```
In [1]:   import pandas as pd
          import numpy as np
          import matplotlib.pyplot as plt
          import seaborn as sns
```

```
In [2]:   df = pd.read_csv('./matches.csv')
```

```
In [3]:   df.head()
```

Out[3]:

	id	season	city	date	team1	team2	toss_winner	toss_decision	result	dl_applied	winner	win_by_runs	win_by_wickets	player_of_match	venue	umpire1
0	1	2017	Hyderabad	5/4/2017	Sunrisers Hyderabad	Royal Challengers Bangalore	Royal Challengers Bangalore	field	normal	0	Sunrisers Hyderabad	35	0	Yuvraj Singh	Rajiv Gandhi International Stadium, Uppal	A Y Dandeka
1	2	2017	Pune	6/4/2017	Mumbai Indians	Rising Pune Supergiant	Rising Pune Supergiant	field	normal	0	Rising Pune Supergiant	0	7	SPD Smith	Maharashtra Cricket Association Stadium	A Nanc Kishore
2	3	2017	Rajkot	7/4/2017	Gujarat Lions	Kolkata Knight Riders	Kolkata Knight Riders	field	normal	0	Kolkata Knight Riders	0	10	CA Lynn	Saurashtra Cricket Association Stadium	Nitir Menor
3	4	2017	Indore	8/4/2017	Rising Pune Supergiant	Kings XI Punjab	Kings XI Punjab	field	normal	0	Kings XI Punjab	0	6	GJ Maxwell	Holkar Cricket Stadium	Al Chaudhar
4	5	2017	Bangalore	8/4/2017	Royal Challengers Bangalore	Delhi Daredevils	Royal Challengers Bangalore	bat	normal	0	Royal Challengers Bangalore	15	0	KM Jadhav	M Chinnaswamy Stadium	Nar

```
In [4]:   df.shape
```

Out[4]: (636, 18)

```
In [5]:   df['player_of_match'].value_counts()[:10]
```

```
Out[5]:  CH Gayle          18
         YK Pathan         16
         AB de Villiers    15
         DA Warner         15
         SK Raina          14
         RG Sharma         14
         G Gambhir         13
         MS Dhoni          13
         AM Rahane         12
         MEK Hussey        12
         Name: player_of_match, dtype: int64
```

```
In [6]:   plt.figure(figsize=(7,7))
          plt.bar(list(df['player_of_match'].value_counts()[:5].keys()), list(df['player_of_match'].value_counts()[:5]), color=['red', 'green', 'orange', 'yellow', 'blue'])
          plt.show()
```



```
In [7]:   df['result'].value_counts()
```

```
Out[7]:  normal       626
         tie            7
         no result      3
         Name: result, dtype: int64
```

```
In [8]:   df['toss_winner'].value_counts()
```

```
Out[8]:  Mumbai Indians                 85
         Kolkata Knight Riders          78
         Delhi Daredevils               72
         Royal Challengers Bangalore    70
         Kings XI Punjab                68
         Chennai Super Kings            66
         Rajasthan Royals               63
         Deccan Chargers                43
         Sunrisers Hyderabad            35
         Pune Warriors                  20
         Gujarat Lions                  15
         Kochi Tuskers Kerala            8
         Rising Pune Supergiants         7
         Rising Pune Supergiant          6
         Name: toss_winner, dtype: int64
```

```
In [9]:   batting_first = df[df['win_by_runs']!=0]
```

```
In [10]:  batting_first.head()
```

Out[10]:

	id	season	city	date	team1	team2	toss_winner	toss_decision	result	dl_applied	winner	win_by_runs	win_by_wickets	player_of_match	venue	umpir
						Royal	Royal								Rajiv Gandhi	

0	1	2017	Hyderabad	5/4/2017	Sunrisers Hyderabad	Challengers Bangalore	Challengers Bangalore	field	normal	0	Sunrisers Hyderabad	35	0	Yuvraj Singh	International Stadium, Uppal	Dandel
4	5	2017	Bangalore	8/4/2017	Royal Challengers Bangalore	Delhi Daredevils	Royal Challengers Bangalore	bat	normal	0	Royal Challengers Bangalore	15	0	KM Jadhav	M Chinnaswamy Stadium	N
8	9	2017	Pune	11/4/2017	Delhi Daredevils	Rising Pune Supergiant	Rising Pune Supergiant	field	normal	0	Delhi Daredevils	97	0	SV Samson	Maharashtra Cricket Association Stadium	Dandel
13	14	2017	Kolkata	15/04/17	Kolkata Knight Riders	Sunrisers Hyderabad	Sunrisers Hyderabad	field	normal	0	Kolkata Knight Riders	17	0	RV Uthappa	Eden Gardens	Dandel
14	15	2017	Delhi	15/04/17	Delhi Daredevils	Kings XI Punjab	Delhi Daredevils	bat	normal	0	Delhi Daredevils	51	0	CJ Anderson	Feroz Shah Kotla	YC Bar

```
In [11]: plt.figure(figsize=(7,7))
         plt.hist(batting_first['win_by_runs'])
         plt.ylabel("No. Of Matches")
         plt.xlabel("No. Of Runs")
         plt.show()
```
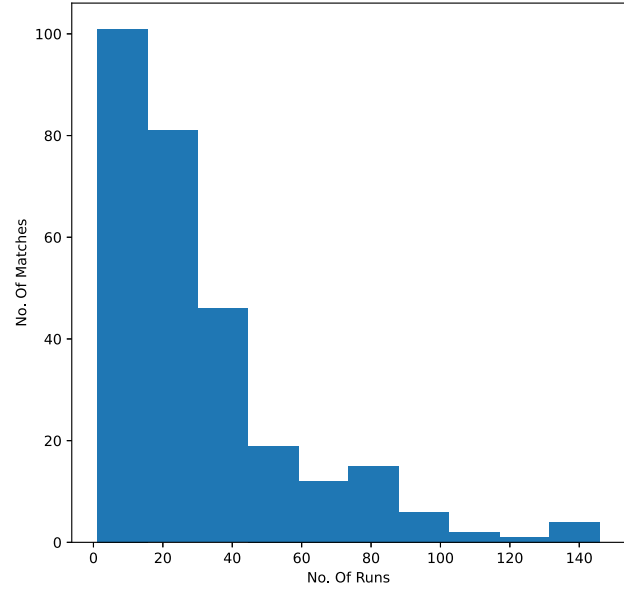


```
In [12]: plt.figure(figsize=(15,7))
         plt.bar(list(batting_first['winner'].value_counts()[0:5].keys()),list(batting_first['winner'].value_counts()[0:5]), color=['orange', 'cyan', 'green', 'red', 'purple'])
         plt.ylabel("No of wins")
         plt.xlabel("Teams")
         plt.show()
```
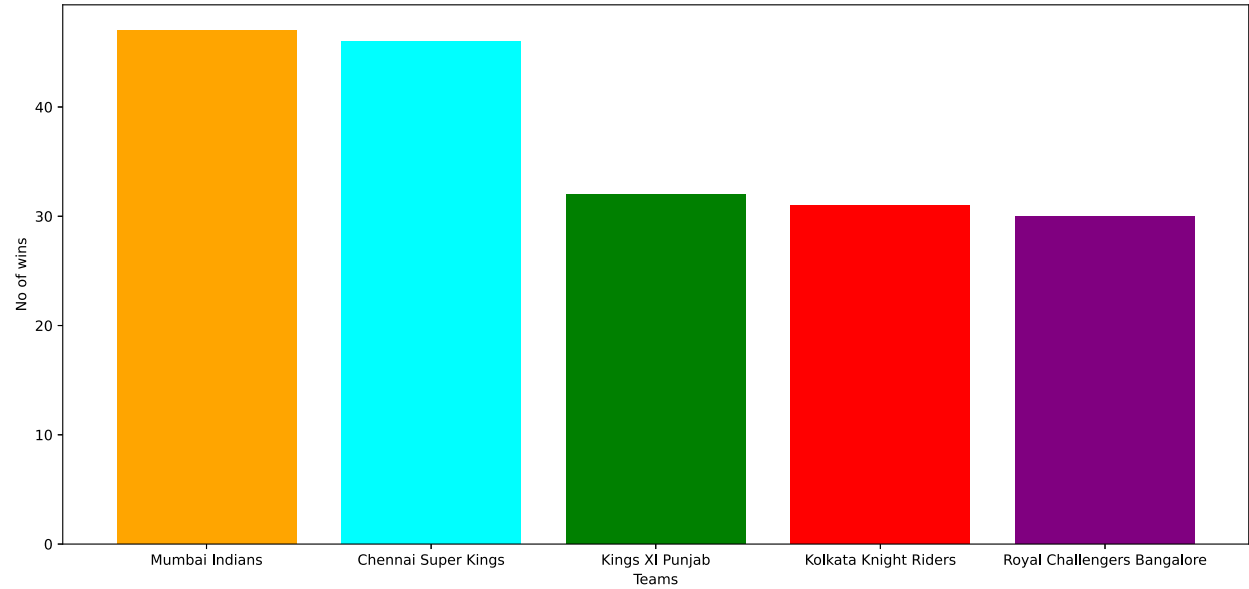


```
In [13]: plt.figure(figsize=(10, 10))
         plt.pie(list(batting_first['winner'].value_counts()), labels=list(batting_first['winner'].value_counts().keys()), autopct='%0.1f%%')
         plt.show()
```

Pie chart labels:
- Kolkata Knight Riders — 10.8%
- Royal Challengers Bangalore — 10.5%
- Sunrisers Hyderabad — 8.0%
- Rajasthan Royals — 8.0%
- Delhi Daredevils — 7.3%
- Deccan Chargers — 6.3%
- Pune Warriors — 2.1%
- Rising Pune Supergiant — 1.7%
- Kochi Tuskers Kerala — 0.7%
- Rising Pune Supergiants — 0.3%
- Gujarat Lions
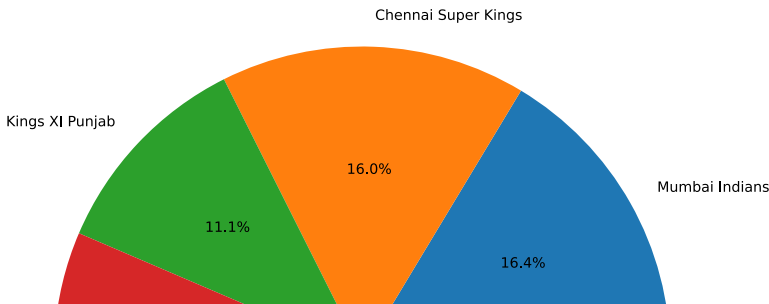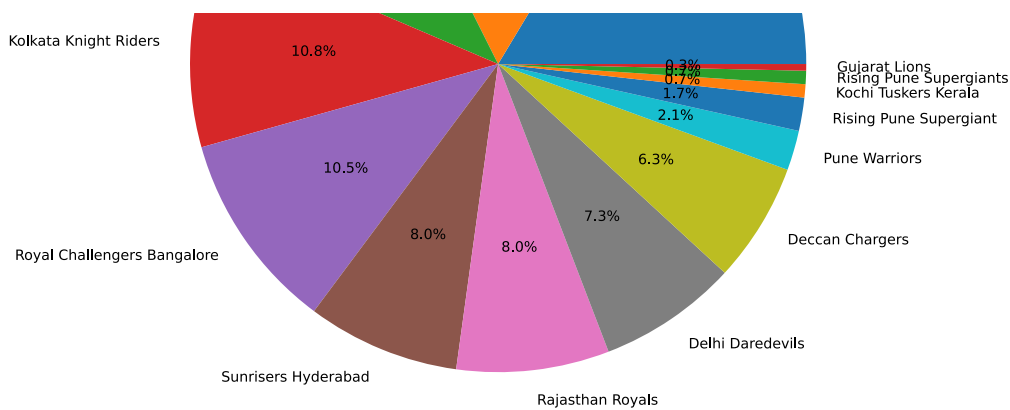
```
In [14]: batting_second = df[df['win_by_wickets']!=0]
```

```
In [15]: batting_second.head()
```

Out[15]:

	id	season	city	date	team1	team2	toss_winner	toss_decision	result	dl_applied	winner	win_by_runs	win_by_wickets	player_of_match	venue	umpire1
1	2	2017	Pune	6/4/2017	Mumbai Indians	Rising Pune Supergiant	Rising Pune Supergiant	field	normal	0	Rising Pune Supergiant	0	7	SPD Smith	Maharashtra Cricket Association Stadium	A Nand Kishore
2	3	2017	Rajkot	7/4/2017	Gujarat Lions	Kolkata Knight Riders	Kolkata Knight Riders	field	normal	0	Kolkata Knight Riders	0	10	CA Lynn	Saurashtra Cricket Association Stadium	Nitin Menon
3	4	2017	Indore	8/4/2017	Rising Pune Supergiant	Kings XI Punjab	Kings XI Punjab	field	normal	0	Kings XI Punjab	0	6	GJ Maxwell	Holkar Cricket Stadium	AK Chaudhary S
5	6	2017	Hyderabad	9/4/2017	Gujarat Lions	Sunrisers Hyderabad	Sunrisers Hyderabad	field	normal	0	Sunrisers Hyderabad	0	9	Rashid Khan	Rajiv Gandhi International Stadium, Uppal	A Deshmukh
6	7	2017	Mumbai	9/4/2017	Kolkata Knight Riders	Mumbai Indians	Mumbai Indians	field	normal	0	Mumbai Indians	0	4	N Rana	Wankhede Stadium	Nitin Menon

```
In [16]: plt.figure()
         plt.hist(batting_second['win_by_wickets'])
         plt.ylabel("No of matches")
         plt.xlabel("NO of wickets remianing")
         plt.show()
```
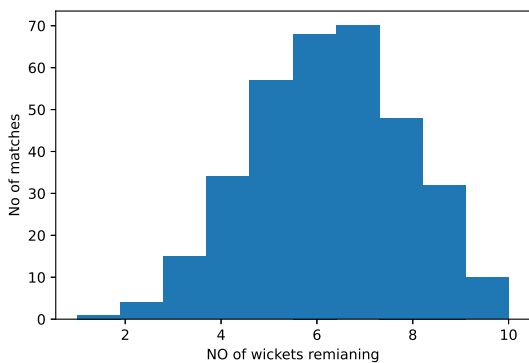


```
In [17]: plt.figure(figsize=(15,7))
         plt.bar(list(batting_second['winner'].value_counts()[0:5].keys()),list(batting_second['winner'].value_counts()[0:5]), color=['orange', 'cyan', 'green', 'red', 'purple'])
         plt.ylabel("No of wins ----->")
         plt.xlabel("Teams ----->")
         plt.show()
```
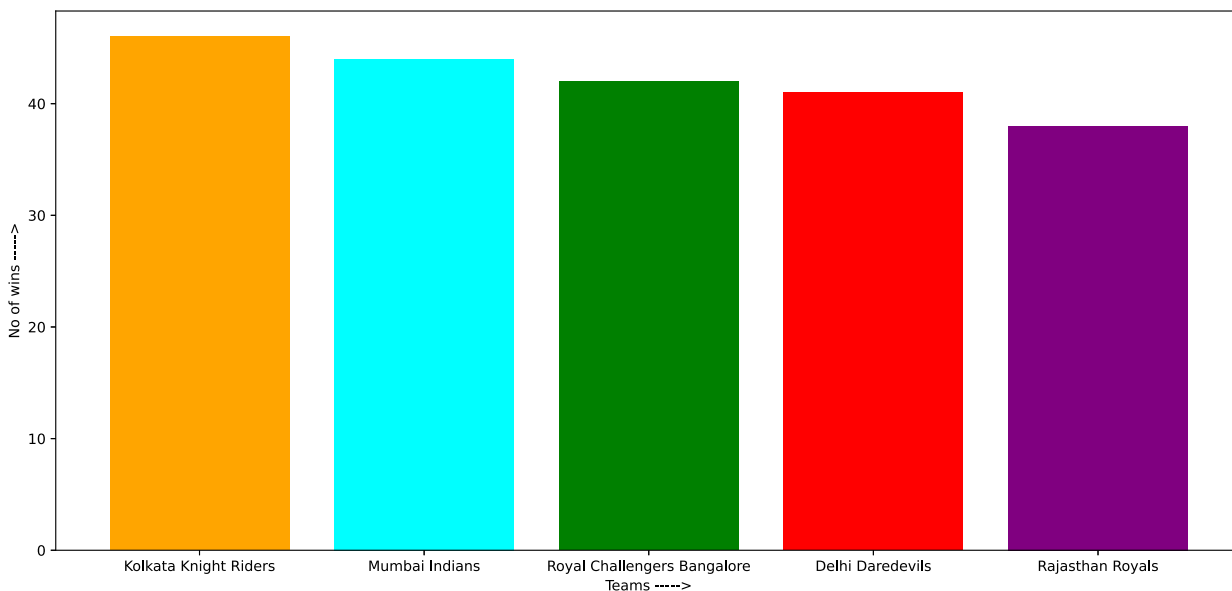


```
In [18]: plt.figure(figsize=(10, 10))
```

```python
plt.pie(list(batting_second['winner'].value_counts()), labels=list(batting_second['winner'].value_counts().keys()), autopct='%0.1f%%')
plt.show()
```
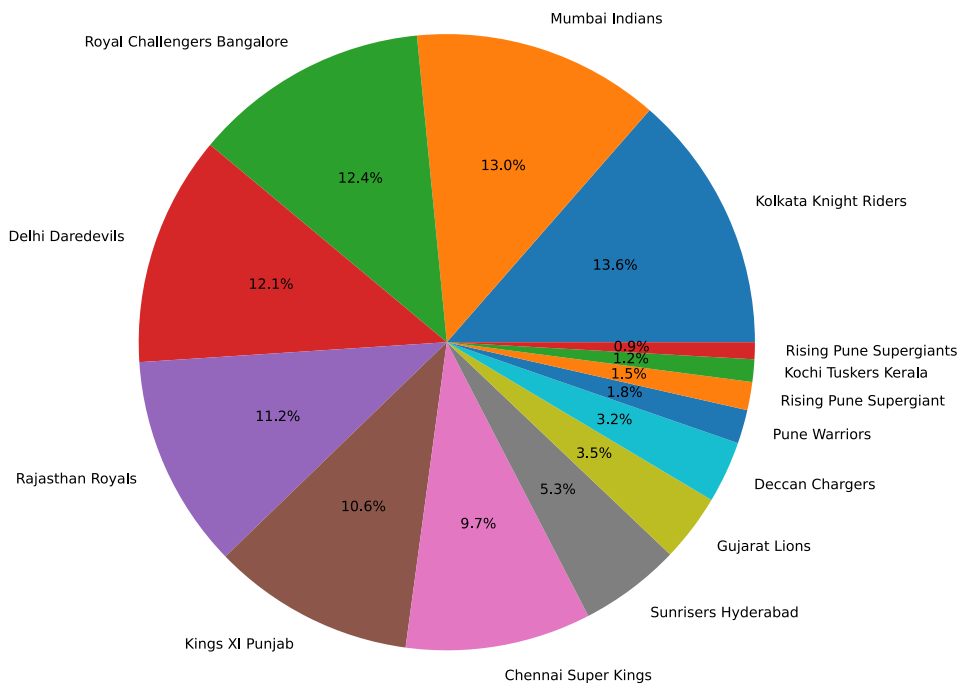
```python
df['season'].value_counts()
```

```
2013    76
2012    74
2011    73
2016    60
2014    60
2010    60
2017    59
2015    59
2008    58
2009    57
Name: season, dtype: int64
```

```python
df['city'].value_counts()
```

```
Mumbai           85
Bangalore        66
Kolkata          61
Delhi            60
Hyderabad        49
Chennai          48
Chandigarh       46
Jaipur           33
Pune             32
Durban           15
Ahmedabad        12
Centurion        12
Visakhapatnam    11
Rajkot           10
Dharamsala        9
Johannesburg      8
Abu Dhabi         7
Port Elizabeth    7
Ranchi            7
Cuttack           7
Cape Town         7
Raipur            6
Sharjah           6
Indore            5
Kochi             5
Kanpur            4
Kimberley         3
East London       3
Nagpur            3
Bloemfontein      2
Name: city, dtype: int64
```

```python
np.sum(df['toss_winner']==df['winner'])
```

325

```python
325/636
```

0.5110062893081762

```python
deliveries = pd.read_csv('./deliveries.csv')
```

```python
deliveries.head()
```

	match_id	inning	batting_team	bowling_team	over	ball	batsman	non_striker	bowler	is_super_over	...	bye_runs	legbye_runs	noball_runs	penalty_runs	batsman_runs	extra_runs
0	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	1	DA Warner	S Dhawan	TS Mills	0	...	0	0	0	0	0	0
1	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	2	DA Warner	S Dhawan	TS Mills	0	...	0	0	0	0	0	0
2	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	3	DA Warner	S Dhawan	TS Mills	0	...	0	0	0	0	4	0
			Sunrisers	Royal			DA										

											...						
3	1	1	Hyderabad	Challengers Bangalore	1	4	Warner	S Dhawan	TS Mills	0	...	0	0	0	0	0	0
4	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	5	DA Warner	S Dhawan	TS Mills	0	...	0	0	0	0	0	2

5 rows × 21 columns

```
In [25]:  deliveries['match_id'].unique()
```

```
Out[25]: array([  1,   2,   3,   4,   5,   6,   7,   8,   9,  10,  11,  12,  13,
                14,  15,  16,  17,  18,  19,  20,  21,  22,  23,  24,  25,  26,
                27,  28,  29,  30,  31,  32,  33,  34,  35,  36,  37,  38,  39,
                40,  41,  42,  43,  44,  45,  46,  47,  48,  49,  50,  51,  52,
                53,  54,  55,  56,  57,  58,  59,  60,  61,  62,  63,  64,  65,
                66,  67,  68,  69,  70,  71,  72,  73,  74,  75,  76,  77,  78,
                79,  80,  81,  82,  83,  84,  85,  86,  87,  88,  89,  90,  91,
                92,  93,  94,  95,  96,  97,  98,  99, 100, 101, 102, 103, 104,
               105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117,
               118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130,
               131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143,
               144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156,
               157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169,
               170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182,
               183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195,
               196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208,
               209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221,
               222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234,
               235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247,
               248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260,
               261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273,
               274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286,
               287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299,
               300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312,
               313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325,
               326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338,
               339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351,
               352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364,
               365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377,
               378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390,
               391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403,
               404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416,
               417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429,
               430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442,
               443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455,
               456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468,
               469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481,
               482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494,
               495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507,
               508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520,
               521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533,
               534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546,
               547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559,
               560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572,
               573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585,
               586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598,
               599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611,
               612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624,
               625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636])
```

```
In [26]:  match_1 = deliveries[deliveries['match_id']==1]
```

```
In [27]:  match_1.head()
```

Out[27]:

	match_id	inning	batting_team	bowling_team	over	ball	batsman	non_striker	bowler	is_super_over	...	bye_runs	legbye_runs	noball_runs	penalty_runs	batsman_runs	extra_runs
0	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	1	DA Warner	S Dhawan	TS Mills	0	...	0	0	0	0	0	0
1	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	2	DA Warner	S Dhawan	TS Mills	0	...	0	0	0	0	0	0
2	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	3	DA Warner	S Dhawan	TS Mills	0	...	0	0	0	0	4	0
3	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	4	DA Warner	S Dhawan	TS Mills	0	...	0	0	0	0	0	0
4	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	5	DA Warner	S Dhawan	TS Mills	0	...	0	0	0	0	0	2

5 rows × 21 columns

```
In [28]:  match_1.shape
```

```
Out[28]: (248, 21)
```

```
In [29]:  srh = match_1[match_1['inning'] == 1]
```

```
In [30]:  srh['batsman_runs'].value_counts()
```

```
Out[30]: 1    57
         0    32
         4    17
         6     9
         2     9
         3     1
         Name: batsman_runs, dtype: int64
```

```
In [31]:  srh['dismissal_kind'].value_counts()
```

```
Out[31]: caught    3
         bowled    1
         Name: dismissal_kind, dtype: int64
```

```
In [32]:  rcb = match_1[match_1['inning'] == 2]
```

```
In [33]:  rcb['batsman_runs'].value_counts()
```

```
Out[33]: 0    49
         1    44
         4    15
         6     8
         2     7
```

```
Name: batsman_runs, dtype: int64
```

In [34]: `rcb['dismissal_kind'].value_counts()`

Out[34]:
```
caught     6
run out    2
bowled     2
Name: dismissal_kind, dtype: int64
```

In [ ]: