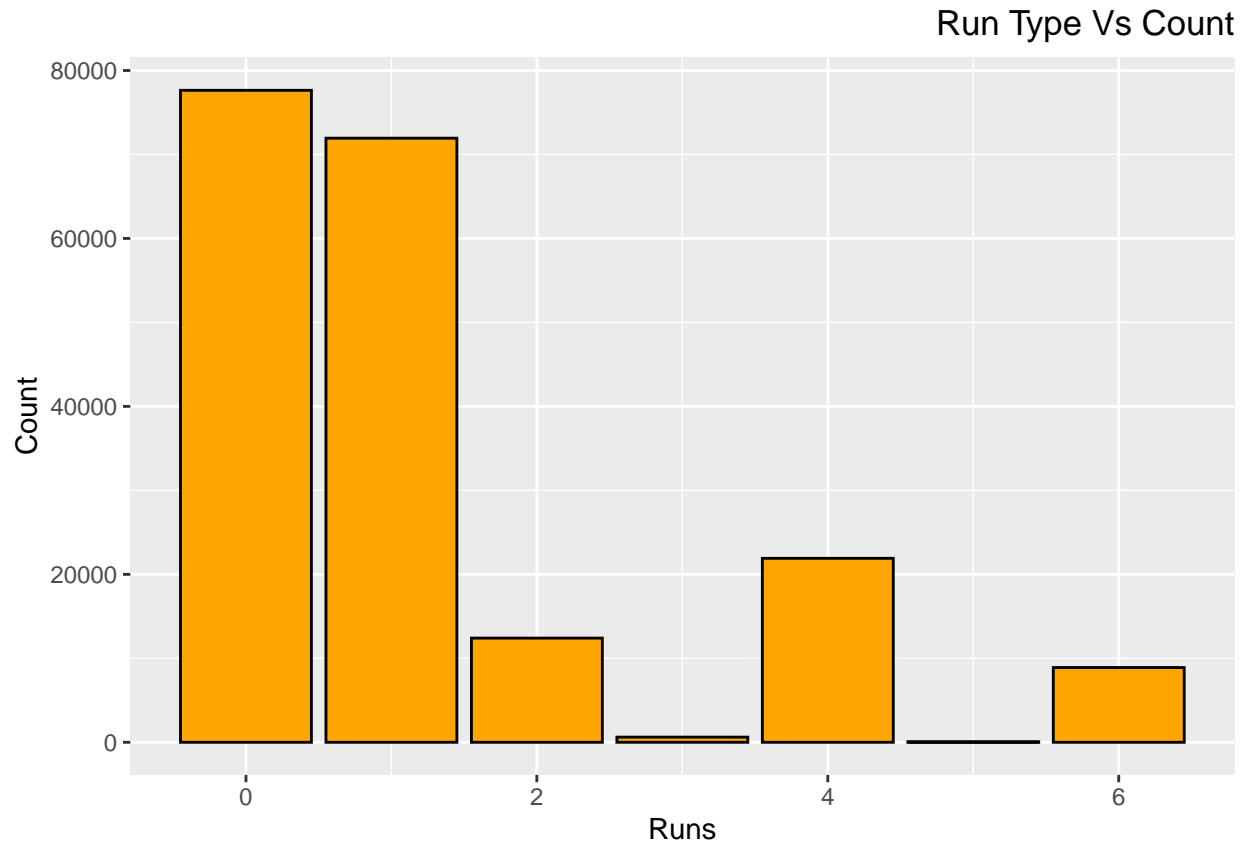
```
##   venue teams matches_played noresults  
## 1    35    12             816         4
```

```
## [1] 6616
```

**Conclusion:** We see a total of 507 players in the ball\_by\_ball data set. We also have 35 distinct venues, a total of 12 teams, 816 matches played and 4 ended up in no results which means it was a draw. And a total of 6616 extras in wide and noballs. The reason are looking at wides and no balls is because the bowler has to bowl an extra ball for every noball or wide bowled.

Now let us go into further analysis and check how many times a different run was scored by a player. Runs are scored by batsmen and bowlers bowl deliveries.

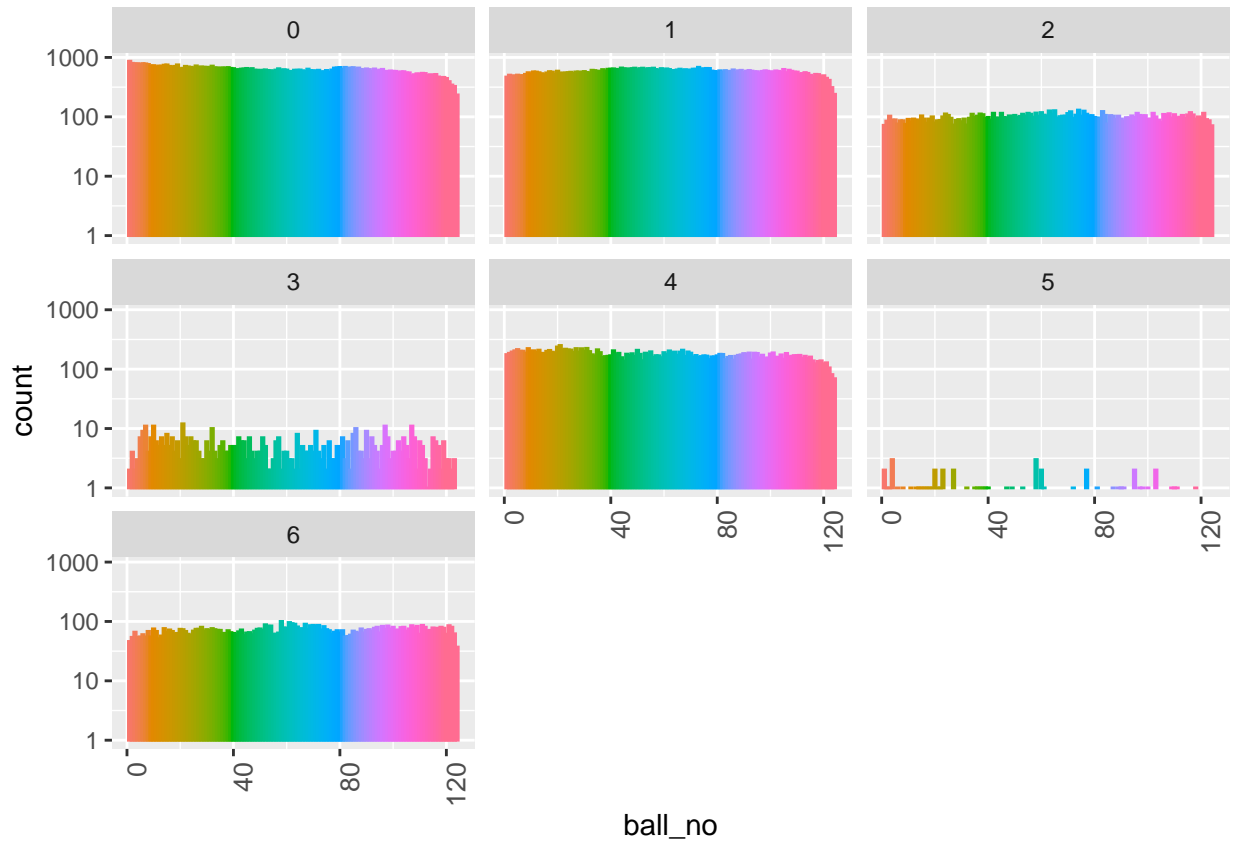




**Conclusion:** From the above visuals we do see that 7 runs is rare. So we will omit the 7 run. We also saw that there were about 6616 extras.

Lets us now look if there is a correlation between a ball and the type of run scored. There are 20 overs in a T20 match for each innings. Each over has 6 deliveries with a total of 120 deliveries. If we take the average number of extras we will find that there is about 4 deliveries in an innings.

```
## # A tibble: 791 x 3
## # Groups:   ball_no [124]
##   ball_no batsman_runs count
##   <int>      <int> <int>
## 1      1          0   864
## 2      1          1   468
## 3      1          2    72
## 4      1          3     2
## 5      1          4   176
## 6      1          5     2
## 7      1          6    46
## 8      2          0   797
## 9      2          1   504
## 10     2          2    85
## # ... with 781 more rows
```



```
## [1] -0.02449583
```

**Conclusion:** From the visualization we see that there is no correlation between the delivery and the runs scored .

We can see that the number of no runs scored decreases as the iniings progresses. We also see the 1s and 2s are steady throughout the innings.

Most teams try to bat out their innings by stabilizing thoughtout the innings



**Conclusion:** From the visualization we see that 0s and 1's are the most prominent run types throughout the innings but are high in the first few overs and taper down towards the end of the innings. We also see the 4s and the 6's higher during both the initial part of the innings. This is because of the power play in T20 where the field is restricted.

Lets look at how players performed during the IPL. Like all games the MVP dictates the player capability. We will look at the `player_of_match` field to pick the top 25 playes in the IPL so far.

## Palier Statistics : Batsman

```
## # A tibble: 25 x 2
##   mvp          player_of_match
##   <chr>          <int>
## 1 AB de Villiers      23
## 2 CH Gayle            22
## 3 RG Sharma           18
## 4 DA Warner           17
## 5 MS Dhoni            17
## 6 SR Watson           16
## 7 YK Pathan           16
## 8 SK Raina            14
## 9 G Gambhir           13
## 10 V Kohli            13
## # ... with 15 more rows
```

All teams look for batsman who are hard hitters , who can score boundaries at every ball. Let us see who are the players with maximum boundaries

```
## # A tibble: 25 x 3
## # Groups:   player [25]
##   player      sixes fours
##   <chr>      <int> <int>
## 1 CH Gayle      349   810
## 2 AB de Villiers 235   724
## 3 MS Dhoni      216   613
## 4 RG Sharma      214   911
## 5 V Kohli        202  1055
## 6 KA Pollard     198   572
## 7 DA Warner      195   946
## 8 SK Raina       194  1045
## 9 SR Watson      190  1028
## 10 RV Uthappa     163   883
## # ... with 15 more rows
```

Let us look at the top 25 batsmen with the maximum strike rate (Runs scored vs deliveries faced). The higher the better

```
## # A tibble: 25 x 4
##   player      runs_scored balls_faced strike_rate
##   <chr>      <int>      <int>      <dbl>
## 1 B Stanlake      5         2         2.5
## 2 Umar Gul       39        19         2.05
## 3 RS Sodhi        4         2         2
## 4 Shahid Afridi   81        46         1.76
## 5 I Malhotra      7         4         1.75
## 6 TU Deshpande    21        12         1.75
## 7 AD Russell    1517       882         1.72
## 8 LJ Wright     106        63         1.68
## 9 Abdul Samad    111        66         1.68
## 10 KMDN Kulasekara 5         3         1.67
## # ... with 15 more rows
```

**Conclusion:** From the above analysis we know that the top 25 players with the maximum runs are also the top boundary hitters. Strike rate cannot be taken to look into the top players because it is dependent on the number of balls faced. The top 25 in strike rate do not figure in the top players.

Now that we have seen the batsmen let us also look at the top bowlers in the IPL. A bowler can be concluded as a good bowler by the number of wickets taken and their economy rate (the less number of runs an over)

## Palyer Statistics : Bowler

```
## [1] "bowled"           "caught"           "caught and bowled"
## [4] "hit wicket"       "lbw"              "obstructing the field"
## [7] "retired hurt"     "run out"          "stumped"
```

Top bowlers with maximum number of wickets

```
## # A tibble: 25 x 2
##   player          total_wickets
##   <chr>              <int>
## 1 SL Malinga         170
## 2 A Mishra           160
## 3 PP Chawla          156
## 4 DJ Bravo           153
## 5 Harbhajan Singh    150
## 6 R Ashwin            138
## 7 B Kumar             136
## 8 SP Narine           127
## 9 YS Chahal           121
## 10 UT Yadav           119
## # ... with 15 more rows
```

Bowlers who conceded maximum runs

```
## # A tibble: 25 x 3
##   player          runsconceded deliveries_bowled
##   <chr>              <int>          <int>
## 1 PP Chawla         4196            3285
## 2 Harbhajan Singh   3868            3451
## 3 A Mishra           3788            3233
## 4 DJ Bravo           3659            2846
## 5 R Ashwin           3581            3327
## 6 UT Yadav           3446            2642
## 7 RA Jadeja          3408            2759
## 8 SL Malinga         3193            2974
## 9 B Kumar            3132            2795
## 10 P Kumar           3106            2637
## # ... with 15 more rows
```

Lets check for the bowlers with good economy rate, which is the runs conceded vs the deliveries bowled The lower the economy rate the better

```
## # A tibble: 25 x 4
##   player          runs_conceded deliveries_bowled economy_rate
##   <chr>              <int>          <int>          <dbl>
## 1 AC Gilchrist         0             1             0
## 2 DA Warner             1             2             0.5
## 3 AS Roy                8            15             0.533
## 4 NB Singh            14            25             0.56
## 5 LA Carseldine         5             7             0.714
## 6 SS Mundhe             5             7             0.714
```

```
## 7 Sachin Baby      8      10      0.8
## 8 AM Rahane        5       6     0.833
## 9 DJ Thornely      38     44     0.864
## 10 SM Harwood     61     67     0.910
## # ... with 15 more rows
```

Lets check for the bowlers with good strike rate, which is the wickets taken vs the deliveries bowled The lower the strike rate the better

```
## # A tibble: 25 x 4
##   player      total_delivery total_wickets strike_rate
##   <chr>          <int>         <int>      <dbl>
## 1 AC Gilchrist      1           1         1
## 2 Sachin Baby     10           2         5
## 3 AM Rahane        6           1         6
## 4 LA Carseldine    7           1         7
## 5 SS Mundhe        7           1         7
## 6 DAJ Bracewell   25           3        8.33
## 7 AS Joseph       55           6        9.17
## 8 Shoaib Akhtar   46           5         9.2
## 9 D du Preez      43           4       10.8
## 10 R Ninan        36           3        12
## # ... with 15 more rows
```

**Conclusion:** From the above analysis there are bowlers who show up in the top 25 because they have bowled lesser number of deliveries. If the total number of wickets are taken into consideration as compared to the highest wicket takers its a few and these would not matter. We can eliminate the bowler strike rate during modeling our algorithm.

Let is now see how the top batsmen contributed to the overall IPL totals

```
## total_runs_ipl
## 1      252794
```

```
## [1] 96321
```

```
## [1] 38.10%
```

**Conclusion:** From the above analysis the top 25 batsmen contribute to 38% of the total runs in the IPL.

Let is now see how the top bowlers contributed to the overall IPL wickets

```
## overall_wickets
## 1      9495
```

```
## # A tibble: 25 x 2
##   player      total_wickets
##   <chr>          <int>
## 1 SL Malinga     170
## 2 A Mishra      160
## 3 PP Chawla     156
## 4 DJ Bravo      153
## 5 Harbhajan Singh 150
```



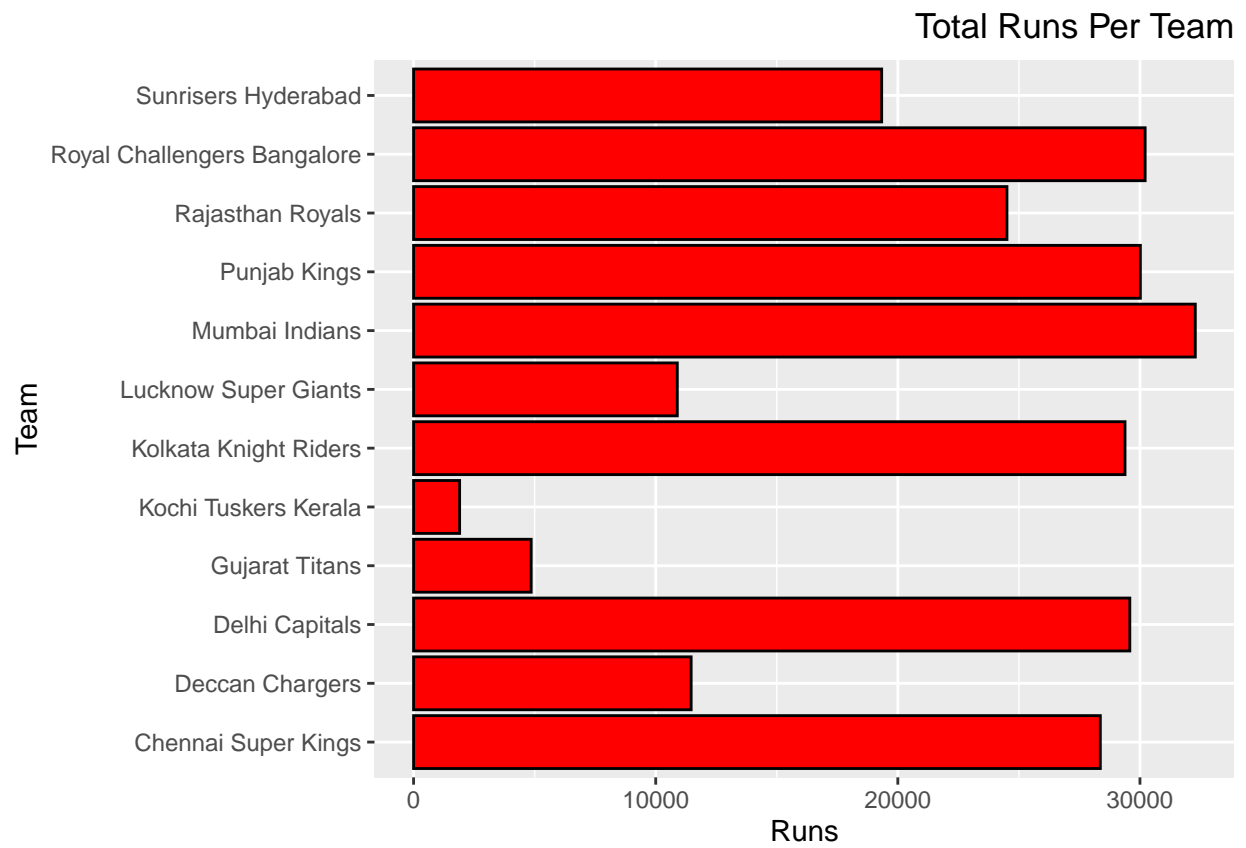
```
## 6 R Ashwin 138
## 7 B Kumar 136
## 8 SP Narine 127
## 9 YS Chahal 121
## 10 UT Yadav 119
## # ... with 15 more rows

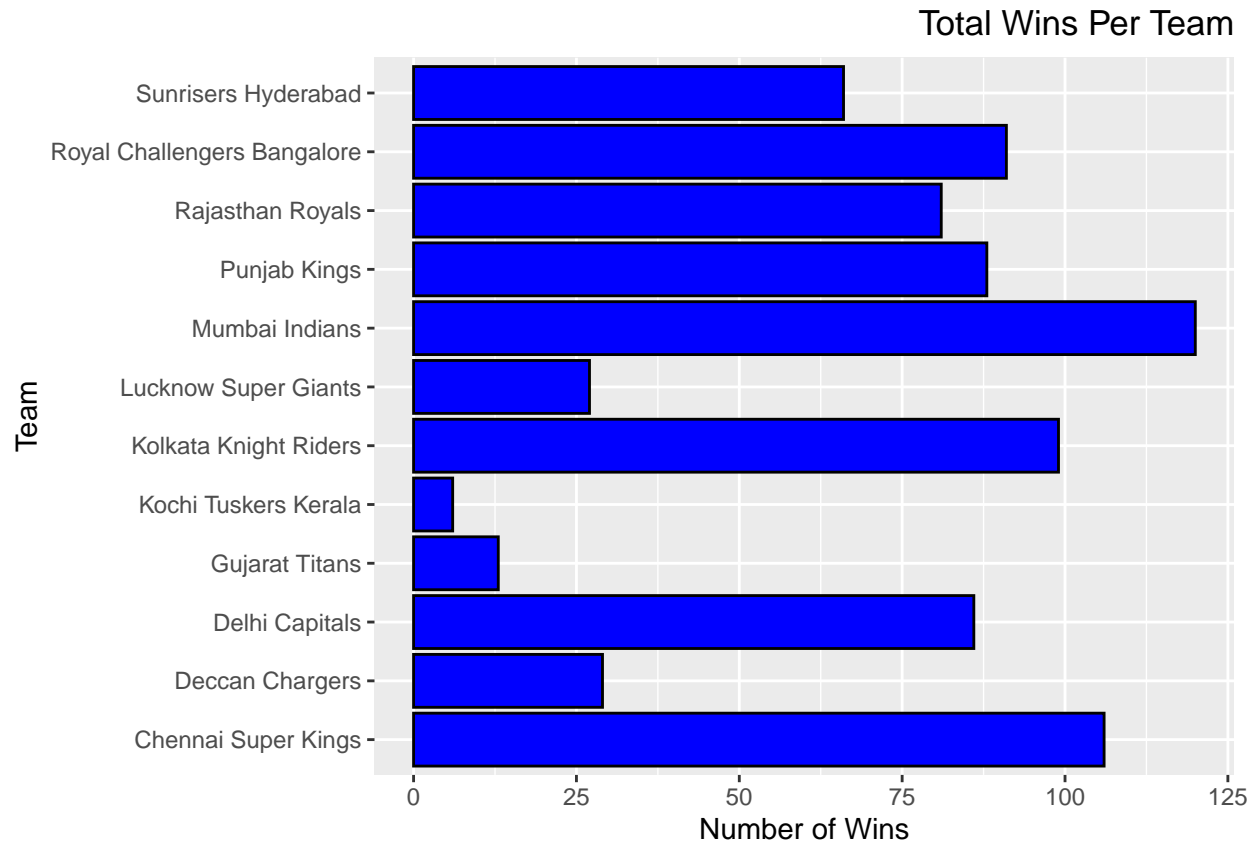
## [1] 30.30%
```

**Conclusion:** From the above analysis the top 25 bowlers contribute to 30% of the total wickets taken in the IPL

## Team Statistics

Let us analyze some Team statistics





**Conclusion:** The top 3 teams are Mumbai Indians, Chennai Super Kinds and Kolkata Knight Riders , both in terms of wins and runs.

Does winning a toss matter to the team and does electing to field or bat matter to the team

```
## # A tibble: 12 x 2
##   team                                number_of_tosses_won
##   <chr>                                <int>
## 1 Mumbai Indians                        106
## 2 Delhi Capitals                        100
## 3 Kolkata Knight Riders                  98
## 4 Chennai Super Kings                    97
## 5 Rajasthan Royals                      87
## 6 Royal Challengers Bangalore            87
## 7 Punjab Kings                          85
## 8 Sunrisers Hyderabad                    57
## 9 Deccan Chargers                       43
## 10 Lucknow Super Giants                   33
## 11 Gujarat Titans                        15
## 12 Kochi Tuskers Kerala                   8
```

```
## # A tibble: 12 x 3
##   team                                count1 count2
##   <chr>                                <int> <int>
## 1 Chennai Super Kings                    94    84
## 2 Deccan Chargers                       39    36
```

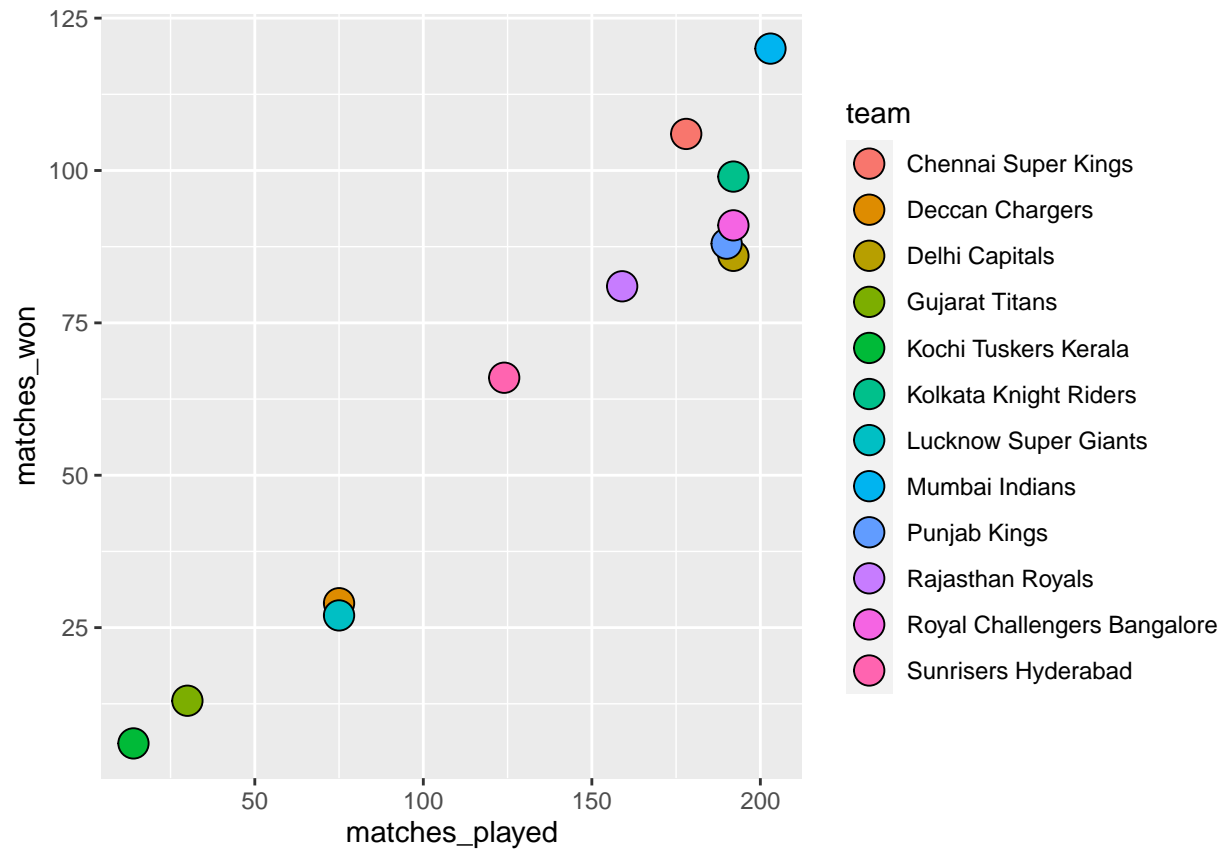
```
## 3 Delhi Capitals          102    92
## 4 Gujarat Titans          16    14
## 5 Kochi Tuskers Kerala     7     7
## 6 Kolkata Knight Riders    95    97
## 7 Lucknow Super Giants     37    39
## 8 Mumbai Indians          97   106
## 9 Punjab Kings            92    98
## 10 Rajasthan Royals        70    91
## 11 Royal Challengers Bangalore 108    87
## 12 Sunrisers Hyderabad     59    65
```

```
## # A tibble: 12 x 2
##   team                matches_won
##   <chr>                <int>
## 1 Mumbai Indians      120
## 2 Chennai Super Kings 106
## 3 Kolkata Knight Riders 99
## 4 Royal Challengers Bangalore 91
## 5 Punjab Kings        88
## 6 Delhi Capitals       86
## 7 Rajasthan Royals     81
## 8 Sunrisers Hyderabad  66
## 9 Deccan Chargers      29
## 10 Lucknow Super Giants 27
## 11 Gujarat Titans      13
## 12 Kochi Tuskers Kerala  6
```

```
## # A tibble: 12 x 2
##   team                matches_lost
##   <chr>                <int>
## 1 Delhi Capitals      106
## 2 Punjab Kings        102
## 3 Royal Challengers Bangalore 101
## 4 Kolkata Knight Riders  93
## 5 Mumbai Indians      83
## 6 Rajasthan Royals     78
## 7 Chennai Super Kings  72
## 8 Sunrisers Hyderabad  58
## 9 Lucknow Super Giants  48
## 10 Deccan Chargers     46
## 11 Gujarat Titans      17
## 12 Kochi Tuskers Kerala  8
```

```
## # A tibble: 12 x 7
##   team count1 count2 number_of_tosse~ matches_won matches_lost matches_played
##   <chr>   <int> <int>         <int>         <int>         <int>         <int>
## 1 Chenn~    94    84          97          106          72          178
## 2 Decca~    39    36          43           29          46           75
## 3 Delhi~   102    92         100           86         106          192
## 4 Gujar~    16    14          15           13          17           30
## 5 Kochi~     7     7           8            6           8           14
## 6 Kolka~    95    97          98           99          93          192
## 7 Luckn~    37    39          33           27          48           75
```

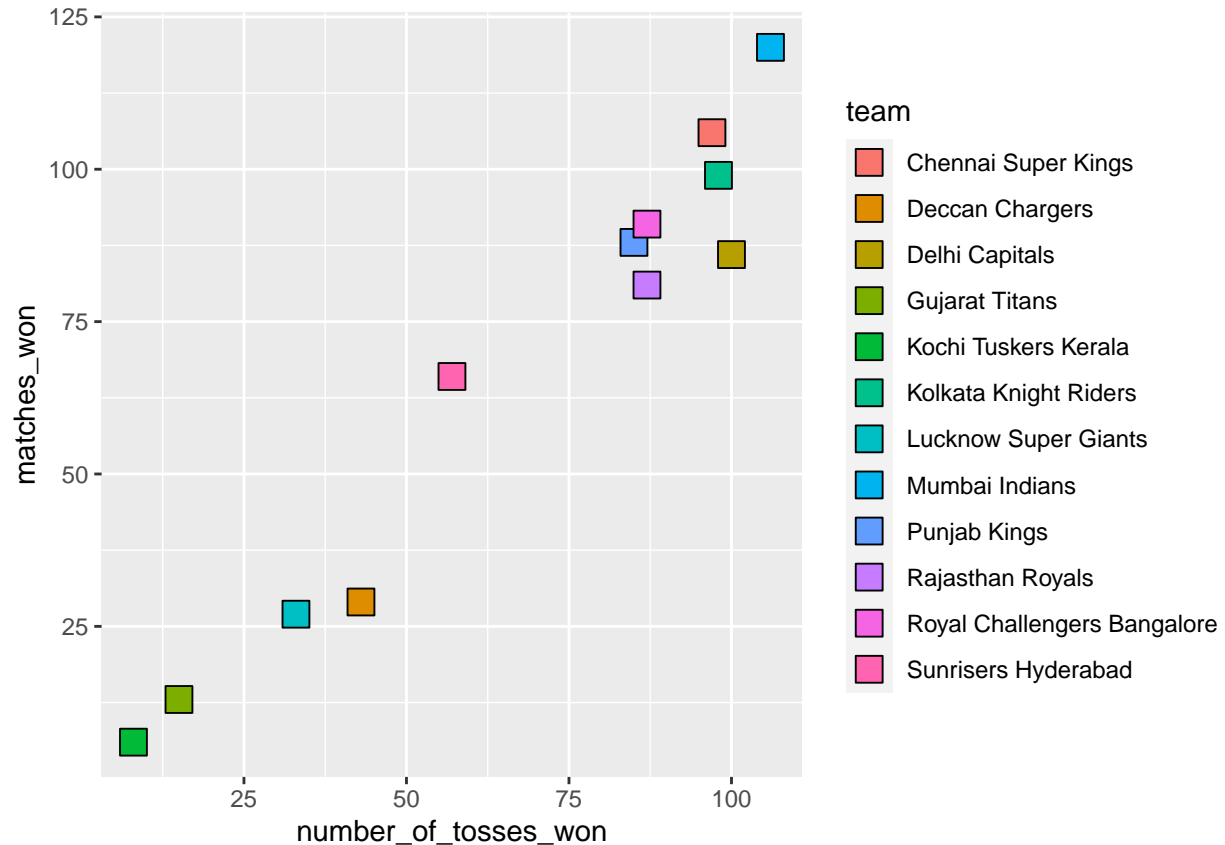
##	8	Mumba~	97	106	106	120	83	203
##	9	Punja~	92	98	85	88	102	190
##	10	Rajas~	70	91	87	81	78	159
##	11	Royal~	108	87	87	91	101	192
##	12	Sunri~	59	65	57	66	58	124



## [1] 0.9721357

**Conclusion:** The more the matches the more wins. The correlation between matches played to matches won is also positive

How does matches won to tosses one correlate



```
## [1] 0.976548
```

**Conclusion:** Teams that won tosses mostly won matches as well. And there is a high correlation between the two

Let us now check the decision to bat or field after winning the toss affects the wins

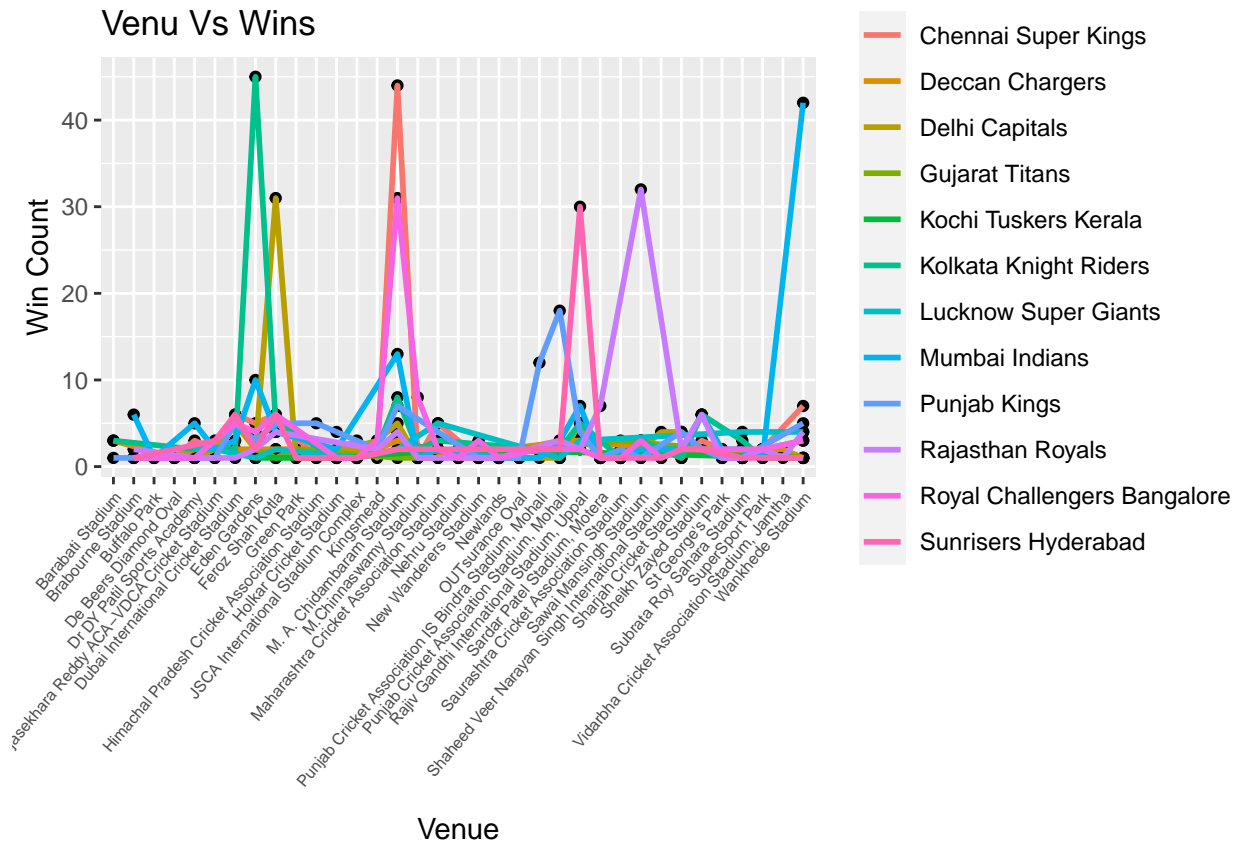
```
## # A tibble: 46 x 4
## # Groups:   toss_winner, toss_decision [24]
##   toss_winner    toss_decision match_result match_result_count
##   <chr>         <chr>         <chr>         <int>
## 1 Chennai Super Kings bat         loss          20
## 2 Chennai Super Kings bat         win           31
## 3 Chennai Super Kings field        loss          16
## 4 Chennai Super Kings field        win           30
## 5 Deccan Chargers    bat         loss          13
## 6 Deccan Chargers    bat         win           11
## 7 Deccan Chargers    field        loss          11
## 8 Deccan Chargers    field        win           8
## 9 Delhi Capitals     bat         loss          21
## 10 Delhi Capitals    bat         win           14
## # ... with 36 more rows
```



**Conclusion:** From the plot we see that the teams that have elected to field first after winning the toss have won more games (bigger circles). The decision to win the toss thus effects the result of a match.

Let us check if venue plays a part in the result of a game

At this point, let us check how many runs were scored batting first and how many were scored batting second in totals and run type wise.



**Conclusion:** From the plot we can see that the home venues result in more wins for the teams as indicated by the peaks

We have enough data to Start our model



## **Model 1 : Build a model to rank the best players depending on his value**

Factors determining the value of a player 1) High Strike Rate (Runs/deliveries faced) for a batsman 2) Low Economy Rate (Runs given/ deliveries bowled) 3) Score against top bowlers and economy against top batsmen 4) Runs Scored by the team and wickets dismissed

## High Strike Rate (Runs/deliveries faced) for a batsman

## Low Economy Rate (Runs given/ deliveries bowled)

Let us determine the batsmen with highest strike rates. For this let is create a table that contains the averages

```
## # A tibble: 1 x 4
##   avg_deliveries avg_runs median_deliveries median_runs
##   <dbl>         <dbl>           <int>         <int>
## 1           360.       447.             74             76
```

```
## # A tibble: 1 x 4
##   avg_deliveries avg_runs median_deliveries median_runs
##   <dbl>         <dbl>           <dbl>         <dbl>
## 1           461.       571.             200.          270.
```

Model: Regularisation - We will calculate the strike rate and economy rates using regularization. As we have already seen during our analysis the strike rate can be high but most of the players with high strike rates do not figure into the top 25 players. If they face just 2 deliveries and hit a boundary in the first their strike rate can be very high. Hence we adjust this by using median as the Error.

```
## # A tibble: 25 x 2
##   player          batsman_reg_str_rate
##   <chr>           <dbl>
## 1 AD Russell      1.67
## 2 N Pooran        1.50
## 3 SP Narine        1.50
## 4 AB de Villiers  1.48
## 5 V Sehwag        1.47
## 6 HH Pandya       1.47
## 7 GJ Maxwell      1.45
## 8 RR Pant         1.45
## 9 CH Morris       1.44
## 10 BCJ Cutting    1.43
## # ... with 15 more rows
```

```
## # A tibble: 25 x 2
##   player          bowler_reg_eco_rate
##   <chr>           <dbl>
## 1 Rashid Khan     1.06
## 2 M Muralitharan  1.07
## 3 DW Steyn        1.08
## 4 SL Malinga      1.09
## 5 R Ashwin        1.09
## 6 A Kumble        1.10
## 7 SP Narine       1.11
## 8 Sohail Tanvir   1.11
## 9 SW Tait         1.13
## 10 DP Nannes      1.13
## # ... with 15 more rows
```

Now let us merge the two sets and get the top players and rank them. When we merge these two sets we will have a few not applicable values , the reason is because a batsman may not be a bowler and vice versa. If a Batsman is nt a bowler we will use the avg balls and for bwlrs who are not batsman we will use the median runs

player	value_of_player	rank
SP Narine	239.6926	1
AD Russell	238.1415	2
CH Morris	226.0868	3
CH Gayle	224.3507	4
MM Ali	221.8452	5
JC Archer	220.9454	6
YK Pathan	220.6706	7
KH Pandya	220.0010	8
HH Pandya	219.1316	9
Rashid Khan	218.9008	10
GJ Maxwell	218.5992	11
KA Pollard	217.6115	12
Harbhajan Singh	216.3953	13
SR Watson	215.5835	14
SK Raina	214.9529	15
K Gowtham	214.3356	16
V Sehwag	214.0680	17
KK Cooper	213.6447	18
JA Morkel	213.1761	19
BCJ Cutting	213.1244	20
MF Maharroof	211.5580	21
DA Warner	211.1297	22
Mohammad Nabi	210.3603	23
Bipul Sharma	209.6259	24
KP Pietersen	209.2578	25
Shahid Afridi	209.2227	26
R Tewatia	208.9314	27
ST Jayasuriya	207.9850	28
RN ten Doeschate	207.6467	29
CR Brathwaite	205.9549	30
AC Gilchrist	205.7979	31
RG Sharma	205.3444	32
Yuvraj Singh	205.0433	33
BA Stokes	204.7791	34
N Rana	204.6793	35
AR Patel	204.5710	36
Umar Gul	204.4119	37
M Morkel	204.3903	38
SA Yadav	204.2229	39
JP Duminy	203.9741	40
SN Khan	203.7613	41
STR Binny	203.6427	42
SM Curran	203.6399	43
JD Ryder	203.5471	44
A Ashish Reddy	203.3675	45
LJ Wright	203.1412	46
KS Williamson	202.9263	47
DR Smith	202.6501	48
A Symonds	202.6235	49
Shakib Al Hasan	202.1672	50
SM Pollock	201.8618	51
RA Jadeja	201.3684	52
V Kohli	201.3601	53
RA Tripathi	200.9361	54
Abdul Samad	200.6530	55
DJ Bravo	200.5200	56
C de Grandhomme	200.2356	57
Wahidullah Ghani	200.0524	58

This table gives us the top players bowlers , batsmen and allrounders and their value.

We will now introduce an anamoly which is how the top bowlers and batsmen performed against each other

```
## # A tibble: 25 x 2
##   player      batsman_reg_str_rate
##   <chr>          <dbl>
## 1 AD Russell      1.67
## 2 N Pooran        1.50
## 3 SP Narine       1.50
## 4 AB de Villiers  1.48
## 5 V Sehwag        1.47
## 6 HH Pandya       1.47
## 7 GJ Maxwell      1.45
## 8 RR Pant         1.45
## 9 CH Morris       1.44
## 10 BCJ Cutting    1.43
## # ... with 15 more rows
```

```
## # A tibble: 25 x 2
##   player      bowler_reg_eco_rate
##   <chr>          <dbl>
## 1 Rashid Khan    1.06
## 2 M Muralitharan 1.07
## 3 DW Steyn       1.08
## 4 SL Malinga     1.09
## 5 R Ashwin       1.09
## 6 A Kumble       1.10
## 7 SP Narine      1.11
## 8 Sohail Tanvir  1.11
## 9 SW Tait        1.13
## 10 DP Nannes     1.13
## # ... with 15 more rows
```

```
## # A tibble: 25 x 3
##   player      strike_rate rank
##   <chr>          <dbl> <int>
## 1 SR Watson      0.901     1
## 2 AB de Villiers 0.895     2
## 3 DA Warner      0.869     3
## 4 RV Uthappa     0.850     4
## 5 SK Raina       0.841     5
## 6 CH Gayle       0.807     6
## 7 MS Dhoni       0.801     7
## 8 YK Pathan      0.793     8
## 9 V Kohli        0.768     9
## 10 KL Rahul       0.766    10
## # ... with 15 more rows
```

```
## # A tibble: 25 x 3
##   player      eco_rate rank
##   <chr>          <dbl> <int>
## 1 R Ashwin      1.69     1
## 2 Rashid Khan   1.69     2
```

```
## 3 JJ Bumrah          1.70    3
## 4 Harbhajan Singh    1.71    4
## 5 SP Narine          1.74    5
## 6 B Kumar            1.76    6
## 7 YS Chahal          1.77    7
## 8 DS Kulkarni        1.80    8
## 9 DJ Bravo           1.81    9
## 10 DW Steyn          1.82   10
## # ... with 15 more rows
```

Now let us merge the two sets and get the top players and rank them. When we merge these two sets we will have a few not applicable values , the reason is because a batsman may not be a bowler and vice versa. If a Batsman is not a bowler we will use the avg balls and for bowlers who are not batsman we will use the median runs

player	value_of_player	strike_rate	eco_rate	rank
SR Watson	140.41070	0.9013531	1.989044	1
SK Raina	126.43855	0.8409679	2.361734	2
YK Pathan	125.17856	0.7927657	2.178555	3
AB de Villiers	124.45383	0.8953332	2.863647	4
DA Warner	122.14993	0.8694098	2.840187	5
RV Uthappa	119.90184	0.8498134	2.863647	6
CH Gayle	118.82764	0.8074671	2.625986	7
RA Jadeja	116.81515	0.6435367	1.906160	8
MS Dhoni	114.98060	0.8006010	2.863647	9
KL Rahul	111.53433	0.7661382	2.863647	10
S Dhawan	111.23947	0.7527486	2.780511	11
V Kohli	111.16608	0.7683365	2.912698	12
RG Sharma	110.73739	0.7407221	2.727384	13
JH Kallis	110.20275	0.5997736	1.991024	14
Yuvraj Singh	108.53280	0.7001425	2.596152	15
G Gambhir	108.14346	0.7322295	2.863647	16
JA Morkel	108.01888	0.5894232	2.037632	17
JP Duminy	106.93410	0.6611917	2.450084	18
SP Narine	106.55846	0.4906443	1.739311	19
SV Samson	106.38129	0.7146079	2.863647	20
DJ Bravo	105.95480	0.5061888	1.807144	21
BB McCullum	105.17320	0.7025269	2.863647	22
KD Karthik	105.16400	0.7024350	2.863647	23
KA Pollard	104.83535	0.5960182	2.210749	24
AC Gilchrist	104.00770	0.6908720	2.863647	25
AT Rayudu	103.35064	0.6843013	2.863647	26
RR Pant	102.86789	0.6794739	2.863647	27
V Sehwag	102.78068	0.6734356	2.821900	28
AM Rahane	102.75678	0.6783628	2.863647	29
IK Pathan	102.51404	0.5776102	2.234486	30
DR Smith	101.47326	0.6103512	2.472913	31
DPMD Jayawardene	101.31355	0.6639305	2.863647	32
GJ Maxwell	100.93858	0.5997075	2.440939	33
WP Saha	100.37245	0.6545195	2.863647	34
MA Agarwal	100.30709	0.6538659	2.863647	35
MK Pandey	99.68638	0.6476588	2.863647	36
SE Marsh	99.61708	0.6469658	2.863647	37
PA Patel	99.40426	0.6448376	2.863647	38
Harbhajan Singh	98.37966	0.3989173	1.709755	39
SPD Smith	98.36306	0.6351153	2.869315	40
SR Tendulkar	98.23047	0.6341753	2.872495	41
MK Tiwary	98.04644	0.6312325	2.863427	42
BJ Hodge	97.90157	0.6258995	2.831929	43
SA Yadav	97.55840	0.6263789	2.863647	44
AR Patel	97.36526	0.4265020	1.827650	45
M Vijay	97.30963	0.6115973	2.766259	46
F du Plessis	95.94784	0.6102734	2.863647	47
SS Iyer	95.72057	0.6080006	2.863647	48
N Rana	95.65067	0.5852893	2.693839	49
STR Binny	94.58025	0.5316566	2.414608	50
AD Russell	94.11716	0.4807739	2.172035	51
R Dravid	93.90454	0.5898403	2.863647	52
A Symonds	93.73354	0.5510777	2.588945	53
AD Mathews	92.17746	0.4848238	2.288587	54
AJ Finch	92.14606	0.5802278	2.930551	55
LRPL Taylor	91.77478	0.5681865	2.860729	56
MEK Hussey	91.59369	0.5667319	2.863647	57
Colt Munro	91.33247	0.5342187	2.333347	58

player	value_of_player	strike_rate	eco_rate	rank
SR Watson	140.41070	0.9013531	1.989044	1
SK Raina	126.43855	0.8409679	2.361734	2
YK Pathan	125.17856	0.7927657	2.178555	3
AB de Villiers	124.45383	0.8953332	2.863647	4
DA Warner	122.14993	0.8694098	2.840187	5
RV Uthappa	119.90184	0.8498134	2.863647	6
CH Gayle	118.82764	0.8074671	2.625986	7
RA Jadeja	116.81515	0.6435367	1.906160	8
MS Dhoni	114.98060	0.8006010	2.863647	9
KL Rahul	111.53433	0.7661382	2.863647	10
S Dhawan	111.23947	0.7527486	2.780511	11
V Kohli	111.16608	0.7683365	2.912698	12
RG Sharma	110.73739	0.7407221	2.727384	13
JH Kallis	110.20275	0.5997736	1.991024	14
Yuvraj Singh	108.53280	0.7001425	2.596152	15
G Gambhir	108.14346	0.7322295	2.863647	16
JA Morkel	108.01888	0.5894232	2.037632	17
JP Duminy	106.93410	0.6611917	2.450084	18
SP Narine	106.55846	0.4906443	1.739311	19
SV Samson	106.38129	0.7146079	2.863647	20
DJ Bravo	105.95480	0.5061888	1.807144	21
BB McCullum	105.17320	0.7025269	2.863647	22
KD Karthik	105.16400	0.7024350	2.863647	23
KA Pollard	104.83535	0.5960182	2.210749	24
AC Gilchrist	104.00770	0.6908720	2.863647	25
AT Rayudu	103.35064	0.6843013	2.863647	26
RR Pant	102.86789	0.6794739	2.863647	27
V Sehwag	102.78068	0.6734356	2.821900	28
AM Rahane	102.75678	0.6783628	2.863647	29
IK Pathan	102.51404	0.5776102	2.234486	30
DR Smith	101.47326	0.6103512	2.472913	31
DPMD Jayawardene	101.31355	0.6639305	2.863647	32
GJ Maxwell	100.93858	0.5997075	2.440939	33
WP Saha	100.37245	0.6545195	2.863647	34
MA Agarwal	100.30709	0.6538659	2.863647	35
MK Pandey	99.68638	0.6476588	2.863647	36
SE Marsh	99.61708	0.6469658	2.863647	37
PA Patel	99.40426	0.6448376	2.863647	38
Harbhajan Singh	98.37966	0.3989173	1.709755	39
SPD Smith	98.36306	0.6351153	2.869315	40
SR Tendulkar	98.23047	0.6341753	2.872495	41
MK Tiwary	98.04644	0.6312325	2.863427	42
BJ Hodge	97.90157	0.6258995	2.831929	43
SA Yadav	97.55840	0.6263789	2.863647	44
AR Patel	97.36526	0.4265020	1.827650	45
M Vijay	97.30963	0.6115973	2.766259	46
F du Plessis	95.94784	0.6102734	2.863647	47
SS Iyer	95.72057	0.6080006	2.863647	48
N Rana	95.65067	0.5852893	2.693839	49
STR Binny	94.58025	0.5316566	2.414608	50
AD Russell	94.11716	0.4807739	2.172035	51
R Dravid	93.90454	0.5898403	2.863647	52
A Symonds	93.73354	0.5510777	2.588945	53
AD Mathews	92.17746	0.4848232	2.288587	54
AJ Finch	92.14606	0.5802278	2.930551	55
LRPL Taylor	91.77478	0.5681865	2.860729	56
MEK Hussey	91.59369	0.5667319	2.863647	57
Colt Munro	91.33247	0.5342187	2.333347	58



We will now create the pool of 200 top players based on the above two models. We are taking into account players ranked by strikerate and economy and also how they performed against each other. There maybe other anomolies we can introduce to this to arrive at the best pool of players but we will restrict our findings to these two.

```
## # A tibble: 200 x 3
##   player      value_of_player rank
##   <chr>          <dbl> <int>
## 1 SR Watson      140.     1
## 2 SK Raina       126.     2
## 3 YK Pathan      125.     3
## 4 AB de Villiers 124.     4
## 5 DA Warner      122.     5
## 6 RV Uthappa     120.     6
## 7 CH Gayle       119.     7
## 8 RA Jadeja      117.     8
## 9 MS Dhoni       115.     9
## 10 KL Rahul      112.    10
## # ... with 190 more rows
```

## Model 2: Predict the winner of a Match

From our analysis of the matches we have seen the following factors matter

- 1) venue, toss, toss decision, team batting first and the team batting next
- 2) the data set we have is extremely small

To predict a match winner it is known that the (KNN and Random Forest), with 49.77% accuracy (logistic Regression), almost 17% better than a random decision (benchmark) which has 33%. We will also look at the Naive Bayes methodology.

Naive Bayes – [https://en.wikipedia.org/wiki/Naive\\_Bayes\\_classifier](https://en.wikipedia.org/wiki/Naive_Bayes_classifier) Logistic Regression – <https://towardsdatascience.com/introduction-to-logistic-regression-66248243c148#:~:text=Logistic%20regression%20is%20a%20clas>  
KNN Algorithm (Nearest Neighbour) – [https://en.wikipedia.org/wiki/K-nearest\\_neighbors\\_algorithm](https://en.wikipedia.org/wiki/K-nearest_neighbors_algorithm)  
Random Forest – [https://en.wikipedia.org/wiki/Random\\_forest](https://en.wikipedia.org/wiki/Random_forest)

## Data Sets: train and test datasets

Create the training and test sets

```
## # A tibble: 8 x 7
##   team      count1 count2 number_of_tosse~ matches_won matches_lost matches_played
##   <chr>      <int> <int>          <int>          <int>          <int>          <int>
## 1 Mumbai~      97   106            106            120            83            203
## 2 Delhi ~     102    92            100             86           106            192
## 3 Kolkat~      95    97             98             99            93            192
## 4 Royal ~     108    87             87             91           101            192
## 5 Punjab~      92    98             85             88           102            190
## 6 Chenna~      94    84             97            106            72            178
## 7 Rajast~      70    91             87             81            78            159
## 8 Sunris~      59    65             57             66            58            124
```

```
## [1] FALSE
```

```
##      team1      team2      winner      venue
## Length:628 Length:628 Length:628 Length:628
## Class :character Class :character Class :character Class :character
## Mode :character Mode :character Mode :character Mode :character
## toss_winner toss_decision
## Length:628 Length:628
## Class :character Class :character
## Mode :character Mode :character
```

```
##      team1      team2
## 1 Royal Challengers Bangalore Kolkata Knight Riders
## 2 Punjab Kings Chennai Super Kings
## 3 Delhi Capitals Rajasthan Royals
## 4 Mumbai Indians Royal Challengers Bangalore
## 5 Rajasthan Royals Punjab Kings
## 6 Chennai Super Kings Mumbai Indians
## 7 Punjab Kings Mumbai Indians
## 8 Royal Challengers Bangalore Rajasthan Royals
## 9 Chennai Super Kings Kolkata Knight Riders
## 10 Punjab Kings Delhi Capitals
## 11 Royal Challengers Bangalore Chennai Super Kings
## 12 Kolkata Knight Riders Mumbai Indians
## 13 Delhi Capitals Royal Challengers Bangalore
## 14 Rajasthan Royals Kolkata Knight Riders
## 15 Chennai Super Kings Delhi Capitals
## 16 Punjab Kings Kolkata Knight Riders
## 17 Mumbai Indians Delhi Capitals
## 18 Rajasthan Royals Chennai Super Kings
## 19 Royal Challengers Bangalore Punjab Kings
## 20 Mumbai Indians Rajasthan Royals
## 21 Delhi Capitals Chennai Super Kings
## 22 Kolkata Knight Riders Royal Challengers Bangalore
## 23 Royal Challengers Bangalore Mumbai Indians
## 24 Chennai Super Kings Punjab Kings
## 25 Rajasthan Royals Delhi Capitals
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## 26	Punjab Kings	Royal Challengers Bangalore
## 27	Kolkata Knight Riders	Delhi Capitals
## 28	Mumbai Indians	Chennai Super Kings
## 29	Punjab Kings	Rajasthan Royals
## 30	Mumbai Indians	Kolkata Knight Riders
## 31	Delhi Capitals	Punjab Kings
## 32	Rajasthan Royals	Royal Challengers Bangalore
## 33	Kolkata Knight Riders	Chennai Super Kings
## 34	Royal Challengers Bangalore	Delhi Capitals
## 35	Kolkata Knight Riders	Rajasthan Royals
## 36	Mumbai Indians	Punjab Kings
## 37	Chennai Super Kings	Royal Challengers Bangalore
## 38	Delhi Capitals	Mumbai Indians
## 39	Chennai Super Kings	Rajasthan Royals
## 40	Kolkata Knight Riders	Punjab Kings
## 41	Rajasthan Royals	Mumbai Indians
## 42	Delhi Capitals	Rajasthan Royals
## 43	Chennai Super Kings	Punjab Kings
## 44	Chennai Super Kings	Rajasthan Royals
## 45	Chennai Super Kings	Mumbai Indians
## 46	Royal Challengers Bangalore	Rajasthan Royals
## 47	Delhi Capitals	Punjab Kings
## 48	Royal Challengers Bangalore	Chennai Super Kings
## 49	Punjab Kings	Kolkata Knight Riders
## 50	Chennai Super Kings	Delhi Capitals
## 51	Kolkata Knight Riders	Rajasthan Royals
## 52	Royal Challengers Bangalore	Punjab Kings
## 53	Royal Challengers Bangalore	Delhi Capitals
## 54	Punjab Kings	Rajasthan Royals
## 55	Kolkata Knight Riders	Mumbai Indians
## 56	Delhi Capitals	Rajasthan Royals
## 57	Royal Challengers Bangalore	Kolkata Knight Riders
## 58	Punjab Kings	Mumbai Indians
## 59	Chennai Super Kings	Rajasthan Royals
## 60	Kolkata Knight Riders	Mumbai Indians
## 61	Royal Challengers Bangalore	Punjab Kings
## 62	Chennai Super Kings	Delhi Capitals
## 63	Punjab Kings	Kolkata Knight Riders
## 64	Royal Challengers Bangalore	Mumbai Indians
## 65	Punjab Kings	Rajasthan Royals
## 66	Delhi Capitals	Kolkata Knight Riders
## 67	Royal Challengers Bangalore	Rajasthan Royals
## 68	Chennai Super Kings	Punjab Kings
## 69	Delhi Capitals	Mumbai Indians
## 70	Chennai Super Kings	Rajasthan Royals
## 71	Royal Challengers Bangalore	Mumbai Indians
## 72	Delhi Capitals	Kolkata Knight Riders
## 73	Royal Challengers Bangalore	Kolkata Knight Riders
## 74	Punjab Kings	Mumbai Indians
## 75	Royal Challengers Bangalore	Chennai Super Kings
## 76	Mumbai Indians	Rajasthan Royals
## 77	Delhi Capitals	Punjab Kings
## 78	Chennai Super Kings	Mumbai Indians
## 79	Delhi Capitals	Rajasthan Royals

## 80	Chennai Super Kings	Kolkata Knight Riders
## 81	Royal Challengers Bangalore	Delhi Capitals
## 82	Kolkata Knight Riders	Rajasthan Royals
## 83	Chennai Super Kings	Punjab Kings
## 84	Delhi Capitals	Mumbai Indians
## 85	Royal Challengers Bangalore	Chennai Super Kings
## 86	Mumbai Indians	Rajasthan Royals
## 87	Punjab Kings	Delhi Capitals
## 88	Kolkata Knight Riders	Royal Challengers Bangalore
## 89	Rajasthan Royals	Delhi Capitals
## 90	Royal Challengers Bangalore	Punjab Kings
## 91	Kolkata Knight Riders	Chennai Super Kings
## 92	Delhi Capitals	Mumbai Indians
## 93	Royal Challengers Bangalore	Rajasthan Royals
## 94	Delhi Capitals	Chennai Super Kings
## 95	Rajasthan Royals	Kolkata Knight Riders
## 96	Mumbai Indians	Royal Challengers Bangalore
## 97	Chennai Super Kings	Punjab Kings
## 98	Mumbai Indians	Kolkata Knight Riders
## 99	Royal Challengers Bangalore	Chennai Super Kings
## 100	Punjab Kings	Rajasthan Royals
## 101	Mumbai Indians	Chennai Super Kings
## 102	Punjab Kings	Kolkata Knight Riders
## 103	Royal Challengers Bangalore	Delhi Capitals
## 104	Rajasthan Royals	Chennai Super Kings
## 105	Delhi Capitals	Kolkata Knight Riders
## 106	Mumbai Indians	Punjab Kings
## 107	Chennai Super Kings	Royal Challengers Bangalore
## 108	Delhi Capitals	Rajasthan Royals
## 109	Punjab Kings	Royal Challengers Bangalore
## 110	Chennai Super Kings	Rajasthan Royals
## 111	Kolkata Knight Riders	Punjab Kings
## 112	Delhi Capitals	Royal Challengers Bangalore
## 113	Chennai Super Kings	Mumbai Indians
## 114	Rajasthan Royals	Punjab Kings
## 115	Kolkata Knight Riders	Delhi Capitals
## 116	Punjab Kings	Mumbai Indians
## 117	Royal Challengers Bangalore	Kolkata Knight Riders
## 118	Delhi Capitals	Punjab Kings
## 119	Rajasthan Royals	Mumbai Indians
## 120	Mumbai Indians	Delhi Capitals
## 121	Chennai Super Kings	Kolkata Knight Riders
## 122	Rajasthan Royals	Royal Challengers Bangalore
## 123	Chennai Super Kings	Delhi Capitals
## 124	Royal Challengers Bangalore	Mumbai Indians
## 125	Kolkata Knight Riders	Rajasthan Royals
## 126	Punjab Kings	Chennai Super Kings
## 127	Kolkata Knight Riders	Mumbai Indians
## 128	Royal Challengers Bangalore	Mumbai Indians
## 129	Chennai Super Kings	Mumbai Indians
## 130	Chennai Super Kings	Kolkata Knight Riders
## 131	Delhi Capitals	Mumbai Indians
## 132	Rajasthan Royals	Delhi Capitals
## 133	Royal Challengers Bangalore	Mumbai Indians

## 134	Punjab Kings	Chennai Super Kings
## 135	Rajasthan Royals	Kolkata Knight Riders
## 136	Chennai Super Kings	Royal Challengers Bangalore
## 137	Kolkata Knight Riders	Rajasthan Royals
## 138	Punjab Kings	Rajasthan Royals
## 139	Mumbai Indians	Chennai Super Kings
## 140	Kolkata Knight Riders	Royal Challengers Bangalore
## 141	Delhi Capitals	Punjab Kings
## 142	Delhi Capitals	Royal Challengers Bangalore
## 143	Delhi Capitals	Kolkata Knight Riders
## 144	Rajasthan Royals	Mumbai Indians
## 145	Kolkata Knight Riders	Punjab Kings
## 146	Mumbai Indians	Punjab Kings
## 147	Chennai Super Kings	Rajasthan Royals
## 148	Royal Challengers Bangalore	Punjab Kings
## 149	Kolkata Knight Riders	Chennai Super Kings
## 150	Mumbai Indians	Delhi Capitals
## 151	Rajasthan Royals	Chennai Super Kings
## 152	Punjab Kings	Mumbai Indians
## 153	Rajasthan Royals	Royal Challengers Bangalore
## 154	Chennai Super Kings	Delhi Capitals
## 155	Royal Challengers Bangalore	Kolkata Knight Riders
## 156	Punjab Kings	Delhi Capitals
## 157	Punjab Kings	Royal Challengers Bangalore
## 158	Mumbai Indians	Rajasthan Royals
## 159	Royal Challengers Bangalore	Chennai Super Kings
## 160	Kolkata Knight Riders	Mumbai Indians
## 161	Royal Challengers Bangalore	Chennai Super Kings
## 162	Mumbai Indians	Kolkata Knight Riders
## 163	Royal Challengers Bangalore	Mumbai Indians
## 164	Chennai Super Kings	Royal Challengers Bangalore
## 165	Chennai Super Kings	Mumbai Indians
## 166	Kolkata Knight Riders	Delhi Capitals
## 167	Rajasthan Royals	Punjab Kings
## 168	Royal Challengers Bangalore	Delhi Capitals
## 169	Rajasthan Royals	Kolkata Knight Riders
## 170	Royal Challengers Bangalore	Kolkata Knight Riders
## 171	Delhi Capitals	Chennai Super Kings
## 172	Mumbai Indians	Rajasthan Royals
## 173	Chennai Super Kings	Royal Challengers Bangalore
## 174	Kolkata Knight Riders	Rajasthan Royals
## 175	Kolkata Knight Riders	Punjab Kings
## 176	Royal Challengers Bangalore	Rajasthan Royals
## 177	Mumbai Indians	Delhi Capitals
## 178	Punjab Kings	Kolkata Knight Riders
## 179	Punjab Kings	Royal Challengers Bangalore
## 180	Chennai Super Kings	Rajasthan Royals
## 181	Mumbai Indians	Punjab Kings
## 182	Rajasthan Royals	Royal Challengers Bangalore
## 183	Punjab Kings	Mumbai Indians
## 184	Delhi Capitals	Mumbai Indians
## 185	Chennai Super Kings	Punjab Kings
## 186	Kolkata Knight Riders	Royal Challengers Bangalore
## 187	Delhi Capitals	Rajasthan Royals

## 188	Chennai Super Kings	Kolkata Knight Riders
## 189	Rajasthan Royals	Delhi Capitals
## 190	Royal Challengers Bangalore	Punjab Kings
## 191	Punjab Kings	Rajasthan Royals
## 192	Mumbai Indians	Chennai Super Kings
## 193	Delhi Capitals	Kolkata Knight Riders
## 194	Mumbai Indians	Royal Challengers Bangalore
## 195	Rajasthan Royals	Chennai Super Kings
## 196	Kolkata Knight Riders	Mumbai Indians
## 197	Chennai Super Kings	Delhi Capitals
## 198	Royal Challengers Bangalore	Mumbai Indians
## 199	Kolkata Knight Riders	Chennai Super Kings
## 200	Delhi Capitals	Punjab Kings
## 201	Mumbai Indians	Kolkata Knight Riders
## 202	Punjab Kings	Chennai Super Kings
## 203	Delhi Capitals	Royal Challengers Bangalore
## 204	Punjab Kings	Delhi Capitals
## 205	Rajasthan Royals	Mumbai Indians
## 206	Delhi Capitals	Kolkata Knight Riders
## 207	Chennai Super Kings	Mumbai Indians
## 208	Delhi Capitals	Chennai Super Kings
## 209	Kolkata Knight Riders	Chennai Super Kings
## 210	Kolkata Knight Riders	Delhi Capitals
## 211	Royal Challengers Bangalore	Mumbai Indians
## 212	Delhi Capitals	Rajasthan Royals
## 213	Chennai Super Kings	Mumbai Indians
## 214	Sunrisers Hyderabad	Royal Challengers Bangalore
## 215	Rajasthan Royals	Kolkata Knight Riders
## 216	Mumbai Indians	Delhi Capitals
## 217	Punjab Kings	Chennai Super Kings
## 218	Royal Challengers Bangalore	Kolkata Knight Riders
## 219	Delhi Capitals	Sunrisers Hyderabad
## 220	Chennai Super Kings	Royal Challengers Bangalore
## 221	Kolkata Knight Riders	Sunrisers Hyderabad
## 222	Rajasthan Royals	Punjab Kings
## 223	Punjab Kings	Kolkata Knight Riders
## 224	Royal Challengers Bangalore	Delhi Capitals
## 225	Rajasthan Royals	Mumbai Indians
## 226	Delhi Capitals	Chennai Super Kings
## 227	Sunrisers Hyderabad	Punjab Kings
## 228	Kolkata Knight Riders	Chennai Super Kings
## 229	Royal Challengers Bangalore	Rajasthan Royals
## 230	Delhi Capitals	Mumbai Indians
## 231	Chennai Super Kings	Rajasthan Royals
## 232	Punjab Kings	Delhi Capitals
## 233	Kolkata Knight Riders	Mumbai Indians
## 234	Chennai Super Kings	Sunrisers Hyderabad
## 235	Kolkata Knight Riders	Punjab Kings
## 236	Rajasthan Royals	Sunrisers Hyderabad
## 237	Mumbai Indians	Royal Challengers Bangalore
## 238	Chennai Super Kings	Kolkata Knight Riders
## 239	Rajasthan Royals	Royal Challengers Bangalore
## 240	Mumbai Indians	Punjab Kings
## 241	Sunrisers Hyderabad	Mumbai Indians

## 242	Delhi Capitals	Kolkata Knight Riders
## 243	Chennai Super Kings	Punjab Kings
## 244	Kolkata Knight Riders	Rajasthan Royals
## 245	Sunrisers Hyderabad	Delhi Capitals
## 246	Royal Challengers Bangalore	Punjab Kings
## 247	Mumbai Indians	Chennai Super Kings
## 248	Royal Challengers Bangalore	Sunrisers Hyderabad
## 249	Rajasthan Royals	Delhi Capitals
## 250	Mumbai Indians	Kolkata Knight Riders
## 251	Sunrisers Hyderabad	Chennai Super Kings
## 252	Punjab Kings	Rajasthan Royals
## 253	Delhi Capitals	Royal Challengers Bangalore
## 254	Punjab Kings	Sunrisers Hyderabad
## 255	Kolkata Knight Riders	Royal Challengers Bangalore
## 256	Rajasthan Royals	Chennai Super Kings
## 257	Delhi Capitals	Punjab Kings
## 258	Mumbai Indians	Sunrisers Hyderabad
## 259	Chennai Super Kings	Delhi Capitals
## 260	Mumbai Indians	Rajasthan Royals
## 261	Punjab Kings	Royal Challengers Bangalore
## 262	Sunrisers Hyderabad	Rajasthan Royals
## 263	Punjab Kings	Mumbai Indians
## 264	Royal Challengers Bangalore	Chennai Super Kings
## 265	Sunrisers Hyderabad	Kolkata Knight Riders
## 266	Chennai Super Kings	Mumbai Indians
## 267	Rajasthan Royals	Sunrisers Hyderabad
## 268	Mumbai Indians	Rajasthan Royals
## 269	Chennai Super Kings	Mumbai Indians
## 270	Mumbai Indians	Kolkata Knight Riders
## 271	Delhi Capitals	Royal Challengers Bangalore
## 272	Chennai Super Kings	Punjab Kings
## 273	Sunrisers Hyderabad	Rajasthan Royals
## 274	Royal Challengers Bangalore	Mumbai Indians
## 275	Kolkata Knight Riders	Delhi Capitals
## 276	Rajasthan Royals	Punjab Kings
## 277	Chennai Super Kings	Delhi Capitals
## 278	Punjab Kings	Sunrisers Hyderabad
## 279	Rajasthan Royals	Chennai Super Kings
## 280	Royal Challengers Bangalore	Kolkata Knight Riders
## 281	Sunrisers Hyderabad	Delhi Capitals
## 282	Chennai Super Kings	Mumbai Indians
## 283	Rajasthan Royals	Royal Challengers Bangalore
## 284	Kolkata Knight Riders	Punjab Kings
## 285	Delhi Capitals	Mumbai Indians
## 286	Sunrisers Hyderabad	Chennai Super Kings
## 287	Punjab Kings	Royal Challengers Bangalore
## 288	Kolkata Knight Riders	Rajasthan Royals
## 289	Mumbai Indians	Sunrisers Hyderabad
## 290	Chennai Super Kings	Kolkata Knight Riders
## 291	Mumbai Indians	Punjab Kings
## 292	Delhi Capitals	Rajasthan Royals
## 293	Royal Challengers Bangalore	Sunrisers Hyderabad
## 294	Rajasthan Royals	Kolkata Knight Riders
## 295	Delhi Capitals	Chennai Super Kings



## 296	Mumbai Indians	Royal Challengers Bangalore
## 297	Delhi Capitals	Kolkata Knight Riders
## 298	Punjab Kings	Chennai Super Kings
## 299	Rajasthan Royals	Sunrisers Hyderabad
## 300	Royal Challengers Bangalore	Punjab Kings
## 301	Delhi Capitals	Sunrisers Hyderabad
## 302	Mumbai Indians	Chennai Super Kings
## 303	Punjab Kings	Kolkata Knight Riders
## 304	Royal Challengers Bangalore	Rajasthan Royals
## 305	Sunrisers Hyderabad	Mumbai Indians
## 306	Chennai Super Kings	Rajasthan Royals
## 307	Royal Challengers Bangalore	Delhi Capitals
## 308	Sunrisers Hyderabad	Punjab Kings
## 309	Kolkata Knight Riders	Mumbai Indians
## 310	Rajasthan Royals	Delhi Capitals
## 311	Chennai Super Kings	Royal Challengers Bangalore
## 312	Sunrisers Hyderabad	Kolkata Knight Riders
## 313	Rajasthan Royals	Mumbai Indians
## 314	Delhi Capitals	Punjab Kings
## 315	Sunrisers Hyderabad	Royal Challengers Bangalore
## 316	Kolkata Knight Riders	Chennai Super Kings
## 317	Punjab Kings	Mumbai Indians
## 318	Kolkata Knight Riders	Royal Challengers Bangalore
## 319	Chennai Super Kings	Sunrisers Hyderabad
## 320	Mumbai Indians	Delhi Capitals
## 321	Punjab Kings	Rajasthan Royals
## 322	Royal Challengers Bangalore	Chennai Super Kings
## 323	Kolkata Knight Riders	Sunrisers Hyderabad
## 324	Punjab Kings	Delhi Capitals
## 325	Mumbai Indians	Rajasthan Royals
## 326	Punjab Kings	Kolkata Knight Riders
## 327	Chennai Super Kings	Mumbai Indians
## 328	Chennai Super Kings	Punjab Kings
## 329	Kolkata Knight Riders	Punjab Kings
## 330	Kolkata Knight Riders	Mumbai Indians
## 331	Chennai Super Kings	Delhi Capitals
## 332	Punjab Kings	Rajasthan Royals
## 333	Chennai Super Kings	Sunrisers Hyderabad
## 334	Kolkata Knight Riders	Royal Challengers Bangalore
## 335	Delhi Capitals	Rajasthan Royals
## 336	Mumbai Indians	Punjab Kings
## 337	Royal Challengers Bangalore	Sunrisers Hyderabad
## 338	Rajasthan Royals	Mumbai Indians
## 339	Kolkata Knight Riders	Chennai Super Kings
## 340	Punjab Kings	Delhi Capitals
## 341	Sunrisers Hyderabad	Rajasthan Royals
## 342	Mumbai Indians	Chennai Super Kings
## 343	Sunrisers Hyderabad	Delhi Capitals
## 344	Punjab Kings	Kolkata Knight Riders
## 345	Rajasthan Royals	Chennai Super Kings
## 346	Royal Challengers Bangalore	Mumbai Indians
## 347	Delhi Capitals	Kolkata Knight Riders
## 348	Rajasthan Royals	Punjab Kings
## 349	Sunrisers Hyderabad	Kolkata Knight Riders

## 350	Royal Challengers Bangalore	Chennai Super Kings
## 351	Delhi Capitals	Mumbai Indians
## 352	Rajasthan Royals	Royal Challengers Bangalore
## 353	Mumbai Indians	Sunrisers Hyderabad
## 354	Chennai Super Kings	Punjab Kings
## 355	Delhi Capitals	Royal Challengers Bangalore
## 356	Punjab Kings	Sunrisers Hyderabad
## 357	Kolkata Knight Riders	Delhi Capitals
## 358	Chennai Super Kings	Kolkata Knight Riders
## 359	Delhi Capitals	Punjab Kings
## 360	Mumbai Indians	Rajasthan Royals
## 361	Royal Challengers Bangalore	Kolkata Knight Riders
## 362	Sunrisers Hyderabad	Chennai Super Kings
## 363	Punjab Kings	Mumbai Indians
## 364	Rajasthan Royals	Delhi Capitals
## 365	Chennai Super Kings	Royal Challengers Bangalore
## 366	Kolkata Knight Riders	Sunrisers Hyderabad
## 367	Mumbai Indians	Delhi Capitals
## 368	Royal Challengers Bangalore	Punjab Kings
## 369	Rajasthan Royals	Sunrisers Hyderabad
## 370	Chennai Super Kings	Mumbai Indians
## 371	Kolkata Knight Riders	Punjab Kings
## 372	Delhi Capitals	Sunrisers Hyderabad
## 373	Mumbai Indians	Royal Challengers Bangalore
## 374	Chennai Super Kings	Rajasthan Royals
## 375	Sunrisers Hyderabad	Punjab Kings
## 376	Delhi Capitals	Chennai Super Kings
## 377	Punjab Kings	Royal Challengers Bangalore
## 378	Mumbai Indians	Kolkata Knight Riders
## 379	Sunrisers Hyderabad	Royal Challengers Bangalore
## 380	Punjab Kings	Chennai Super Kings
## 381	Rajasthan Royals	Kolkata Knight Riders
## 382	Sunrisers Hyderabad	Mumbai Indians
## 383	Chennai Super Kings	Mumbai Indians
## 384	Royal Challengers Bangalore	Rajasthan Royals
## 385	Chennai Super Kings	Royal Challengers Bangalore
## 386	Mumbai Indians	Chennai Super Kings
## 387	Kolkata Knight Riders	Delhi Capitals
## 388	Royal Challengers Bangalore	Sunrisers Hyderabad
## 389	Kolkata Knight Riders	Mumbai Indians
## 390	Delhi Capitals	Punjab Kings
## 391	Sunrisers Hyderabad	Kolkata Knight Riders
## 392	Royal Challengers Bangalore	Delhi Capitals
## 393	Sunrisers Hyderabad	Mumbai Indians
## 394	Punjab Kings	Kolkata Knight Riders
## 395	Mumbai Indians	Royal Challengers Bangalore
## 396	Delhi Capitals	Mumbai Indians
## 397	Sunrisers Hyderabad	Punjab Kings
## 398	Punjab Kings	Mumbai Indians
## 399	Mumbai Indians	Kolkata Knight Riders
## 400	Delhi Capitals	Kolkata Knight Riders
## 401	Sunrisers Hyderabad	Royal Challengers Bangalore
## 402	Royal Challengers Bangalore	Kolkata Knight Riders
## 403	Kolkata Knight Riders	Punjab Kings

## 404	Punjab Kings	Delhi Capitals
## 405	Mumbai Indians	Sunrisers Hyderabad
## 406	Punjab Kings	Royal Challengers Bangalore
## 407	Royal Challengers Bangalore	Mumbai Indians
## 408	Sunrisers Hyderabad	Delhi Capitals
## 409	Mumbai Indians	Punjab Kings
## 410	Punjab Kings	Sunrisers Hyderabad
## 411	Mumbai Indians	Delhi Capitals
## 412	Kolkata Knight Riders	Royal Challengers Bangalore
## 413	Royal Challengers Bangalore	Punjab Kings
## 414	Delhi Capitals	Sunrisers Hyderabad
## 415	Kolkata Knight Riders	Sunrisers Hyderabad
## 416	Delhi Capitals	Royal Challengers Bangalore
## 417	Sunrisers Hyderabad	Kolkata Knight Riders
## 418	Royal Challengers Bangalore	Sunrisers Hyderabad
## 419	Sunrisers Hyderabad	Royal Challengers Bangalore
## 420	Royal Challengers Bangalore	Delhi Capitals
## 421	Mumbai Indians	Kolkata Knight Riders
## 422	Punjab Kings	Royal Challengers Bangalore
## 423	Mumbai Indians	Sunrisers Hyderabad
## 424	Kolkata Knight Riders	Punjab Kings
## 425	Royal Challengers Bangalore	Mumbai Indians
## 426	Kolkata Knight Riders	Sunrisers Hyderabad
## 427	Delhi Capitals	Punjab Kings
## 428	Delhi Capitals	Kolkata Knight Riders
## 429	Sunrisers Hyderabad	Punjab Kings
## 430	Sunrisers Hyderabad	Delhi Capitals
## 431	Punjab Kings	Mumbai Indians
## 432	Mumbai Indians	Delhi Capitals
## 433	Kolkata Knight Riders	Royal Challengers Bangalore
## 434	Kolkata Knight Riders	Delhi Capitals
## 435	Punjab Kings	Sunrisers Hyderabad
## 436	Punjab Kings	Delhi Capitals
## 437	Sunrisers Hyderabad	Kolkata Knight Riders
## 438	Mumbai Indians	Royal Challengers Bangalore
## 439	Delhi Capitals	Sunrisers Hyderabad
## 440	Royal Challengers Bangalore	Punjab Kings
## 441	Delhi Capitals	Mumbai Indians
## 442	Royal Challengers Bangalore	Kolkata Knight Riders
## 443	Sunrisers Hyderabad	Mumbai Indians
## 444	Punjab Kings	Kolkata Knight Riders
## 445	Mumbai Indians	Punjab Kings
## 446	Kolkata Knight Riders	Mumbai Indians
## 447	Delhi Capitals	Royal Challengers Bangalore
## 448	Sunrisers Hyderabad	Kolkata Knight Riders
## 449	Mumbai Indians	Kolkata Knight Riders
## 450	Mumbai Indians	Chennai Super Kings
## 451	Punjab Kings	Delhi Capitals
## 452	Kolkata Knight Riders	Royal Challengers Bangalore
## 453	Sunrisers Hyderabad	Rajasthan Royals
## 454	Chennai Super Kings	Kolkata Knight Riders
## 455	Rajasthan Royals	Delhi Capitals
## 456	Sunrisers Hyderabad	Mumbai Indians
## 457	Royal Challengers Bangalore	Punjab Kings

## 458	Mumbai Indians	Delhi Capitals
## 459	Kolkata Knight Riders	Sunrisers Hyderabad
## 460	Royal Challengers Bangalore	Rajasthan Royals
## 461	Punjab Kings	Chennai Super Kings
## 462	Kolkata Knight Riders	Delhi Capitals
## 463	Mumbai Indians	Royal Challengers Bangalore
## 464	Rajasthan Royals	Kolkata Knight Riders
## 465	Punjab Kings	Sunrisers Hyderabad
## 466	Chennai Super Kings	Rajasthan Royals
## 467	Kolkata Knight Riders	Punjab Kings
## 468	Royal Challengers Bangalore	Delhi Capitals
## 469	Sunrisers Hyderabad	Chennai Super Kings
## 470	Rajasthan Royals	Mumbai Indians
## 471	Delhi Capitals	Punjab Kings
## 472	Mumbai Indians	Sunrisers Hyderabad
## 473	Royal Challengers Bangalore	Chennai Super Kings
## 474	Sunrisers Hyderabad	Punjab Kings
## 475	Delhi Capitals	Kolkata Knight Riders
## 476	Chennai Super Kings	Mumbai Indians
## 477	Rajasthan Royals	Sunrisers Hyderabad
## 478	Royal Challengers Bangalore	Kolkata Knight Riders
## 479	Chennai Super Kings	Delhi Capitals
## 480	Royal Challengers Bangalore	Mumbai Indians
## 481	Delhi Capitals	Rajasthan Royals
## 482	Kolkata Knight Riders	Chennai Super Kings
## 483	Punjab Kings	Mumbai Indians
## 484	Chennai Super Kings	Royal Challengers Bangalore
## 485	Sunrisers Hyderabad	Delhi Capitals
## 486	Mumbai Indians	Kolkata Knight Riders
## 487	Punjab Kings	Rajasthan Royals
## 488	Sunrisers Hyderabad	Royal Challengers Bangalore
## 489	Rajasthan Royals	Punjab Kings
## 490	Kolkata Knight Riders	Mumbai Indians
## 491	Delhi Capitals	Sunrisers Hyderabad
## 492	Rajasthan Royals	Chennai Super Kings
## 493	Punjab Kings	Kolkata Knight Riders
## 494	Delhi Capitals	Royal Challengers Bangalore
## 495	Chennai Super Kings	Sunrisers Hyderabad
## 496	Mumbai Indians	Rajasthan Royals
## 497	Punjab Kings	Royal Challengers Bangalore
## 498	Kolkata Knight Riders	Rajasthan Royals
## 499	Mumbai Indians	Punjab Kings
## 500	Royal Challengers Bangalore	Sunrisers Hyderabad
## 501	Delhi Capitals	Chennai Super Kings
## 502	Rajasthan Royals	Royal Challengers Bangalore
## 503	Sunrisers Hyderabad	Kolkata Knight Riders
## 504	Delhi Capitals	Mumbai Indians
## 505	Chennai Super Kings	Punjab Kings
## 506	Sunrisers Hyderabad	Chennai Super Kings
## 507	Kolkata Knight Riders	Rajasthan Royals
## 508	Kolkata Knight Riders	Sunrisers Hyderabad
## 509	Chennai Super Kings	Sunrisers Hyderabad
## 510	Chennai Super Kings	Royal Challengers Bangalore
## 511	Kolkata Knight Riders	Sunrisers Hyderabad

## 512	Mumbai Indians	Delhi Capitals
## 513	Rajasthan Royals	Punjab Kings
## 514	Delhi Capitals	Chennai Super Kings
## 515	Kolkata Knight Riders	Punjab Kings
## 516	Royal Challengers Bangalore	Mumbai Indians
## 517	Sunrisers Hyderabad	Rajasthan Royals
## 518	Punjab Kings	Mumbai Indians
## 519	Delhi Capitals	Kolkata Knight Riders
## 520	Sunrisers Hyderabad	Royal Challengers Bangalore
## 521	Chennai Super Kings	Rajasthan Royals
## 522	Punjab Kings	Delhi Capitals
## 523	Rajasthan Royals	Royal Challengers Bangalore
## 524	Mumbai Indians	Chennai Super Kings
## 525	Delhi Capitals	Sunrisers Hyderabad
## 526	Royal Challengers Bangalore	Kolkata Knight Riders
## 527	Chennai Super Kings	Punjab Kings
## 528	Sunrisers Hyderabad	Mumbai Indians
## 529	Royal Challengers Bangalore	Delhi Capitals
## 530	Rajasthan Royals	Kolkata Knight Riders
## 531	Punjab Kings	Sunrisers Hyderabad
## 532	Chennai Super Kings	Kolkata Knight Riders
## 533	Mumbai Indians	Punjab Kings
## 534	Rajasthan Royals	Chennai Super Kings
## 535	Kolkata Knight Riders	Delhi Capitals
## 536	Mumbai Indians	Rajasthan Royals
## 537	Punjab Kings	Royal Challengers Bangalore
## 538	Kolkata Knight Riders	Chennai Super Kings
## 539	Sunrisers Hyderabad	Delhi Capitals
## 540	Mumbai Indians	Royal Challengers Bangalore
## 541	Punjab Kings	Rajasthan Royals
## 542	Sunrisers Hyderabad	Chennai Super Kings
## 543	Delhi Capitals	Mumbai Indians
## 544	Kolkata Knight Riders	Royal Challengers Bangalore
## 545	Rajasthan Royals	Mumbai Indians
## 546	Delhi Capitals	Punjab Kings
## 547	Sunrisers Hyderabad	Kolkata Knight Riders
## 548	Royal Challengers Bangalore	Chennai Super Kings
## 549	Rajasthan Royals	Delhi Capitals
## 550	Chennai Super Kings	Sunrisers Hyderabad
## 551	Royal Challengers Bangalore	Punjab Kings
## 552	Kolkata Knight Riders	Rajasthan Royals
## 553	Chennai Super Kings	Mumbai Indians
## 554	Rajasthan Royals	Sunrisers Hyderabad
## 555	Delhi Capitals	Royal Challengers Bangalore
## 556	Kolkata Knight Riders	Mumbai Indians
## 557	Sunrisers Hyderabad	Punjab Kings
## 558	Chennai Super Kings	Delhi Capitals
## 559	Mumbai Indians	Sunrisers Hyderabad
## 560	Punjab Kings	Kolkata Knight Riders
## 561	Delhi Capitals	Rajasthan Royals
## 562	Royal Challengers Bangalore	Sunrisers Hyderabad
## 563	Punjab Kings	Chennai Super Kings
## 564	Mumbai Indians	Kolkata Knight Riders
## 565	Mumbai Indians	Chennai Super Kings

## 566	Delhi Capitals	Sunrisers Hyderabad
## 567	Chennai Super Kings	Delhi Capitals
## 568	Mumbai Indians	Chennai Super Kings
## 569	Mumbai Indians	Chennai Super Kings
## 570	Delhi Capitals	Punjab Kings
## 571	Kolkata Knight Riders	Royal Challengers Bangalore
## 572	Mumbai Indians	Sunrisers Hyderabad
## 573	Rajasthan Royals	Chennai Super Kings
## 574	Kolkata Knight Riders	Delhi Capitals
## 575	Punjab Kings	Sunrisers Hyderabad
## 576	Royal Challengers Bangalore	Mumbai Indians
## 577	Delhi Capitals	Rajasthan Royals
## 578	Kolkata Knight Riders	Chennai Super Kings
## 579	Royal Challengers Bangalore	Sunrisers Hyderabad
## 580	Mumbai Indians	Punjab Kings
## 581	Kolkata Knight Riders	Rajasthan Royals
## 582	Royal Challengers Bangalore	Delhi Capitals
## 583	Punjab Kings	Chennai Super Kings
## 584	Sunrisers Hyderabad	Rajasthan Royals
## 585	Mumbai Indians	Kolkata Knight Riders
## 586	Chennai Super Kings	Delhi Capitals
## 587	Punjab Kings	Royal Challengers Bangalore
## 588	Mumbai Indians	Rajasthan Royals
## 589	Kolkata Knight Riders	Sunrisers Hyderabad
## 590	Punjab Kings	Chennai Super Kings
## 591	Rajasthan Royals	Royal Challengers Bangalore
## 592	Delhi Capitals	Kolkata Knight Riders
## 593	Sunrisers Hyderabad	Chennai Super Kings
## 594	Mumbai Indians	Punjab Kings
## 595	Rajasthan Royals	Sunrisers Hyderabad
## 596	Delhi Capitals	Royal Challengers Bangalore
## 597	Kolkata Knight Riders	Punjab Kings
## 598	Chennai Super Kings	Mumbai Indians
## 599	Rajasthan Royals	Royal Challengers Bangalore
## 600	Kolkata Knight Riders	Punjab Kings
## 601	Sunrisers Hyderabad	Delhi Capitals
## 602	Royal Challengers Bangalore	Chennai Super Kings
## 603	Kolkata Knight Riders	Mumbai Indians
## 604	Punjab Kings	Rajasthan Royals
## 605	Chennai Super Kings	Sunrisers Hyderabad
## 606	Delhi Capitals	Mumbai Indians
## 607	Kolkata Knight Riders	Rajasthan Royals
## 608	Royal Challengers Bangalore	Punjab Kings
## 609	Sunrisers Hyderabad	Delhi Capitals
## 610	Chennai Super Kings	Rajasthan Royals
## 611	Royal Challengers Bangalore	Sunrisers Hyderabad
## 612	Delhi Capitals	Mumbai Indians
## 613	Kolkata Knight Riders	Chennai Super Kings
## 614	Punjab Kings	Rajasthan Royals
## 615	Mumbai Indians	Sunrisers Hyderabad
## 616	Delhi Capitals	Chennai Super Kings
## 617	Royal Challengers Bangalore	Kolkata Knight Riders
## 618	Mumbai Indians	Rajasthan Royals
## 619	Sunrisers Hyderabad	Punjab Kings

## 620	Delhi Capitals	Rajasthan Royals
## 621	Royal Challengers Bangalore	Chennai Super Kings
## 622	Sunrisers Hyderabad	Kolkata Knight Riders
## 623	Delhi Capitals	Punjab Kings
## 624	Royal Challengers Bangalore	Mumbai Indians
## 625	Mumbai Indians	Delhi Capitals
## 626	Royal Challengers Bangalore	Sunrisers Hyderabad
## 627	Delhi Capitals	Sunrisers Hyderabad
## 628	Delhi Capitals	Mumbai Indians
##	winner	
## 1	Kolkata Knight Riders	
## 2	Chennai Super Kings	
## 3	Delhi Capitals	
## 4	Royal Challengers Bangalore	
## 5	Rajasthan Royals	
## 6	Chennai Super Kings	
## 7	Punjab Kings	
## 8	Rajasthan Royals	
## 9	Chennai Super Kings	
## 10	Punjab Kings	
## 11	Chennai Super Kings	
## 12	Mumbai Indians	
## 13	Delhi Capitals	
## 14	Rajasthan Royals	
## 15	Delhi Capitals	
## 16	Punjab Kings	
## 17	Mumbai Indians	
## 18	Rajasthan Royals	
## 19	Punjab Kings	
## 20	Mumbai Indians	
## 21	Chennai Super Kings	
## 22	Kolkata Knight Riders	
## 23	Mumbai Indians	
## 24	Chennai Super Kings	
## 25	Rajasthan Royals	
## 26	Punjab Kings	
## 27	Kolkata Knight Riders	
## 28	Mumbai Indians	
## 29	Punjab Kings	
## 30	Mumbai Indians	
## 31	Punjab Kings	
## 32	Rajasthan Royals	
## 33	Chennai Super Kings	
## 34	Delhi Capitals	
## 35	Rajasthan Royals	
## 36	Punjab Kings	
## 37	Royal Challengers Bangalore	
## 38	Delhi Capitals	
## 39	Rajasthan Royals	
## 40	Kolkata Knight Riders	
## 41	Rajasthan Royals	
## 42	Rajasthan Royals	
## 43	Chennai Super Kings	
## 44	Rajasthan Royals	

## 45 Mumbai Indians  
 ## 46 Royal Challengers Bangalore  
 ## 47 Delhi Capitals  
 ## 48 Chennai Super Kings  
 ## 49 Kolkata Knight Riders  
 ## 50 Delhi Capitals  
 ## 51 Rajasthan Royals  
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 ## 53 Delhi Capitals  
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 ## 55 Mumbai Indians  
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 ## 57 Royal Challengers Bangalore  
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 ## 59 Chennai Super Kings  
 ## 60 Mumbai Indians  
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 ## 64 Royal Challengers Bangalore  
 ## 65 Rajasthan Royals  
 ## 66 Delhi Capitals  
 ## 67 Rajasthan Royals  
 ## 68 Chennai Super Kings  
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 ## 70 Chennai Super Kings  
 ## 71 Mumbai Indians  
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 ## 73 Royal Challengers Bangalore  
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 ## 75 Royal Challengers Bangalore  
 ## 76 Rajasthan Royals  
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 ## 78 Chennai Super Kings  
 ## 79 Delhi Capitals  
 ## 80 Kolkata Knight Riders  
 ## 81 Royal Challengers Bangalore  
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 ## 83 Chennai Super Kings  
 ## 84 Delhi Capitals  
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 ## 88 Kolkata Knight Riders  
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 ## 90 Royal Challengers Bangalore  
 ## 91 Chennai Super Kings  
 ## 92 Mumbai Indians  
 ## 93 Royal Challengers Bangalore  
 ## 94 Chennai Super Kings  
 ## 95 Rajasthan Royals  
 ## 96 Royal Challengers Bangalore  
 ## 97 Punjab Kings  
 ## 98 Mumbai Indians



## 99 Royal Challengers Bangalore  
 ## 100 Rajasthan Royals  
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 ## 102 Kolkata Knight Riders  
 ## 103 Delhi Capitals  
 ## 104 Rajasthan Royals  
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 ## 106 Mumbai Indians  
 ## 107 Chennai Super Kings  
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 ## 109 Royal Challengers Bangalore  
 ## 110 Chennai Super Kings  
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 ## 113 Chennai Super Kings  
 ## 114 Rajasthan Royals  
 ## 115 Kolkata Knight Riders  
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 ## 117 Royal Challengers Bangalore  
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 ## 121 Chennai Super Kings  
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 ## 123 Delhi Capitals  
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 ## 125 Kolkata Knight Riders  
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 ## 132 Rajasthan Royals  
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 ## 134 Punjab Kings  
 ## 135 Kolkata Knight Riders  
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 ## 139 Mumbai Indians  
 ## 140 Royal Challengers Bangalore  
 ## 141 Delhi Capitals  
 ## 142 Royal Challengers Bangalore  
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 ## 144 Rajasthan Royals  
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 ## 147 Chennai Super Kings  
 ## 148 Royal Challengers Bangalore  
 ## 149 Kolkata Knight Riders  
 ## 150 Mumbai Indians  
 ## 151 Chennai Super Kings  
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## 153 Royal Challengers Bangalore  
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 ## 158 Rajasthan Royals  
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 ## 163 Royal Challengers Bangalore  
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 ## 166 Delhi Capitals  
 ## 167 Rajasthan Royals  
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 ## 169 Rajasthan Royals  
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 ## 182 Royal Challengers Bangalore  
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 ## 188 Kolkata Knight Riders  
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 ## 191 Rajasthan Royals  
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 ## 193 Kolkata Knight Riders  
 ## 194 Royal Challengers Bangalore  
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 ## 200 Delhi Capitals  
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 ## 203 Royal Challengers Bangalore  
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## 207 Chennai Super Kings  
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 ## 210 Kolkata Knight Riders  
 ## 211 Royal Challengers Bangalore  
 ## 212 Rajasthan Royals  
 ## 213 Mumbai Indians  
 ## 214 Sunrisers Hyderabad  
 ## 215 Rajasthan Royals  
 ## 216 Mumbai Indians  
 ## 217 Chennai Super Kings  
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 ## 304 Rajasthan Royals  
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 ## 309 Kolkata Knight Riders  
 ## 310 Rajasthan Royals  
 ## 311 Royal Challengers Bangalore  
 ## 312 Kolkata Knight Riders  
 ## 313 Mumbai Indians  
 ## 314 Punjab Kings

## 315 Sunrisers Hyderabad  
 ## 316 Kolkata Knight Riders  
 ## 317 Mumbai Indians  
 ## 318 Kolkata Knight Riders  
 ## 319 Sunrisers Hyderabad  
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 ## 322 Chennai Super Kings  
 ## 323 Kolkata Knight Riders  
 ## 324 Punjab Kings  
 ## 325 Mumbai Indians  
 ## 326 Kolkata Knight Riders  
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 ## 332 Rajasthan Royals  
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 ## 362 Sunrisers Hyderabad  
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 ## 365 Chennai Super Kings  
 ## 366 Kolkata Knight Riders  
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 ## 368 Royal Challengers Bangalore

## 369 Sunrisers Hyderabad  
 ## 370 Mumbai Indians  
 ## 371 Kolkata Knight Riders  
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 ## 374 Chennai Super Kings  
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 ## 387 Kolkata Knight Riders  
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 ## 393 Sunrisers Hyderabad  
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 ## 410 Sunrisers Hyderabad  
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 ## 414 Delhi Capitals  
 ## 415 Kolkata Knight Riders  
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 ## 417 Sunrisers Hyderabad  
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 ## 429 Sunrisers Hyderabad  
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 ## 443 Sunrisers Hyderabad  
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 ## 446 Mumbai Indians  
 ## 447 Royal Challengers Bangalore  
 ## 448 Kolkata Knight Riders  
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 ## 450 Chennai Super Kings  
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 ## 452 Kolkata Knight Riders  
 ## 453 Sunrisers Hyderabad  
 ## 454 Chennai Super Kings  
 ## 455 Rajasthan Royals  
 ## 456 Sunrisers Hyderabad  
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 ## 466 Chennai Super Kings  
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 ## 468 Royal Challengers Bangalore  
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 ## 470 Rajasthan Royals  
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 ## 472 Sunrisers Hyderabad  
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 ## 474 Sunrisers Hyderabad  
 ## 475 Delhi Capitals  
 ## 476 Mumbai Indians

## 477 Sunrisers Hyderabad  
 ## 478 Kolkata Knight Riders  
 ## 479 Chennai Super Kings  
 ## 480 Royal Challengers Bangalore  
 ## 481 Delhi Capitals  
 ## 482 Kolkata Knight Riders  
 ## 483 Mumbai Indians  
 ## 484 Chennai Super Kings  
 ## 485 Sunrisers Hyderabad  
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 ## 501 Delhi Capitals  
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 ## 517 Sunrisers Hyderabad  
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 ## 524 Mumbai Indians  
 ## 525 Sunrisers Hyderabad  
 ## 526 Kolkata Knight Riders  
 ## 527 Chennai Super Kings  
 ## 528 Mumbai Indians  
 ## 529 Delhi Capitals  
 ## 530 Kolkata Knight Riders



## 531 Punjab Kings  
 ## 532 Chennai Super Kings  
 ## 533 Mumbai Indians  
 ## 534 Chennai Super Kings  
 ## 535 Delhi Capitals  
 ## 536 Rajasthan Royals  
 ## 537 Royal Challengers Bangalore  
 ## 538 Chennai Super Kings  
 ## 539 Delhi Capitals  
 ## 540 Mumbai Indians  
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 ## 542 Sunrisers Hyderabad  
 ## 543 Mumbai Indians  
 ## 544 Royal Challengers Bangalore  
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 ## 546 Delhi Capitals  
 ## 547 Sunrisers Hyderabad  
 ## 548 Royal Challengers Bangalore  
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 ## 550 Chennai Super Kings  
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 ## 557 Sunrisers Hyderabad  
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 ## 562 Royal Challengers Bangalore  
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 ## 569 Chennai Super Kings  
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 ## 579 Sunrisers Hyderabad  
 ## 580 Mumbai Indians  
 ## 581 Kolkata Knight Riders  
 ## 582 Delhi Capitals  
 ## 583 Chennai Super Kings  
 ## 584 Rajasthan Royals

## 585	Mumbai Indians
## 586	Delhi Capitals
## 587	Punjab Kings
## 588	Mumbai Indians
## 589	Kolkata Knight Riders
## 590	Chennai Super Kings
## 591	Royal Challengers Bangalore
## 592	Delhi Capitals
## 593	Sunrisers Hyderabad
## 594	Punjab Kings
## 595	Sunrisers Hyderabad
## 596	Delhi Capitals
## 597	Punjab Kings
## 598	Mumbai Indians
## 599	Royal Challengers Bangalore
## 600	Kolkata Knight Riders
## 601	Sunrisers Hyderabad
## 602	Royal Challengers Bangalore
## 603	Mumbai Indians
## 604	Rajasthan Royals
## 605	Chennai Super Kings
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## 607	Kolkata Knight Riders
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## 611	Royal Challengers Bangalore
## 612	Mumbai Indians
## 613	Chennai Super Kings
## 614	Rajasthan Royals
## 615	Mumbai Indians
## 616	Delhi Capitals
## 617	Royal Challengers Bangalore
## 618	Rajasthan Royals
## 619	Sunrisers Hyderabad
## 620	Delhi Capitals
## 621	Chennai Super Kings
## 622	Kolkata Knight Riders
## 623	Punjab Kings
## 624	Royal Challengers Bangalore
## 625	Mumbai Indians
## 626	Sunrisers Hyderabad
## 627	Delhi Capitals
## 628	Mumbai Indians
##	venue
## 1	M. A. Chidambaram Stadium
## 2	Punjab Cricket Association Stadium, Mohali
## 3	Feroz Shah Kotla
## 4	Wankhede Stadium
## 5	Sawai Mansingh Stadium
## 6	M. A. Chidambaram Stadium
## 7	Punjab Cricket Association Stadium, Mohali
## 8	M. A. Chidambaram Stadium
## 9	M. A. Chidambaram Stadium

## 10	Punjab Cricket Association Stadium, Mohali
## 11	M. A. Chidambaram Stadium
## 12	Eden Gardens
## 13	Feroz Shah Kotla
## 14	Sawai Mansingh Stadium
## 15	M. A. Chidambaram Stadium
## 16	Punjab Cricket Association Stadium, Mohali
## 17	Dr DY Patil Sports Academy
## 18	Sawai Mansingh Stadium
## 19	M. A. Chidambaram Stadium
## 20	Dr DY Patil Sports Academy
## 21	Feroz Shah Kotla
## 22	Eden Gardens
## 23	M. A. Chidambaram Stadium
## 24	M. A. Chidambaram Stadium
## 25	Sawai Mansingh Stadium
## 26	Punjab Cricket Association Stadium, Mohali
## 27	Eden Gardens
## 28	Wankhede Stadium
## 29	Punjab Cricket Association Stadium, Mohali
## 30	Wankhede Stadium
## 31	Feroz Shah Kotla
## 32	Sawai Mansingh Stadium
## 33	Eden Gardens
## 34	M. A. Chidambaram Stadium
## 35	Eden Gardens
## 36	Wankhede Stadium
## 37	M. A. Chidambaram Stadium
## 38	Feroz Shah Kotla
## 39	M. A. Chidambaram Stadium
## 40	Eden Gardens
## 41	Sawai Mansingh Stadium
## 42	Wankhede Stadium
## 43	Wankhede Stadium
## 44	Dr DY Patil Sports Academy
## 45	Newlands
## 46	Newlands
## 47	Newlands
## 48	St George's Park
## 49	Kingsmead
## 50	Kingsmead
## 51	Newlands
## 52	Kingsmead
## 53	St George's Park
## 54	Newlands
## 55	St George's Park
## 56	SuperSport Park
## 57	Kingsmead
## 58	Kingsmead
## 59	SuperSport Park
## 60	Buffalo Park
## 61	Kingsmead
## 62	New Wanderers Stadium
## 63	St George's Park

## 64	New Wanderers Stadium
## 65	Kingsmead
## 66	Kingsmead
## 67	SuperSport Park
## 68	SuperSport Park
## 69	Buffalo Park
## 70	De Beers Diamond Oval
## 71	St George's Park
## 72	New Wanderers Stadium
## 73	SuperSport Park
## 74	SuperSport Park
## 75	Kingsmead
## 76	Kingsmead
## 77	OUTsurance Oval
## 78	St George's Park
## 79	OUTsurance Oval
## 80	SuperSport Park
## 81	New Wanderers Stadium
## 82	Kingsmead
## 83	Kingsmead
## 84	SuperSport Park
## 85	New Wanderers Stadium
## 86	Brabourne Stadium
## 87	Punjab Cricket Association Stadium, Mohali
## 88	Eden Gardens
## 89	Sardar Patel Stadium, Motera
## 90	M. A. Chidambaram Stadium
## 91	Eden Gardens
## 92	Feroz Shah Kotla
## 93	M. A. Chidambaram Stadium
## 94	Feroz Shah Kotla
## 95	Sardar Patel Stadium, Motera
## 96	Brabourne Stadium
## 97	M. A. Chidambaram Stadium
## 98	Brabourne Stadium
## 99	M. A. Chidambaram Stadium
## 100	Punjab Cricket Association Stadium, Mohali
## 101	Brabourne Stadium
## 102	Punjab Cricket Association Stadium, Mohali
## 103	M. A. Chidambaram Stadium
## 104	Sardar Patel Stadium, Motera
## 105	Feroz Shah Kotla
## 106	Brabourne Stadium
## 107	M. A. Chidambaram Stadium
## 108	Feroz Shah Kotla
## 109	Punjab Cricket Association Stadium, Mohali
## 110	M. A. Chidambaram Stadium
## 111	Eden Gardens
## 112	Feroz Shah Kotla
## 113	M. A. Chidambaram Stadium
## 114	Sawai Mansingh Stadium
## 115	Eden Gardens
## 116	Punjab Cricket Association Stadium, Mohali
## 117	M. A. Chidambaram Stadium

## 118	Feroz Shah Kotla
## 119	Sawai Mansingh Stadium
## 120	Brabourne Stadium
## 121	M. A. Chidambaram Stadium
## 122	Sawai Mansingh Stadium
## 123	M. A. Chidambaram Stadium
## 124	M. A. Chidambaram Stadium
## 125	Eden Gardens
## 126	Himachal Pradesh Cricket Association Stadium
## 127	Eden Gardens
## 128	Dr DY Patil Sports Academy
## 129	Dr DY Patil Sports Academy
## 130	M. A. Chidambaram Stadium
## 131	Feroz Shah Kotla
## 132	Sawai Mansingh Stadium
## 133	M. A. Chidambaram Stadium
## 134	Punjab Cricket Association Stadium, Mohali
## 135	Sawai Mansingh Stadium
## 136	M. A. Chidambaram Stadium
## 137	Eden Gardens
## 138	Punjab Cricket Association Stadium, Mohali
## 139	Wankhede Stadium
## 140	Eden Gardens
## 141	Feroz Shah Kotla
## 142	Feroz Shah Kotla
## 143	Feroz Shah Kotla
## 144	Sawai Mansingh Stadium
## 145	Eden Gardens
## 146	Wankhede Stadium
## 147	M. A. Chidambaram Stadium
## 148	M. A. Chidambaram Stadium
## 149	Eden Gardens
## 150	Wankhede Stadium
## 151	Sawai Mansingh Stadium
## 152	Punjab Cricket Association Stadium, Mohali
## 153	Sawai Mansingh Stadium
## 154	M. A. Chidambaram Stadium
## 155	M. A. Chidambaram Stadium
## 156	Himachal Pradesh Cricket Association Stadium
## 157	Himachal Pradesh Cricket Association Stadium
## 158	Wankhede Stadium
## 159	M. A. Chidambaram Stadium
## 160	Eden Gardens
## 161	Wankhede Stadium
## 162	Wankhede Stadium
## 163	M. A. Chidambaram Stadium
## 164	M. A. Chidambaram Stadium
## 165	M. A. Chidambaram Stadium
## 166	Eden Gardens
## 167	Sawai Mansingh Stadium
## 168	M. A. Chidambaram Stadium
## 169	Sawai Mansingh Stadium
## 170	M. A. Chidambaram Stadium
## 171	Feroz Shah Kotla

## 172	Wankhede Stadium
## 173	M. A. Chidambaram Stadium
## 174	Eden Gardens
## 175	Eden Gardens
## 176	M. A. Chidambaram Stadium
## 177	Wankhede Stadium
## 178	Punjab Cricket Association Stadium, Mohali
## 179	Punjab Cricket Association Stadium, Mohali
## 180	M. A. Chidambaram Stadium
## 181	Wankhede Stadium
## 182	Sawai Mansingh Stadium
## 183	Punjab Cricket Association Stadium, Mohali
## 184	Feroz Shah Kotla
## 185	M. A. Chidambaram Stadium
## 186	Eden Gardens
## 187	Feroz Shah Kotla
## 188	M. A. Chidambaram Stadium
## 189	Sawai Mansingh Stadium
## 190	M. A. Chidambaram Stadium
## 191	Punjab Cricket Association Stadium, Mohali
## 192	Wankhede Stadium
## 193	Feroz Shah Kotla
## 194	Wankhede Stadium
## 195	Sawai Mansingh Stadium
## 196	Eden Gardens
## 197	M. A. Chidambaram Stadium
## 198	M. A. Chidambaram Stadium
## 199	Eden Gardens
## 200	Feroz Shah Kotla
## 201	Wankhede Stadium
## 202	Himachal Pradesh Cricket Association Stadium
## 203	Feroz Shah Kotla
## 204	Himachal Pradesh Cricket Association Stadium
## 205	Sawai Mansingh Stadium
## 206	Subrata Roy Sahara Stadium
## 207	M. A. Chidambaram Stadium
## 208	M. A. Chidambaram Stadium
## 209	M. A. Chidambaram Stadium
## 210	Eden Gardens
## 211	M. A. Chidambaram Stadium
## 212	Feroz Shah Kotla
## 213	M. A. Chidambaram Stadium
## 214	Rajiv Gandhi International Stadium, Uppal
## 215	Sawai Mansingh Stadium
## 216	Wankhede Stadium
## 217	Punjab Cricket Association Stadium, Mohali
## 218	M. A. Chidambaram Stadium
## 219	Feroz Shah Kotla
## 220	M. A. Chidambaram Stadium
## 221	Eden Gardens
## 222	Sawai Mansingh Stadium
## 223	Punjab Cricket Association Stadium, Mohali
## 224	M. A. Chidambaram Stadium
## 225	Sawai Mansingh Stadium

## 226	Feroz Shah Kotla
## 227	Rajiv Gandhi International Stadium, Uppal
## 228	Eden Gardens
## 229	M. A. Chidambaram Stadium
## 230	Feroz Shah Kotla
## 231	M. A. Chidambaram Stadium
## 232	Himachal Pradesh Cricket Association Stadium
## 233	Eden Gardens
## 234	M. A. Chidambaram Stadium
## 235	Eden Gardens
## 236	Sawai Mansingh Stadium
## 237	Wankhede Stadium
## 238	M. A. Chidambaram Stadium
## 239	Sawai Mansingh Stadium
## 240	Wankhede Stadium
## 241	Rajiv Gandhi International Stadium, Uppal
## 242	Shaheed Veer Narayan Singh International Stadium
## 243	M. A. Chidambaram Stadium
## 244	Eden Gardens
## 245	Rajiv Gandhi International Stadium, Uppal
## 246	M. A. Chidambaram Stadium
## 247	Wankhede Stadium
## 248	M. A. Chidambaram Stadium
## 249	Sawai Mansingh Stadium
## 250	Wankhede Stadium
## 251	Rajiv Gandhi International Stadium, Uppal
## 252	Punjab Cricket Association Stadium, Mohali
## 253	Feroz Shah Kotla
## 254	Punjab Cricket Association Stadium, Mohali
## 255	JSCA International Stadium Complex
## 256	Sawai Mansingh Stadium
## 257	Feroz Shah Kotla
## 258	Wankhede Stadium
## 259	M. A. Chidambaram Stadium
## 260	Wankhede Stadium
## 261	Punjab Cricket Association Stadium, Mohali
## 262	Rajiv Gandhi International Stadium, Uppal
## 263	Himachal Pradesh Cricket Association Stadium
## 264	M. A. Chidambaram Stadium
## 265	Rajiv Gandhi International Stadium, Uppal
## 266	Feroz Shah Kotla
## 267	Feroz Shah Kotla
## 268	Eden Gardens
## 269	Eden Gardens
## 270	Sheikh Zayed Stadium
## 271	Sharjah Cricket Stadium
## 272	Sheikh Zayed Stadium
## 273	Sheikh Zayed Stadium
## 274	Dubai International Cricket Stadium
## 275	Dubai International Cricket Stadium
## 276	Sharjah Cricket Stadium
## 277	Sheikh Zayed Stadium
## 278	Sharjah Cricket Stadium
## 279	Dubai International Cricket Stadium

## 280	Sharjah Cricket Stadium
## 281	Dubai International Cricket Stadium
## 282	Dubai International Cricket Stadium
## 283	Sheikh Zayed Stadium
## 284	Sheikh Zayed Stadium
## 285	Sharjah Cricket Stadium
## 286	Sharjah Cricket Stadium
## 287	Dubai International Cricket Stadium
## 288	Sheikh Zayed Stadium
## 289	Dubai International Cricket Stadium
## 290	JSCA International Stadium Complex
## 291	Wankhede Stadium
## 292	Feroz Shah Kotla
## 293	M. A. Chidambaram Stadium
## 294	Sardar Patel Stadium, Motera
## 295	Feroz Shah Kotla
## 296	Wankhede Stadium
## 297	Feroz Shah Kotla
## 298	Barabati Stadium
## 299	Sardar Patel Stadium, Motera
## 300	M. A. Chidambaram Stadium
## 301	Feroz Shah Kotla
## 302	Wankhede Stadium
## 303	Barabati Stadium
## 304	M. A. Chidambaram Stadium
## 305	Rajiv Gandhi International Stadium, Uppal
## 306	JSCA International Stadium Complex
## 307	M. A. Chidambaram Stadium
## 308	Rajiv Gandhi International Stadium, Uppal
## 309	Barabati Stadium
## 310	Sardar Patel Stadium, Motera
## 311	JSCA International Stadium Complex
## 312	Rajiv Gandhi International Stadium, Uppal
## 313	Sardar Patel Stadium, Motera
## 314	Feroz Shah Kotla
## 315	Rajiv Gandhi International Stadium, Uppal
## 316	Eden Gardens
## 317	Punjab Cricket Association Stadium, Mohali
## 318	Eden Gardens
## 319	JSCA International Stadium Complex
## 320	Wankhede Stadium
## 321	Punjab Cricket Association Stadium, Mohali
## 322	M. A. Chidambaram Stadium
## 323	Eden Gardens
## 324	Punjab Cricket Association Stadium, Mohali
## 325	Wankhede Stadium
## 326	Eden Gardens
## 327	Brabourne Stadium
## 328	Wankhede Stadium
## 329	M. A. Chidambaram Stadium
## 330	Eden Gardens
## 331	M. A. Chidambaram Stadium
## 332	Maharashtra Cricket Association Stadium
## 333	M. A. Chidambaram Stadium



## 334	Eden Gardens
## 335	Feroz Shah Kotla
## 336	Wankhede Stadium
## 337	M. A. Chidambaram Stadium
## 338	Sardar Patel Stadium, Motera
## 339	Eden Gardens
## 340	Maharashtra Cricket Association Stadium
## 341	Dr. Y.S. Rajasekhara Reddy ACA-VDCA Cricket Stadium
## 342	Wankhede Stadium
## 343	Dr. Y.S. Rajasekhara Reddy ACA-VDCA Cricket Stadium
## 344	Maharashtra Cricket Association Stadium
## 345	Sardar Patel Stadium, Motera
## 346	M. A. Chidambaram Stadium
## 347	Feroz Shah Kotla
## 348	Sardar Patel Stadium, Motera
## 349	Dr. Y.S. Rajasekhara Reddy ACA-VDCA Cricket Stadium
## 350	M. A. Chidambaram Stadium
## 351	Feroz Shah Kotla
## 352	Sardar Patel Stadium, Motera
## 353	Wankhede Stadium
## 354	M. A. Chidambaram Stadium
## 355	Feroz Shah Kotla
## 356	Punjab Cricket Association Stadium, Mohali
## 357	Eden Gardens
## 358	M. A. Chidambaram Stadium
## 359	Feroz Shah Kotla
## 360	Wankhede Stadium
## 361	M. A. Chidambaram Stadium
## 362	Rajiv Gandhi International Stadium, Uppal
## 363	Punjab Cricket Association Stadium, Mohali
## 364	Brabourne Stadium
## 365	M. A. Chidambaram Stadium
## 366	Eden Gardens
## 367	Wankhede Stadium
## 368	M. A. Chidambaram Stadium
## 369	Brabourne Stadium
## 370	M. A. Chidambaram Stadium
## 371	Eden Gardens
## 372	Shaheed Veer Narayan Singh International Stadium
## 373	Wankhede Stadium
## 374	M. A. Chidambaram Stadium
## 375	Rajiv Gandhi International Stadium, Uppal
## 376	Shaheed Veer Narayan Singh International Stadium
## 377	Punjab Cricket Association Stadium, Mohali
## 378	Wankhede Stadium
## 379	Rajiv Gandhi International Stadium, Uppal
## 380	Punjab Cricket Association Stadium, Mohali
## 381	Brabourne Stadium
## 382	Rajiv Gandhi International Stadium, Uppal
## 383	Wankhede Stadium
## 384	Maharashtra Cricket Association Stadium
## 385	JSCA International Stadium Complex
## 386	Eden Gardens
## 387	Eden Gardens

## 388 M. A. Chidambaram Stadium  
 ## 389 Eden Gardens  
 ## 390 Feroz Shah Kotla  
 ## 391 Rajiv Gandhi International Stadium, Uppal  
 ## 392 M. A. Chidambaram Stadium  
 ## 393 Rajiv Gandhi International Stadium, Uppal  
 ## 394 Punjab Cricket Association IS Bindra Stadium, Mohali  
 ## 395 Wankhede Stadium  
 ## 396 Feroz Shah Kotla  
 ## 397 Rajiv Gandhi International Stadium, Uppal  
 ## 398 Punjab Cricket Association IS Bindra Stadium, Mohali  
 ## 399 Wankhede Stadium  
 ## 400 Feroz Shah Kotla  
 ## 401 Rajiv Gandhi International Stadium, Uppal  
 ## 402 M. A. Chidambaram Stadium  
 ## 403 Eden Gardens  
 ## 404 Punjab Cricket Association IS Bindra Stadium, Mohali  
 ## 405 Dr. Y.S. Rajasekhara Reddy ACA-VDCA Cricket Stadium  
 ## 406 Punjab Cricket Association IS Bindra Stadium, Mohali  
 ## 407 M. A. Chidambaram Stadium  
 ## 408 Rajiv Gandhi International Stadium, Uppal  
 ## 409 Dr. Y.S. Rajasekhara Reddy ACA-VDCA Cricket Stadium  
 ## 410 Punjab Cricket Association IS Bindra Stadium, Mohali  
 ## 411 Dr. Y.S. Rajasekhara Reddy ACA-VDCA Cricket Stadium  
 ## 412 Eden Gardens  
 ## 413 M. A. Chidambaram Stadium  
 ## 414 Shaheed Veer Narayan Singh International Stadium  
 ## 415 Eden Gardens  
 ## 416 Shaheed Veer Narayan Singh International Stadium  
 ## 417 Feroz Shah Kotla  
 ## 418 M. A. Chidambaram Stadium  
 ## 419 Rajiv Gandhi International Stadium, Uppal  
 ## 420 M.Chinnaswamy Stadium  
 ## 421 Wankhede Stadium  
 ## 422 Holkar Cricket Stadium  
 ## 423 Wankhede Stadium  
 ## 424 Eden Gardens  
 ## 425 M. A. Chidambaram Stadium  
 ## 426 Eden Gardens  
 ## 427 Feroz Shah Kotla  
 ## 428 Feroz Shah Kotla  
 ## 429 Rajiv Gandhi International Stadium, Uppal  
 ## 430 Rajiv Gandhi International Stadium, Uppal  
 ## 431 Holkar Cricket Stadium  
 ## 432 Wankhede Stadium  
 ## 433 Eden Gardens  
 ## 434 Eden Gardens  
 ## 435 Punjab Cricket Association IS Bindra Stadium, Mohali  
 ## 436 Punjab Cricket Association IS Bindra Stadium, Mohali  
 ## 437 Rajiv Gandhi International Stadium, Uppal  
 ## 438 Wankhede Stadium  
 ## 439 Feroz Shah Kotla  
 ## 440 M. A. Chidambaram Stadium  
 ## 441 Feroz Shah Kotla

## 442 M. A. Chidambaram Stadium  
 ## 443 Rajiv Gandhi International Stadium, Uppal  
 ## 444 Punjab Cricket Association IS Bindra Stadium, Mohali  
 ## 445 Wankhede Stadium  
 ## 446 Eden Gardens  
 ## 447 Feroz Shah Kotla  
 ## 448 M. A. Chidambaram Stadium  
 ## 449 M. A. Chidambaram Stadium  
 ## 450 Wankhede Stadium  
 ## 451 Punjab Cricket Association IS Bindra Stadium, Mohali  
 ## 452 Eden Gardens  
 ## 453 Rajiv Gandhi International Stadium, Uppal  
 ## 454 M. A. Chidambaram Stadium  
 ## 455 Sawai Mansingh Stadium  
 ## 456 Rajiv Gandhi International Stadium, Uppal  
 ## 457 M.Chinnaswamy Stadium  
 ## 458 Wankhede Stadium  
 ## 459 Eden Gardens  
 ## 460 M.Chinnaswamy Stadium  
 ## 461 Punjab Cricket Association IS Bindra Stadium, Mohali  
 ## 462 Eden Gardens  
 ## 463 Wankhede Stadium  
 ## 464 Sawai Mansingh Stadium  
 ## 465 Punjab Cricket Association IS Bindra Stadium, Mohali  
 ## 466 Maharashtra Cricket Association Stadium  
 ## 467 Eden Gardens  
 ## 468 M.Chinnaswamy Stadium  
 ## 469 Rajiv Gandhi International Stadium, Uppal  
 ## 470 Sawai Mansingh Stadium  
 ## 471 Feroz Shah Kotla  
 ## 472 Wankhede Stadium  
 ## 473 M.Chinnaswamy Stadium  
 ## 474 Rajiv Gandhi International Stadium, Uppal  
 ## 475 Feroz Shah Kotla  
 ## 476 Maharashtra Cricket Association Stadium  
 ## 477 Sawai Mansingh Stadium  
 ## 478 M.Chinnaswamy Stadium  
 ## 479 Maharashtra Cricket Association Stadium  
 ## 480 M.Chinnaswamy Stadium  
 ## 481 Feroz Shah Kotla  
 ## 482 Eden Gardens  
 ## 483 Holkar Cricket Stadium  
 ## 484 Maharashtra Cricket Association Stadium  
 ## 485 Rajiv Gandhi International Stadium, Uppal  
 ## 486 Wankhede Stadium  
 ## 487 Holkar Cricket Stadium  
 ## 488 Rajiv Gandhi International Stadium, Uppal  
 ## 489 Sawai Mansingh Stadium  
 ## 490 Eden Gardens  
 ## 491 Feroz Shah Kotla  
 ## 492 Sawai Mansingh Stadium  
 ## 493 Holkar Cricket Stadium  
 ## 494 Feroz Shah Kotla  
 ## 495 Maharashtra Cricket Association Stadium

## 496	Wankhede Stadium
## 497	Holkar Cricket Stadium
## 498	Eden Gardens
## 499	Wankhede Stadium
## 500	M.Chinnaswamy Stadium
## 501	Feroz Shah Kotla
## 502	Sawai Mansingh Stadium
## 503	Rajiv Gandhi International Stadium, Uppal
## 504	Feroz Shah Kotla
## 505	Maharashtra Cricket Association Stadium
## 506	Wankhede Stadium
## 507	Eden Gardens
## 508	Eden Gardens
## 509	Wankhede Stadium
## 510	M. A. Chidambaram Stadium
## 511	Eden Gardens
## 512	Wankhede Stadium
## 513	Sawai Mansingh Stadium
## 514	Feroz Shah Kotla
## 515	Eden Gardens
## 516	M.Chinnaswamy Stadium
## 517	Rajiv Gandhi International Stadium, Uppal
## 518	Punjab Cricket Association IS Bindra Stadium, Mohali
## 519	Feroz Shah Kotla
## 520	Rajiv Gandhi International Stadium, Uppal
## 521	M. A. Chidambaram Stadium
## 522	Punjab Cricket Association IS Bindra Stadium, Mohali
## 523	Sawai Mansingh Stadium
## 524	Wankhede Stadium
## 525	Feroz Shah Kotla
## 526	M.Chinnaswamy Stadium
## 527	M. A. Chidambaram Stadium
## 528	Rajiv Gandhi International Stadium, Uppal
## 529	M.Chinnaswamy Stadium
## 530	Sawai Mansingh Stadium
## 531	Punjab Cricket Association IS Bindra Stadium, Mohali
## 532	M. A. Chidambaram Stadium
## 533	Wankhede Stadium
## 534	Sawai Mansingh Stadium
## 535	Eden Gardens
## 536	Wankhede Stadium
## 537	Punjab Cricket Association IS Bindra Stadium, Mohali
## 538	Eden Gardens
## 539	Rajiv Gandhi International Stadium, Uppal
## 540	Wankhede Stadium
## 541	Punjab Cricket Association IS Bindra Stadium, Mohali
## 542	Rajiv Gandhi International Stadium, Uppal
## 543	Feroz Shah Kotla
## 544	Eden Gardens
## 545	Sawai Mansingh Stadium
## 546	Feroz Shah Kotla
## 547	Rajiv Gandhi International Stadium, Uppal
## 548	M.Chinnaswamy Stadium
## 549	Sawai Mansingh Stadium

## 550	M. A. Chidambaram Stadium
## 551	M.Chinnaswamy Stadium
## 552	Eden Gardens
## 553	M. A. Chidambaram Stadium
## 554	Sawai Mansingh Stadium
## 555	Feroz Shah Kotla
## 556	Eden Gardens
## 557	Rajiv Gandhi International Stadium, Uppal
## 558	M. A. Chidambaram Stadium
## 559	Wankhede Stadium
## 560	Punjab Cricket Association IS Bindra Stadium, Mohali
## 561	Feroz Shah Kotla
## 562	M.Chinnaswamy Stadium
## 563	Punjab Cricket Association IS Bindra Stadium, Mohali
## 564	Wankhede Stadium
## 565	M. A. Chidambaram Stadium
## 566	Dr. Y.S. Rajasekhara Reddy ACA-VDCA Cricket Stadium
## 567	Dr. Y.S. Rajasekhara Reddy ACA-VDCA Cricket Stadium
## 568	Rajiv Gandhi International Stadium, Uppal
## 569	Sheikh Zayed Stadium
## 570	Dubai International Cricket Stadium
## 571	Sheikh Zayed Stadium
## 572	Sharjah Cricket Stadium
## 573	Sharjah Cricket Stadium
## 574	Sheikh Zayed Stadium
## 575	Dubai International Cricket Stadium
## 576	Sheikh Zayed Stadium
## 577	Sharjah Cricket Stadium
## 578	Sheikh Zayed Stadium
## 579	Sharjah Cricket Stadium
## 580	Sheikh Zayed Stadium
## 581	Dubai International Cricket Stadium
## 582	Sheikh Zayed Stadium
## 583	Sheikh Zayed Stadium
## 584	Dubai International Cricket Stadium
## 585	Sheikh Zayed Stadium
## 586	Sharjah Cricket Stadium
## 587	Dubai International Cricket Stadium
## 588	Sheikh Zayed Stadium
## 589	Sheikh Zayed Stadium
## 590	Dubai International Cricket Stadium
## 591	Sheikh Zayed Stadium
## 592	Sharjah Cricket Stadium
## 593	Dubai International Cricket Stadium
## 594	Dubai International Cricket Stadium
## 595	Dubai International Cricket Stadium
## 596	Dubai International Cricket Stadium
## 597	Sharjah Cricket Stadium
## 598	Sharjah Cricket Stadium
## 599	Dubai International Cricket Stadium
## 600	Sheikh Zayed Stadium
## 601	Dubai International Cricket Stadium
## 602	Dubai International Cricket Stadium
## 603	Sheikh Zayed Stadium

## 604	Sharjah Cricket Stadium
## 605	Dubai International Cricket Stadium
## 606	Sheikh Zayed Stadium
## 607	Dubai International Cricket Stadium
## 608	Sharjah Cricket Stadium
## 609	Sheikh Zayed Stadium
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## 613	Dubai International Cricket Stadium
## 614	Sheikh Zayed Stadium
## 615	Sharjah Cricket Stadium
## 616	Dubai International Cricket Stadium
## 617	Sharjah Cricket Stadium
## 618	Sheikh Zayed Stadium
## 619	Dubai International Cricket Stadium
## 620	Dubai International Cricket Stadium
## 621	Dubai International Cricket Stadium
## 622	Sheikh Zayed Stadium
## 623	Dubai International Cricket Stadium
## 624	Dubai International Cricket Stadium
## 625	Dubai International Cricket Stadium
## 626	Sheikh Zayed Stadium
## 627	Sheikh Zayed Stadium
## 628	Dubai International Cricket Stadium
##	toss_winner toss_decision
## 1	Royal Challengers Bangalore field
## 2	Chennai Super Kings bat
## 3	Rajasthan Royals bat
## 4	Mumbai Indians bat
## 5	Punjab Kings bat
## 6	Mumbai Indians field
## 7	Mumbai Indians field
## 8	Rajasthan Royals field
## 9	Kolkata Knight Riders bat
## 10	Delhi Capitals bat
## 11	Chennai Super Kings bat
## 12	Kolkata Knight Riders bat
## 13	Royal Challengers Bangalore field
## 14	Rajasthan Royals bat
## 15	Chennai Super Kings bat
## 16	Punjab Kings bat
## 17	Delhi Capitals field
## 18	Chennai Super Kings bat
## 19	Punjab Kings field
## 20	Mumbai Indians field
## 21	Chennai Super Kings field
## 22	Kolkata Knight Riders bat
## 23	Mumbai Indians field
## 24	Punjab Kings field
## 25	Rajasthan Royals field
## 26	Royal Challengers Bangalore bat
## 27	Kolkata Knight Riders bat
## 28	Mumbai Indians field

## 29	Rajasthan Royals	field
## 30	Mumbai Indians	field
## 31	Delhi Capitals	bat
## 32	Royal Challengers Bangalore	field
## 33	Kolkata Knight Riders	bat
## 34	Delhi Capitals	field
## 35	Rajasthan Royals	field
## 36	Mumbai Indians	field
## 37	Royal Challengers Bangalore	bat
## 38	Delhi Capitals	field
## 39	Rajasthan Royals	bat
## 40	Punjab Kings	bat
## 41	Rajasthan Royals	field
## 42	Delhi Capitals	field
## 43	Punjab Kings	bat
## 44	Rajasthan Royals	field
## 45	Chennai Super Kings	field
## 46	Royal Challengers Bangalore	bat
## 47	Delhi Capitals	field
## 48	Chennai Super Kings	bat
## 49	Kolkata Knight Riders	field
## 50	Delhi Capitals	bat
## 51	Kolkata Knight Riders	field
## 52	Royal Challengers Bangalore	bat
## 53	Royal Challengers Bangalore	bat
## 54	Punjab Kings	bat
## 55	Mumbai Indians	bat
## 56	Delhi Capitals	bat
## 57	Kolkata Knight Riders	bat
## 58	Punjab Kings	bat
## 59	Rajasthan Royals	field
## 60	Mumbai Indians	bat
## 61	Royal Challengers Bangalore	bat
## 62	Delhi Capitals	field
## 63	Kolkata Knight Riders	bat
## 64	Mumbai Indians	bat
## 65	Punjab Kings	field
## 66	Kolkata Knight Riders	bat
## 67	Rajasthan Royals	field
## 68	Chennai Super Kings	bat
## 69	Mumbai Indians	bat
## 70	Rajasthan Royals	bat
## 71	Mumbai Indians	bat
## 72	Delhi Capitals	field
## 73	Royal Challengers Bangalore	field
## 74	Punjab Kings	bat
## 75	Chennai Super Kings	bat
## 76	Rajasthan Royals	bat
## 77	Punjab Kings	field
## 78	Mumbai Indians	bat
## 79	Delhi Capitals	bat
## 80	Chennai Super Kings	bat
## 81	Delhi Capitals	bat
## 82	Kolkata Knight Riders	field

## 83	Chennai Super Kings	bat
## 84	Delhi Capitals	field
## 85	Royal Challengers Bangalore	field
## 86	Mumbai Indians	bat
## 87	Delhi Capitals	field
## 88	Kolkata Knight Riders	field
## 89	Delhi Capitals	field
## 90	Punjab Kings	bat
## 91	Chennai Super Kings	bat
## 92	Delhi Capitals	field
## 93	Royal Challengers Bangalore	field
## 94	Delhi Capitals	bat
## 95	Rajasthan Royals	bat
## 96	Mumbai Indians	bat
## 97	Chennai Super Kings	field
## 98	Kolkata Knight Riders	bat
## 99	Chennai Super Kings	field
## 100	Punjab Kings	field
## 101	Mumbai Indians	field
## 102	Kolkata Knight Riders	bat
## 103	Royal Challengers Bangalore	field
## 104	Rajasthan Royals	bat
## 105	Delhi Capitals	bat
## 106	Mumbai Indians	field
## 107	Royal Challengers Bangalore	bat
## 108	Delhi Capitals	bat
## 109	Punjab Kings	bat
## 110	Chennai Super Kings	bat
## 111	Kolkata Knight Riders	bat
## 112	Delhi Capitals	bat
## 113	Chennai Super Kings	bat
## 114	Punjab Kings	bat
## 115	Kolkata Knight Riders	bat
## 116	Mumbai Indians	bat
## 117	Royal Challengers Bangalore	field
## 118	Delhi Capitals	bat
## 119	Rajasthan Royals	field
## 120	Mumbai Indians	bat
## 121	Kolkata Knight Riders	bat
## 122	Rajasthan Royals	bat
## 123	Chennai Super Kings	bat
## 124	Royal Challengers Bangalore	field
## 125	Rajasthan Royals	bat
## 126	Chennai Super Kings	field
## 127	Mumbai Indians	bat
## 128	Mumbai Indians	bat
## 129	Chennai Super Kings	bat
## 130	Chennai Super Kings	bat
## 131	Delhi Capitals	bat
## 132	Delhi Capitals	bat
## 133	Mumbai Indians	field
## 134	Punjab Kings	field
## 135	Kolkata Knight Riders	field
## 136	Chennai Super Kings	bat



## 137	Kolkata Knight Riders	field
## 138	Rajasthan Royals	field
## 139	Chennai Super Kings	field
## 140	Royal Challengers Bangalore	field
## 141	Punjab Kings	field
## 142	Royal Challengers Bangalore	field
## 143	Delhi Capitals	field
## 144	Rajasthan Royals	field
## 145	Kolkata Knight Riders	field
## 146	Punjab Kings	field
## 147	Rajasthan Royals	bat
## 148	Punjab Kings	field
## 149	Chennai Super Kings	bat
## 150	Delhi Capitals	field
## 151	Rajasthan Royals	field
## 152	Mumbai Indians	field
## 153	Royal Challengers Bangalore	field
## 154	Chennai Super Kings	bat
## 155	Royal Challengers Bangalore	field
## 156	Delhi Capitals	field
## 157	Punjab Kings	bat
## 158	Mumbai Indians	bat
## 159	Royal Challengers Bangalore	field
## 160	Mumbai Indians	field
## 161	Chennai Super Kings	field
## 162	Mumbai Indians	field
## 163	Mumbai Indians	field
## 164	Chennai Super Kings	bat
## 165	Mumbai Indians	field
## 166	Delhi Capitals	field
## 167	Punjab Kings	field
## 168	Delhi Capitals	field
## 169	Kolkata Knight Riders	field
## 170	Royal Challengers Bangalore	field
## 171	Delhi Capitals	field
## 172	Rajasthan Royals	field
## 173	Royal Challengers Bangalore	bat
## 174	Rajasthan Royals	bat
## 175	Kolkata Knight Riders	field
## 176	Rajasthan Royals	bat
## 177	Delhi Capitals	field
## 178	Punjab Kings	bat
## 179	Royal Challengers Bangalore	field
## 180	Rajasthan Royals	bat
## 181	Mumbai Indians	bat
## 182	Rajasthan Royals	field
## 183	Punjab Kings	bat
## 184	Mumbai Indians	field
## 185	Punjab Kings	bat
## 186	Kolkata Knight Riders	bat
## 187	Delhi Capitals	bat
## 188	Chennai Super Kings	bat
## 189	Rajasthan Royals	bat
## 190	Punjab Kings	field

## 191	Rajasthan Royals	bat
## 192	Mumbai Indians	field
## 193	Delhi Capitals	bat
## 194	Royal Challengers Bangalore	field
## 195	Chennai Super Kings	field
## 196	Mumbai Indians	bat
## 197	Chennai Super Kings	field
## 198	Mumbai Indians	field
## 199	Chennai Super Kings	field
## 200	Punjab Kings	bat
## 201	Mumbai Indians	field
## 202	Punjab Kings	field
## 203	Delhi Capitals	field
## 204	Delhi Capitals	field
## 205	Rajasthan Royals	bat
## 206	Kolkata Knight Riders	bat
## 207	Mumbai Indians	field
## 208	Delhi Capitals	field
## 209	Chennai Super Kings	bat
## 210	Kolkata Knight Riders	field
## 211	Mumbai Indians	field
## 212	Rajasthan Royals	bat
## 213	Mumbai Indians	bat
## 214	Royal Challengers Bangalore	bat
## 215	Kolkata Knight Riders	field
## 216	Mumbai Indians	bat
## 217	Chennai Super Kings	field
## 218	Royal Challengers Bangalore	field
## 219	Delhi Capitals	bat
## 220	Chennai Super Kings	field
## 221	Kolkata Knight Riders	bat
## 222	Rajasthan Royals	field
## 223	Kolkata Knight Riders	field
## 224	Royal Challengers Bangalore	field
## 225	Rajasthan Royals	bat
## 226	Chennai Super Kings	bat
## 227	Punjab Kings	bat
## 228	Kolkata Knight Riders	bat
## 229	Royal Challengers Bangalore	field
## 230	Mumbai Indians	bat
## 231	Rajasthan Royals	bat
## 232	Delhi Capitals	field
## 233	Kolkata Knight Riders	bat
## 234	Sunrisers Hyderabad	bat
## 235	Punjab Kings	bat
## 236	Sunrisers Hyderabad	bat
## 237	Mumbai Indians	bat
## 238	Kolkata Knight Riders	field
## 239	Rajasthan Royals	field
## 240	Mumbai Indians	bat
## 241	Mumbai Indians	bat
## 242	Kolkata Knight Riders	bat
## 243	Chennai Super Kings	bat
## 244	Rajasthan Royals	bat

## 245	Delhi Capitals	bat
## 246	Punjab Kings	field
## 247	Mumbai Indians	bat
## 248	Sunrisers Hyderabad	bat
## 249	Delhi Capitals	bat
## 250	Mumbai Indians	bat
## 251	Sunrisers Hyderabad	field
## 252	Rajasthan Royals	field
## 253	Delhi Capitals	field
## 254	Punjab Kings	field
## 255	Kolkata Knight Riders	field
## 256	Rajasthan Royals	field
## 257	Punjab Kings	field
## 258	Sunrisers Hyderabad	bat
## 259	Chennai Super Kings	bat
## 260	Rajasthan Royals	field
## 261	Punjab Kings	field
## 262	Sunrisers Hyderabad	bat
## 263	Mumbai Indians	field
## 264	Chennai Super Kings	field
## 265	Kolkata Knight Riders	bat
## 266	Chennai Super Kings	bat
## 267	Sunrisers Hyderabad	bat
## 268	Rajasthan Royals	bat
## 269	Mumbai Indians	bat
## 270	Kolkata Knight Riders	bat
## 271	Royal Challengers Bangalore	field
## 272	Chennai Super Kings	bat
## 273	Rajasthan Royals	field
## 274	Royal Challengers Bangalore	field
## 275	Kolkata Knight Riders	bat
## 276	Punjab Kings	field
## 277	Chennai Super Kings	bat
## 278	Sunrisers Hyderabad	field
## 279	Rajasthan Royals	field
## 280	Royal Challengers Bangalore	field
## 281	Sunrisers Hyderabad	bat
## 282	Mumbai Indians	bat
## 283	Rajasthan Royals	field
## 284	Kolkata Knight Riders	field
## 285	Mumbai Indians	bat
## 286	Sunrisers Hyderabad	bat
## 287	Punjab Kings	field
## 288	Rajasthan Royals	bat
## 289	Mumbai Indians	field
## 290	Chennai Super Kings	bat
## 291	Punjab Kings	bat
## 292	Rajasthan Royals	field
## 293	Royal Challengers Bangalore	field
## 294	Kolkata Knight Riders	field
## 295	Chennai Super Kings	field
## 296	Royal Challengers Bangalore	field
## 297	Delhi Capitals	bat
## 298	Chennai Super Kings	field

## 299	Rajasthan Royals	field
## 300	Royal Challengers Bangalore	field
## 301	Sunrisers Hyderabad	field
## 302	Chennai Super Kings	field
## 303	Kolkata Knight Riders	field
## 304	Royal Challengers Bangalore	bat
## 305	Sunrisers Hyderabad	bat
## 306	Rajasthan Royals	bat
## 307	Delhi Capitals	field
## 308	Punjab Kings	field
## 309	Kolkata Knight Riders	field
## 310	Delhi Capitals	field
## 311	Chennai Super Kings	bat
## 312	Sunrisers Hyderabad	bat
## 313	Mumbai Indians	bat
## 314	Punjab Kings	field
## 315	Royal Challengers Bangalore	bat
## 316	Kolkata Knight Riders	field
## 317	Mumbai Indians	field
## 318	Royal Challengers Bangalore	field
## 319	Sunrisers Hyderabad	field
## 320	Delhi Capitals	field
## 321	Rajasthan Royals	field
## 322	Chennai Super Kings	field
## 323	Kolkata Knight Riders	field
## 324	Punjab Kings	field
## 325	Mumbai Indians	field
## 326	Punjab Kings	field
## 327	Chennai Super Kings	field
## 328	Chennai Super Kings	field
## 329	Kolkata Knight Riders	field
## 330	Kolkata Knight Riders	field
## 331	Delhi Capitals	field
## 332	Punjab Kings	field
## 333	Chennai Super Kings	bat
## 334	Royal Challengers Bangalore	field
## 335	Rajasthan Royals	field
## 336	Mumbai Indians	field
## 337	Sunrisers Hyderabad	field
## 338	Mumbai Indians	bat
## 339	Kolkata Knight Riders	field
## 340	Punjab Kings	bat
## 341	Rajasthan Royals	field
## 342	Mumbai Indians	bat
## 343	Delhi Capitals	bat
## 344	Kolkata Knight Riders	field
## 345	Chennai Super Kings	bat
## 346	Royal Challengers Bangalore	field
## 347	Kolkata Knight Riders	field
## 348	Punjab Kings	field
## 349	Kolkata Knight Riders	field
## 350	Royal Challengers Bangalore	field
## 351	Mumbai Indians	field
## 352	Royal Challengers Bangalore	field

## 353	Mumbai Indians	bat
## 354	Chennai Super Kings	bat
## 355	Royal Challengers Bangalore	field
## 356	Punjab Kings	field
## 357	Kolkata Knight Riders	bat
## 358	Kolkata Knight Riders	field
## 359	Delhi Capitals	field
## 360	Rajasthan Royals	field
## 361	Royal Challengers Bangalore	field
## 362	Chennai Super Kings	field
## 363	Mumbai Indians	bat
## 364	Delhi Capitals	field
## 365	Chennai Super Kings	bat
## 366	Sunrisers Hyderabad	field
## 367	Delhi Capitals	bat
## 368	Punjab Kings	field
## 369	Rajasthan Royals	field
## 370	Chennai Super Kings	bat
## 371	Punjab Kings	bat
## 372	Sunrisers Hyderabad	bat
## 373	Royal Challengers Bangalore	bat
## 374	Chennai Super Kings	bat
## 375	Sunrisers Hyderabad	bat
## 376	Chennai Super Kings	bat
## 377	Royal Challengers Bangalore	field
## 378	Kolkata Knight Riders	field
## 379	Sunrisers Hyderabad	bat
## 380	Punjab Kings	bat
## 381	Rajasthan Royals	bat
## 382	Sunrisers Hyderabad	bat
## 383	Mumbai Indians	bat
## 384	Royal Challengers Bangalore	bat
## 385	Chennai Super Kings	field
## 386	Chennai Super Kings	field
## 387	Kolkata Knight Riders	field
## 388	Sunrisers Hyderabad	field
## 389	Mumbai Indians	field
## 390	Delhi Capitals	field
## 391	Sunrisers Hyderabad	bat
## 392	Delhi Capitals	field
## 393	Sunrisers Hyderabad	field
## 394	Kolkata Knight Riders	field
## 395	Mumbai Indians	field
## 396	Mumbai Indians	field
## 397	Sunrisers Hyderabad	field
## 398	Punjab Kings	field
## 399	Mumbai Indians	field
## 400	Kolkata Knight Riders	field
## 401	Royal Challengers Bangalore	field
## 402	Kolkata Knight Riders	field
## 403	Punjab Kings	field
## 404	Delhi Capitals	field
## 405	Mumbai Indians	field
## 406	Punjab Kings	field

## 407	Mumbai Indians	field
## 408	Delhi Capitals	field
## 409	Mumbai Indians	bat
## 410	Punjab Kings	bat
## 411	Delhi Capitals	field
## 412	Royal Challengers Bangalore	field
## 413	Punjab Kings	field
## 414	Delhi Capitals	field
## 415	Sunrisers Hyderabad	field
## 416	Royal Challengers Bangalore	field
## 417	Kolkata Knight Riders	field
## 418	Sunrisers Hyderabad	bat
## 419	Royal Challengers Bangalore	field
## 420	Royal Challengers Bangalore	bat
## 421	Mumbai Indians	field
## 422	Royal Challengers Bangalore	bat
## 423	Mumbai Indians	field
## 424	Kolkata Knight Riders	field
## 425	Mumbai Indians	field
## 426	Sunrisers Hyderabad	field
## 427	Delhi Capitals	bat
## 428	Delhi Capitals	bat
## 429	Punjab Kings	field
## 430	Sunrisers Hyderabad	bat
## 431	Mumbai Indians	field
## 432	Delhi Capitals	field
## 433	Royal Challengers Bangalore	field
## 434	Kolkata Knight Riders	field
## 435	Punjab Kings	field
## 436	Punjab Kings	field
## 437	Kolkata Knight Riders	field
## 438	Royal Challengers Bangalore	bat
## 439	Delhi Capitals	field
## 440	Royal Challengers Bangalore	field
## 441	Delhi Capitals	field
## 442	Kolkata Knight Riders	field
## 443	Mumbai Indians	bat
## 444	Kolkata Knight Riders	field
## 445	Mumbai Indians	field
## 446	Kolkata Knight Riders	field
## 447	Royal Challengers Bangalore	bat
## 448	Kolkata Knight Riders	field
## 449	Mumbai Indians	field
## 450	Chennai Super Kings	field
## 451	Punjab Kings	field
## 452	Kolkata Knight Riders	field
## 453	Sunrisers Hyderabad	field
## 454	Chennai Super Kings	field
## 455	Delhi Capitals	field
## 456	Sunrisers Hyderabad	field
## 457	Royal Challengers Bangalore	field
## 458	Delhi Capitals	field
## 459	Sunrisers Hyderabad	field
## 460	Royal Challengers Bangalore	field

## 461	Chennai Super Kings	field
## 462	Delhi Capitals	field
## 463	Royal Challengers Bangalore	field
## 464	Kolkata Knight Riders	field
## 465	Punjab Kings	bat
## 466	Rajasthan Royals	field
## 467	Punjab Kings	field
## 468	Royal Challengers Bangalore	field
## 469	Sunrisers Hyderabad	field
## 470	Mumbai Indians	bat
## 471	Delhi Capitals	field
## 472	Mumbai Indians	field
## 473	Chennai Super Kings	field
## 474	Punjab Kings	field
## 475	Kolkata Knight Riders	field
## 476	Mumbai Indians	field
## 477	Sunrisers Hyderabad	bat
## 478	Kolkata Knight Riders	field
## 479	Delhi Capitals	field
## 480	Mumbai Indians	field
## 481	Rajasthan Royals	field
## 482	Kolkata Knight Riders	field
## 483	Mumbai Indians	field
## 484	Chennai Super Kings	field
## 485	Delhi Capitals	bat
## 486	Kolkata Knight Riders	field
## 487	Punjab Kings	field
## 488	Royal Challengers Bangalore	field
## 489	Rajasthan Royals	bat
## 490	Kolkata Knight Riders	field
## 491	Delhi Capitals	bat
## 492	Chennai Super Kings	bat
## 493	Punjab Kings	field
## 494	Royal Challengers Bangalore	field
## 495	Chennai Super Kings	field
## 496	Rajasthan Royals	field
## 497	Royal Challengers Bangalore	field
## 498	Kolkata Knight Riders	field
## 499	Punjab Kings	field
## 500	Sunrisers Hyderabad	field
## 501	Chennai Super Kings	field
## 502	Rajasthan Royals	bat
## 503	Sunrisers Hyderabad	bat
## 504	Delhi Capitals	bat
## 505	Chennai Super Kings	field
## 506	Chennai Super Kings	field
## 507	Rajasthan Royals	field
## 508	Kolkata Knight Riders	field
## 509	Chennai Super Kings	field
## 510	Chennai Super Kings	field
## 511	Kolkata Knight Riders	field
## 512	Mumbai Indians	field
## 513	Rajasthan Royals	field
## 514	Delhi Capitals	bat

## 515	Punjab Kings	field
## 516	Royal Challengers Bangalore	field
## 517	Rajasthan Royals	bat
## 518	Punjab Kings	field
## 519	Delhi Capitals	field
## 520	Royal Challengers Bangalore	field
## 521	Rajasthan Royals	field
## 522	Delhi Capitals	field
## 523	Rajasthan Royals	field
## 524	Chennai Super Kings	field
## 525	Sunrisers Hyderabad	field
## 526	Kolkata Knight Riders	field
## 527	Chennai Super Kings	bat
## 528	Sunrisers Hyderabad	field
## 529	Delhi Capitals	field
## 530	Kolkata Knight Riders	field
## 531	Punjab Kings	field
## 532	Chennai Super Kings	field
## 533	Mumbai Indians	field
## 534	Chennai Super Kings	field
## 535	Delhi Capitals	field
## 536	Rajasthan Royals	field
## 537	Royal Challengers Bangalore	field
## 538	Chennai Super Kings	field
## 539	Sunrisers Hyderabad	field
## 540	Mumbai Indians	field
## 541	Rajasthan Royals	field
## 542	Chennai Super Kings	bat
## 543	Mumbai Indians	bat
## 544	Kolkata Knight Riders	field
## 545	Rajasthan Royals	field
## 546	Delhi Capitals	field
## 547	Sunrisers Hyderabad	field
## 548	Chennai Super Kings	field
## 549	Delhi Capitals	field
## 550	Chennai Super Kings	field
## 551	Punjab Kings	field
## 552	Rajasthan Royals	field
## 553	Chennai Super Kings	field
## 554	Rajasthan Royals	field
## 555	Delhi Capitals	bat
## 556	Mumbai Indians	field
## 557	Punjab Kings	field
## 558	Delhi Capitals	field
## 559	Mumbai Indians	bat
## 560	Kolkata Knight Riders	field
## 561	Rajasthan Royals	bat
## 562	Royal Challengers Bangalore	field
## 563	Punjab Kings	field
## 564	Mumbai Indians	field
## 565	Chennai Super Kings	bat
## 566	Delhi Capitals	field
## 567	Chennai Super Kings	field
## 568	Mumbai Indians	bat



## 569	Chennai Super Kings	field
## 570	Punjab Kings	field
## 571	Kolkata Knight Riders	bat
## 572	Sunrisers Hyderabad	field
## 573	Chennai Super Kings	field
## 574	Delhi Capitals	field
## 575	Sunrisers Hyderabad	field
## 576	Mumbai Indians	field
## 577	Rajasthan Royals	field
## 578	Kolkata Knight Riders	bat
## 579	Sunrisers Hyderabad	field
## 580	Punjab Kings	field
## 581	Rajasthan Royals	field
## 582	Delhi Capitals	field
## 583	Chennai Super Kings	field
## 584	Sunrisers Hyderabad	bat
## 585	Kolkata Knight Riders	field
## 586	Chennai Super Kings	bat
## 587	Royal Challengers Bangalore	field
## 588	Mumbai Indians	bat
## 589	Sunrisers Hyderabad	field
## 590	Punjab Kings	bat
## 591	Rajasthan Royals	bat
## 592	Kolkata Knight Riders	field
## 593	Sunrisers Hyderabad	bat
## 594	Mumbai Indians	bat
## 595	Sunrisers Hyderabad	field
## 596	Royal Challengers Bangalore	field
## 597	Punjab Kings	field
## 598	Mumbai Indians	field
## 599	Rajasthan Royals	bat
## 600	Kolkata Knight Riders	bat
## 601	Delhi Capitals	field
## 602	Royal Challengers Bangalore	bat
## 603	Kolkata Knight Riders	bat
## 604	Rajasthan Royals	field
## 605	Chennai Super Kings	bat
## 606	Delhi Capitals	bat
## 607	Rajasthan Royals	field
## 608	Royal Challengers Bangalore	bat
## 609	Delhi Capitals	field
## 610	Chennai Super Kings	bat
## 611	Sunrisers Hyderabad	field
## 612	Mumbai Indians	field
## 613	Chennai Super Kings	field
## 614	Rajasthan Royals	field
## 615	Mumbai Indians	bat
## 616	Chennai Super Kings	field
## 617	Royal Challengers Bangalore	bat
## 618	Mumbai Indians	bat
## 619	Sunrisers Hyderabad	bat
## 620	Delhi Capitals	bat
## 621	Royal Challengers Bangalore	bat
## 622	Sunrisers Hyderabad	bat

```
## 623          Delhi Capitals          bat
## 624          Mumbai Indians          field
## 625          Delhi Capitals          field
## 626          Sunrisers Hyderabad      field
## 627          Delhi Capitals          bat
## 628          Delhi Capitals          bat
```

```
## [1] 8
```

```
## [1] "Chennai Super Kings"          "Delhi Capitals"
## [3] "Kolkata Knight Riders"         "Mumbai Indians"
## [5] "Punjab Kings"                  "Rajasthan Royals"
## [7] "Royal Challengers Bangalore"   "Sunrisers Hyderabad"
```

```
## [1] "Chennai Super Kings"          "Delhi Capitals"
## [3] "Kolkata Knight Riders"         "Mumbai Indians"
## [5] "Punjab Kings"                  "Rajasthan Royals"
## [7] "Royal Challengers Bangalore"   "Sunrisers Hyderabad"
```

```
## [1] "Chennai Super Kings"          "Delhi Capitals"
## [3] "Kolkata Knight Riders"         "Mumbai Indians"
## [5] "Punjab Kings"                  "Rajasthan Royals"
## [7] "Royal Challengers Bangalore"   "Sunrisers Hyderabad"
```

```
## [1] "Chennai Super Kings"          "Delhi Capitals"
## [3] "Kolkata Knight Riders"         "Mumbai Indians"
## [5] "Punjab Kings"                  "Rajasthan Royals"
## [7] "Royal Challengers Bangalore"   "Sunrisers Hyderabad"
```

```
## [1] "RCB"          "Punjab"       "DC"           "Mumbai"       "Rajasthan"    "CSK"
## [7] "Punjab"       "RCB"          "CSK"          "Punjab"       "RCB"          "KKR"
## [13] "DC"           "Rajasthan"    "CSK"          "Punjab"       "Mumbai"       "Rajasthan"
## [19] "RCB"          "Mumbai"       "DC"           "KKR"          "RCB"          "CSK"
## [25] "Rajasthan"    "Punjab"       "KKR"          "Mumbai"       "Punjab"       "Mumbai"
## [31] "DC"           "Rajasthan"    "KKR"          "RCB"          "KKR"          "Mumbai"
## [37] "CSK"          "DC"           "CSK"          "KKR"          "Rajasthan"    "DC"
## [43] "CSK"          "CSK"          "CSK"          "RCB"          "DC"           "RCB"
## [49] "Punjab"       "CSK"          "KKR"          "RCB"          "RCB"          "Punjab"
## [55] "KKR"          "DC"           "RCB"          "Punjab"       "CSK"          "KKR"
## [61] "RCB"          "CSK"          "Punjab"       "RCB"          "Punjab"       "DC"
## [67] "RCB"          "CSK"          "DC"           "CSK"          "RCB"          "DC"
## [73] "RCB"          "Punjab"       "RCB"          "Mumbai"       "DC"           "CSK"
## [79] "DC"           "CSK"          "RCB"          "KKR"          "CSK"          "DC"
## [85] "RCB"          "Mumbai"       "Punjab"       "KKR"          "Rajasthan"    "RCB"
## [91] "KKR"          "DC"           "RCB"          "DC"          "Rajasthan"    "Mumbai"
## [97] "CSK"          "Mumbai"       "RCB"          "Punjab"       "Mumbai"       "Punjab"
## [103] "RCB"          "Rajasthan"    "DC"           "Mumbai"       "CSK"          "DC"
## [109] "Punjab"       "CSK"          "KKR"          "DC"          "CSK"          "Rajasthan"
## [115] "KKR"          "Punjab"       "RCB"          "DC"          "Rajasthan"    "Mumbai"
## [121] "CSK"          "Rajasthan"    "CSK"          "RCB"          "KKR"          "Punjab"
## [127] "KKR"          "RCB"          "CSK"          "CSK"          "DC"           "Rajasthan"
## [133] "RCB"          "Punjab"       "Rajasthan"    "CSK"          "KKR"          "Punjab"
```

## [139]	"Mumbai"	"KKR"	"DC"	"DC"	"DC"	"Rajasthan"
## [145]	"KKR"	"Mumbai"	"CSK"	"RCB"	"KKR"	"Mumbai"
## [151]	"Rajasthan"	"Punjab"	"Rajasthan"	"CSK"	"RCB"	"Punjab"
## [157]	"Punjab"	"Mumbai"	"RCB"	"KKR"	"RCB"	"Mumbai"
## [163]	"RCB"	"CSK"	"CSK"	"KKR"	"Rajasthan"	"RCB"
## [169]	"Rajasthan"	"RCB"	"DC"	"Mumbai"	"CSK"	"KKR"
## [175]	"KKR"	"RCB"	"Mumbai"	"Punjab"	"Punjab"	"CSK"
## [181]	"Mumbai"	"Rajasthan"	"Punjab"	"DC"	"CSK"	"KKR"
## [187]	"DC"	"CSK"	"Rajasthan"	"RCB"	"Punjab"	"Mumbai"
## [193]	"DC"	"Mumbai"	"Rajasthan"	"KKR"	"CSK"	"RCB"
## [199]	"KKR"	"DC"	"Mumbai"	"Punjab"	"DC"	"Punjab"
## [205]	"Rajasthan"	"DC"	"CSK"	"DC"	"KKR"	"KKR"
## [211]	"RCB"	"DC"	"CSK"	"Hyd"	"Rajasthan"	"Mumbai"
## [217]	"Punjab"	"RCB"	"DC"	"CSK"	"KKR"	"Rajasthan"
## [223]	"Punjab"	"RCB"	"Rajasthan"	"DC"	"Hyd"	"KKR"
## [229]	"RCB"	"DC"	"CSK"	"Punjab"	"KKR"	"CSK"
## [235]	"KKR"	"Rajasthan"	"Mumbai"	"CSK"	"Rajasthan"	"Mumbai"
## [241]	"Hyd"	"DC"	"CSK"	"KKR"	"Hyd"	"RCB"
## [247]	"Mumbai"	"RCB"	"Rajasthan"	"Mumbai"	"Hyd"	"Punjab"
## [253]	"DC"	"Punjab"	"KKR"	"Rajasthan"	"DC"	"Mumbai"
## [259]	"CSK"	"Mumbai"	"Punjab"	"Hyd"	"Punjab"	"RCB"
## [265]	"Hyd"	"CSK"	"Rajasthan"	"Mumbai"	"CSK"	"Mumbai"
## [271]	"DC"	"CSK"	"Hyd"	"RCB"	"KKR"	"Rajasthan"
## [277]	"CSK"	"Punjab"	"Rajasthan"	"RCB"	"Hyd"	"CSK"
## [283]	"Rajasthan"	"KKR"	"DC"	"Hyd"	"Punjab"	"KKR"
## [289]	"Mumbai"	"CSK"	"Mumbai"	"DC"	"RCB"	"Rajasthan"
## [295]	"DC"	"Mumbai"	"DC"	"Punjab"	"Rajasthan"	"RCB"
## [301]	"DC"	"Mumbai"	"Punjab"	"RCB"	"Hyd"	"CSK"
## [307]	"RCB"	"Hyd"	"KKR"	"Rajasthan"	"CSK"	"Hyd"
## [313]	"Rajasthan"	"DC"	"Hyd"	"KKR"	"Punjab"	"KKR"
## [319]	"CSK"	"Mumbai"	"Punjab"	"RCB"	"KKR"	"Punjab"
## [325]	"Mumbai"	"Punjab"	"CSK"	"CSK"	"KKR"	"KKR"
## [331]	"CSK"	"Punjab"	"CSK"	"KKR"	"DC"	"Mumbai"
## [337]	"RCB"	"Rajasthan"	"KKR"	"Punjab"	"Hyd"	"Mumbai"
## [343]	"Hyd"	"Punjab"	"Rajasthan"	"RCB"	"DC"	"Rajasthan"
## [349]	"Hyd"	"RCB"	"DC"	"Rajasthan"	"Mumbai"	"CSK"
## [355]	"DC"	"Punjab"	"KKR"	"CSK"	"DC"	"Mumbai"
## [361]	"RCB"	"Hyd"	"Punjab"	"Rajasthan"	"CSK"	"KKR"
## [367]	"Mumbai"	"RCB"	"Rajasthan"	"CSK"	"KKR"	"DC"
## [373]	"Mumbai"	"CSK"	"Hyd"	"DC"	"Punjab"	"Mumbai"
## [379]	"Hyd"	"Punjab"	"Rajasthan"	"Hyd"	"CSK"	"RCB"
## [385]	"CSK"	"Mumbai"	"KKR"	"RCB"	"KKR"	"DC"
## [391]	"Hyd"	"RCB"	"Hyd"	"Punjab"	"Mumbai"	"DC"
## [397]	"Hyd"	"Punjab"	"Mumbai"	"DC"	"Hyd"	"RCB"
## [403]	"KKR"	"Punjab"	"Mumbai"	"Punjab"	"RCB"	"Hyd"
## [409]	"Mumbai"	"Punjab"	"Mumbai"	"KKR"	"RCB"	"DC"
## [415]	"KKR"	"DC"	"Hyd"	"RCB"	"Hyd"	"RCB"
## [421]	"Mumbai"	"Punjab"	"Mumbai"	"KKR"	"RCB"	"KKR"
## [427]	"DC"	"DC"	"Hyd"	"Hyd"	"Punjab"	"Mumbai"
## [433]	"KKR"	"KKR"	"Punjab"	"Punjab"	"Hyd"	"Mumbai"
## [439]	"DC"	"RCB"	"DC"	"RCB"	"Hyd"	"Punjab"
## [445]	"Mumbai"	"KKR"	"DC"	"Hyd"	"Mumbai"	"Mumbai"
## [451]	"Punjab"	"KKR"	"Hyd"	"CSK"	"Rajasthan"	"Hyd"
## [457]	"RCB"	"Mumbai"	"KKR"	"RCB"	"Punjab"	"KKR"

##	[463]	"Mumbai"	"Rajasthan"	"Punjab"	"CSK"	"KKR"	"RCB"
##	[469]	"Hyd"	"Rajasthan"	"DC"	"Mumbai"	"RCB"	"Hyd"
##	[475]	"DC"	"CSK"	"Rajasthan"	"RCB"	"CSK"	"RCB"
##	[481]	"DC"	"KKR"	"Punjab"	"CSK"	"Hyd"	"Mumbai"
##	[487]	"Punjab"	"Hyd"	"Rajasthan"	"KKR"	"DC"	"Rajasthan"
##	[493]	"Punjab"	"DC"	"CSK"	"Mumbai"	"Punjab"	"KKR"
##	[499]	"Mumbai"	"RCB"	"DC"	"Rajasthan"	"Hyd"	"DC"
##	[505]	"CSK"	"Hyd"	"KKR"	"KKR"	"CSK"	"CSK"
##	[511]	"KKR"	"Mumbai"	"Rajasthan"	"DC"	"KKR"	"RCB"
##	[517]	"Hyd"	"Punjab"	"DC"	"Hyd"	"CSK"	"Punjab"
##	[523]	"Rajasthan"	"Mumbai"	"DC"	"RCB"	"CSK"	"Hyd"
##	[529]	"RCB"	"Rajasthan"	"Punjab"	"CSK"	"Mumbai"	"Rajasthan"
##	[535]	"KKR"	"Mumbai"	"Punjab"	"KKR"	"Hyd"	"Mumbai"
##	[541]	"Punjab"	"Hyd"	"DC"	"KKR"	"Rajasthan"	"DC"
##	[547]	"Hyd"	"RCB"	"Rajasthan"	"CSK"	"RCB"	"KKR"
##	[553]	"CSK"	"Rajasthan"	"DC"	"KKR"	"Hyd"	"CSK"
##	[559]	"Mumbai"	"Punjab"	"DC"	"RCB"	"Punjab"	"Mumbai"
##	[565]	"Mumbai"	"DC"	"CSK"	"Mumbai"	"Mumbai"	"DC"
##	[571]	"KKR"	"Mumbai"	"Rajasthan"	"KKR"	"Punjab"	"RCB"
##	[577]	"DC"	"KKR"	"RCB"	"Mumbai"	"KKR"	"RCB"
##	[583]	"Punjab"	"Hyd"	"Mumbai"	"CSK"	"Punjab"	"Mumbai"
##	[589]	"KKR"	"Punjab"	"Rajasthan"	"DC"	"Hyd"	"Mumbai"
##	[595]	"Rajasthan"	"DC"	"KKR"	"CSK"	"Rajasthan"	"KKR"
##	[601]	"Hyd"	"RCB"	"KKR"	"Punjab"	"CSK"	"DC"
##	[607]	"KKR"	"RCB"	"Hyd"	"CSK"	"RCB"	"DC"
##	[613]	"KKR"	"Punjab"	"Mumbai"	"DC"	"RCB"	"Mumbai"
##	[619]	"Hyd"	"DC"	"RCB"	"Hyd"	"DC"	"RCB"
##	[625]	"Mumbai"	"RCB"	"DC"	"DC"		

##	[1]	"KKR"	"CSK"	"Rajasthan"	"RCB"	"Punjab"	"Mumbai"
##	[7]	"Mumbai"	"Rajasthan"	"KKR"	"DC"	"CSK"	"Mumbai"
##	[13]	"RCB"	"KKR"	"DC"	"KKR"	"DC"	"CSK"
##	[19]	"Punjab"	"Rajasthan"	"CSK"	"RCB"	"Mumbai"	"Punjab"
##	[25]	"DC"	"RCB"	"DC"	"CSK"	"Rajasthan"	"KKR"
##	[31]	"Punjab"	"RCB"	"CSK"	"DC"	"Rajasthan"	"Punjab"
##	[37]	"RCB"	"Mumbai"	"Rajasthan"	"Punjab"	"Mumbai"	"Rajasthan"
##	[43]	"Punjab"	"Rajasthan"	"Mumbai"	"Rajasthan"	"Punjab"	"CSK"
##	[49]	"KKR"	"DC"	"Rajasthan"	"Punjab"	"DC"	"Rajasthan"
##	[55]	"Mumbai"	"Rajasthan"	"KKR"	"Mumbai"	"Rajasthan"	"Mumbai"
##	[61]	"Punjab"	"DC"	"KKR"	"Mumbai"	"Rajasthan"	"KKR"
##	[67]	"Rajasthan"	"Punjab"	"Mumbai"	"Rajasthan"	"Mumbai"	"KKR"
##	[73]	"KKR"	"Mumbai"	"CSK"	"Rajasthan"	"Punjab"	"Mumbai"
##	[79]	"Rajasthan"	"KKR"	"DC"	"Rajasthan"	"Punjab"	"Mumbai"
##	[85]	"CSK"	"Rajasthan"	"DC"	"RCB"	"DC"	"Punjab"
##	[91]	"CSK"	"Mumbai"	"Rajasthan"	"CSK"	"KKR"	"RCB"
##	[97]	"Punjab"	"KKR"	"CSK"	"Rajasthan"	"CSK"	"KKR"
##	[103]	"DC"	"CSK"	"KKR"	"Punjab"	"RCB"	"Rajasthan"
##	[109]	"RCB"	"Rajasthan"	"Punjab"	"RCB"	"Mumbai"	"Punjab"
##	[115]	"DC"	"Mumbai"	"KKR"	"Punjab"	"Mumbai"	"DC"
##	[121]	"KKR"	"RCB"	"DC"	"Mumbai"	"Rajasthan"	"CSK"
##	[127]	"Mumbai"	"Mumbai"	"Mumbai"	"KKR"	"Mumbai"	"DC"
##	[133]	"Mumbai"	"CSK"	"KKR"	"RCB"	"Rajasthan"	"Rajasthan"
##	[139]	"CSK"	"RCB"	"Punjab"	"RCB"	"KKR"	"Mumbai"
##	[145]	"Punjab"	"Punjab"	"Rajasthan"	"Punjab"	"CSK"	"DC"

## [151]	"CSK"	"Mumbai"	"RCB"	"DC"	"KKR"	"DC"
## [157]	"RCB"	"Rajasthan"	"CSK"	"Mumbai"	"CSK"	"KKR"
## [163]	"Mumbai"	"RCB"	"Mumbai"	"DC"	"Punjab"	"DC"
## [169]	"KKR"	"KKR"	"CSK"	"Rajasthan"	"RCB"	"Rajasthan"
## [175]	"Punjab"	"Rajasthan"	"DC"	"KKR"	"RCB"	"Rajasthan"
## [181]	"Punjab"	"RCB"	"Mumbai"	"Mumbai"	"Punjab"	"RCB"
## [187]	"Rajasthan"	"KKR"	"DC"	"Punjab"	"Rajasthan"	"CSK"
## [193]	"KKR"	"RCB"	"CSK"	"Mumbai"	"DC"	"Mumbai"
## [199]	"CSK"	"Punjab"	"KKR"	"CSK"	"RCB"	"DC"
## [205]	"Mumbai"	"KKR"	"Mumbai"	"CSK"	"CSK"	"DC"
## [211]	"Mumbai"	"Rajasthan"	"Mumbai"	"RCB"	"KKR"	"DC"
## [217]	"CSK"	"KKR"	"Hyd"	"RCB"	"Hyd"	"Punjab"
## [223]	"KKR"	"DC"	"Mumbai"	"CSK"	"Punjab"	"CSK"
## [229]	"Rajasthan"	"Mumbai"	"Rajasthan"	"DC"	"Mumbai"	"Hyd"
## [235]	"Punjab"	"Hyd"	"RCB"	"KKR"	"RCB"	"Punjab"
## [241]	"Mumbai"	"KKR"	"Punjab"	"Rajasthan"	"DC"	"Punjab"
## [247]	"CSK"	"Hyd"	"DC"	"KKR"	"CSK"	"Rajasthan"
## [253]	"RCB"	"Hyd"	"RCB"	"CSK"	"Punjab"	"Hyd"
## [259]	"DC"	"Rajasthan"	"RCB"	"Rajasthan"	"Mumbai"	"CSK"
## [265]	"KKR"	"Mumbai"	"Hyd"	"Rajasthan"	"Mumbai"	"KKR"
## [271]	"RCB"	"Punjab"	"Rajasthan"	"Mumbai"	"DC"	"Punjab"
## [277]	"DC"	"Hyd"	"CSK"	"KKR"	"DC"	"Mumbai"
## [283]	"RCB"	"Punjab"	"Mumbai"	"CSK"	"RCB"	"Rajasthan"
## [289]	"Hyd"	"KKR"	"Punjab"	"Rajasthan"	"Hyd"	"KKR"
## [295]	"CSK"	"RCB"	"KKR"	"CSK"	"Hyd"	"Punjab"
## [301]	"Hyd"	"CSK"	"KKR"	"Rajasthan"	"Mumbai"	"Rajasthan"
## [307]	"DC"	"Punjab"	"Mumbai"	"DC"	"RCB"	"KKR"
## [313]	"Mumbai"	"Punjab"	"RCB"	"CSK"	"Mumbai"	"RCB"
## [319]	"Hyd"	"DC"	"Rajasthan"	"CSK"	"Hyd"	"DC"
## [325]	"Rajasthan"	"KKR"	"Mumbai"	"Punjab"	"Punjab"	"Mumbai"
## [331]	"DC"	"Rajasthan"	"Hyd"	"RCB"	"Rajasthan"	"Punjab"
## [337]	"Hyd"	"Mumbai"	"CSK"	"DC"	"Rajasthan"	"CSK"
## [343]	"DC"	"KKR"	"CSK"	"Mumbai"	"KKR"	"Punjab"
## [349]	"KKR"	"CSK"	"Mumbai"	"RCB"	"Hyd"	"Punjab"
## [355]	"RCB"	"Hyd"	"DC"	"KKR"	"Punjab"	"Rajasthan"
## [361]	"KKR"	"CSK"	"Mumbai"	"DC"	"RCB"	"Hyd"
## [367]	"DC"	"Punjab"	"Hyd"	"Mumbai"	"Punjab"	"Hyd"
## [373]	"RCB"	"Rajasthan"	"Punjab"	"CSK"	"RCB"	"KKR"
## [379]	"RCB"	"CSK"	"KKR"	"Mumbai"	"Mumbai"	"Rajasthan"
## [385]	"RCB"	"CSK"	"DC"	"Hyd"	"Mumbai"	"Punjab"
## [391]	"KKR"	"DC"	"Mumbai"	"KKR"	"RCB"	"Mumbai"
## [397]	"Punjab"	"Mumbai"	"KKR"	"KKR"	"RCB"	"KKR"
## [403]	"Punjab"	"DC"	"Hyd"	"RCB"	"Mumbai"	"DC"
## [409]	"Punjab"	"Hyd"	"DC"	"RCB"	"Punjab"	"Hyd"
## [415]	"Hyd"	"RCB"	"KKR"	"Hyd"	"RCB"	"DC"
## [421]	"KKR"	"RCB"	"Hyd"	"Punjab"	"Mumbai"	"Hyd"
## [427]	"Punjab"	"KKR"	"Punjab"	"DC"	"Mumbai"	"DC"
## [433]	"RCB"	"DC"	"Hyd"	"DC"	"KKR"	"RCB"
## [439]	"Hyd"	"Punjab"	"Mumbai"	"KKR"	"Mumbai"	"KKR"
## [445]	"Punjab"	"Mumbai"	"RCB"	"KKR"	"KKR"	"CSK"
## [451]	"DC"	"RCB"	"Rajasthan"	"KKR"	"DC"	"Mumbai"
## [457]	"Punjab"	"DC"	"Hyd"	"Rajasthan"	"CSK"	"DC"
## [463]	"RCB"	"KKR"	"Hyd"	"Rajasthan"	"Punjab"	"DC"
## [469]	"CSK"	"Mumbai"	"Punjab"	"Hyd"	"CSK"	"Punjab"

```

## [475] "KKR"      "Mumbai"    "Hyd"      "KKR"      "DC"      "Mumbai"
## [481] "Rajasthan" "CSK"      "Mumbai"    "RCB"      "DC"      "KKR"
## [487] "Rajasthan" "RCB"      "Punjab"    "Mumbai"    "Hyd"      "CSK"
## [493] "KKR"      "RCB"      "Hyd"      "Rajasthan" "RCB"      "Rajasthan"
## [499] "Punjab"    "Hyd"      "CSK"      "RCB"      "KKR"      "Mumbai"
## [505] "Punjab"    "CSK"      "Rajasthan" "Hyd"      "Hyd"      "RCB"
## [511] "Hyd"      "DC"      "Punjab"    "CSK"      "Punjab"    "Mumbai"
## [517] "Rajasthan" "Mumbai"    "KKR"      "RCB"      "Rajasthan" "DC"
## [523] "RCB"      "CSK"      "Hyd"      "KKR"      "Punjab"    "Mumbai"
## [529] "DC"      "KKR"      "Hyd"      "KKR"      "Punjab"    "CSK"
## [535] "DC"      "Rajasthan" "RCB"      "CSK"      "DC"      "RCB"
## [541] "Rajasthan" "CSK"      "Mumbai"    "RCB"      "Mumbai"    "Punjab"
## [547] "KKR"      "CSK"      "DC"      "Hyd"      "Punjab"    "Rajasthan"
## [553] "Mumbai"    "Hyd"      "RCB"      "Mumbai"    "Punjab"    "DC"
## [559] "Hyd"      "KKR"      "Rajasthan" "Hyd"      "CSK"      "KKR"
## [565] "CSK"      "Hyd"      "DC"      "CSK"      "CSK"      "Punjab"
## [571] "RCB"      "Hyd"      "CSK"      "DC"      "Hyd"      "Mumbai"
## [577] "Rajasthan" "CSK"      "Hyd"      "Punjab"    "Rajasthan" "DC"
## [583] "CSK"      "Rajasthan" "KKR"      "DC"      "RCB"      "Rajasthan"
## [589] "Hyd"      "CSK"      "RCB"      "KKR"      "CSK"      "Punjab"
## [595] "Hyd"      "RCB"      "Punjab"    "Mumbai"    "RCB"      "Punjab"
## [601] "DC"      "CSK"      "Mumbai"    "Rajasthan" "Hyd"      "Mumbai"
## [607] "Rajasthan" "Punjab"    "DC"      "Rajasthan" "Hyd"      "Mumbai"
## [613] "CSK"      "Rajasthan" "Hyd"      "CSK"      "KKR"      "Rajasthan"
## [619] "Punjab"    "Rajasthan" "CSK"      "KKR"      "Punjab"    "Mumbai"
## [625] "DC"      "Hyd"      "Hyd"      "Mumbai"

```

```
## # A tibble: 562 x 6
```

```

##   team1    team2    winner venue          toss_winner toss_decision
##   <chr>    <chr>    <chr> <chr>          <chr>        <chr>
## 1 RCB      KKR      KKR    M. A. Chidambaram Stadium RCB          field
## 2 Punjab   CSK      CSK    Punjab Cricket Associati~ CSK          bat
## 3 DC       Rajasth~ DC      Feroz Shah Kotla          Rajasthan    bat
## 4 Mumbai   RCB      RCB    Wankhede Stadium          Mumbai      bat
## 5 Rajasth~ Punjab   Rajast~ Sawai Mansingh Stadium    Punjab      bat
## 6 CSK      Mumbai   CSK    M. A. Chidambaram Stadium Mumbai      field
## 7 Punjab   Mumbai   Punjab Punjab Cricket Associati~ Mumbai      field
## 8 RCB      Rajasth~ Rajast~ M. A. Chidambaram Stadium Rajasthan    field
## 9 CSK      KKR      CSK    M. A. Chidambaram Stadium KKR          bat
## 10 RCB     CSK      CSK    M. A. Chidambaram Stadium CSK          bat

```

```
## # ... with 552 more rows
```

```
## # A tibble: 66 x 6
```

```

##   team1    team2    winner venue          toss_winner toss_decision
##   <chr>    <chr>    <chr> <chr>          <chr>        <chr>
## 1 Punjab   DC      Punjab Punjab Cricket Associati~ DC          bat
## 2 KKR      RCB      KKR    Eden Gardens          KKR          bat
## 3 CSK      Punjab   CSK    M. A. Chidambaram Stadium Punjab      field
## 4 Rajasth~ DC      Rajast~ Sawai Mansingh Stadium    Rajasthan    field
## 5 KKR      Rajasth~ Rajast~ Eden Gardens          Rajasthan    field
## 6 Punjab   Mumbai   Mumbai SuperSport Park          Punjab      bat
## 7 DC       Mumbai   DC      SuperSport Park          DC          field
## 8 Rajasth~ DC      DC      Sardar Patel Stadium, Mo~ DC          field
## 9 Rajasth~ KKR      Rajast~ Sardar Patel Stadium, Mo~ Rajasthan    bat

```

```
## 10 CSK      Rajasth~ CSK      M. A. Chidambaram Stadium CSK      bat
## # ... with 56 more rows
```

## Algorithms and Fit

F score : In statistical analysis of binary classification, the F-score or F-measure is a measure of a test's accuracy. It is calculated from the precision and recall of the test, where the precision is the number of true positive results divided by the number of all positive results, including those not identified correctly, and the recall is the number of true positive results divided by the number of all samples that should have been identified as positive. Precision is also known as positive predictive value, and recall is also known as sensitivity in diagnostic binary classification.

We are not worried about negative outcomes and hence going with an F score. F1 score: <https://towardsdatascience.com/the-f1-score-bec2bbc38aa6>, we will use F1 score. Naive Bayes

Model	CSK	DC	Hyd	KKR	Mumbai	Punjab	Rajasthan	RCB	averageF1Score
Naive	NA	NA	0.5	0.571	NA	0.292	0.667	NA	NA

We can see from the observation that the prediction does not satisfy all teams and hence the Naive Bayes algorithm cannot be used in this case

Logistic Regression

```
## Class: CSK Class: DC Class: Hyd Class: KKR Class: Mumbai Class: Punjab
## 1      0.667      0.154      0.364      0.5      0.538      0.462
## Class: Rajasthan Class: RCB averageF1Score
## 1      0.526      0.4      0.451
```

Model	CSK	DC	Hyd	KKR	Mumbai	Punjab	Rajasthan	RCB	averageF1Score
Naive	NA	NA	0.500	0.571	NA	0.292	0.667	NA	NA
LDA	0.667	0.154	0.364	0.500	0.538	0.462	0.526	0.4	0.451

Random Forest

```
## Class: CSK Class: DC Class: Hyd Class: KKR Class: Mumbai Class: Punjab
## 1      0.533      0.444      0.4      0.632      0.593      0.429
## Class: Rajasthan Class: RCB averageF1Score
## 1      0.667      0.571      0.534
```

Model	CSK	DC	Hyd	KKR	Mumbai	Punjab	Rajasthan	RCB	averageF1Score
Naive	NA	NA	0.500	0.571	NA	0.292	0.667	NA	NA
LDA	0.667	0.154	0.364	0.500	0.538	0.462	0.526	0.400	0.451
RF	0.533	0.444	0.400	0.632	0.593	0.429	0.667	0.571	0.534

Nearest Neighbour

```
## Class: CSK Class: DC Class: Hyd Class: KKR Class: Mumbai Class: Punjab
## 1      0.5      0.5      0.667      0.556      0.64      0.75
## Class: Rajasthan Class: RCB averageF1Score
## 1      0.667      0.714      0.624
```

Model	CSK	DC	Hyd	KKR	Mumbai	Punjab	Rajasthan	RCB	averageF1Score
Naive	NA	NA	0.500	0.571	NA	0.292	0.667	NA	NA
LDA	0.667	0.154	0.364	0.500	0.538	0.462	0.526	0.400	0.451
RF	0.533	0.444	0.400	0.632	0.593	0.429	0.667	0.571	0.534
KNN	0.500	0.500	0.667	0.556	0.640	0.750	0.667	0.714	0.624



## Conclusion:

We have created a pool of players considering different factors from which IPL teams can pick from. There are always biases that can be added to the analysis Eg. What if a top player moved teams, that may change the winner of a game. We also see from the analysis that LDA gives us the best results in terms of predicting a winner. Random forest as it considers multiple trees is a little slow compared to the other algorithms. KNN and Random forest results are nearly similar.

I also want to take this opportunity to thank all my peers, staff and the excellent teachers at the program.