

Data science project IPL

September 27, 2021

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

```
[2]: #importing IPL dataset
ipl=pd.read_csv('ipl.csv')
```

```
[3]: #having a glance at my first fice records
ipl.head()
```

```
[3]:
```

	id	season	city	date	team1	\
0	1	2017	Hyderabad	2017-04-05	Sunrisers Hyderabad	
1	2	2017	Pune	2017-04-06	Mumbai Indians	
2	3	2017	Rajkot	2017-04-07	Gujarat Lions	
3	4	2017	Indore	2017-04-08	Rising Pune Supergiant	
4	5	2017	Bangalore	2017-04-08	Royal Challengers Bangalore	

		team2	toss_winner	toss_decision	\
0	Royal Challengers Bangalore	Royal Challengers Bangalore		field	
1	Rising Pune Supergiant	Rising Pune Supergiant		field	
2	Kolkata Knight Riders	Kolkata Knight Riders		field	
3	Kings XI Punjab	Kings XI Punjab		field	
4	Delhi Daredevils	Royal Challengers Bangalore		bat	

	result	dl_applied	winner	win_by_runs	\
0	normal	0	Sunrisers Hyderabad	35	
1	normal	0	Rising Pune Supergiant	0	
2	normal	0	Kolkata Knight Riders	0	
3	normal	0	Kings XI Punjab	0	
4	normal	0	Royal Challengers Bangalore	15	

	win_by_wickets	player_of_match	venue	\
0	0	Yuvraj Singh	Rajiv Gandhi International Stadium, Uppal	
1	7	SPD Smith	Maharashtra Cricket Association Stadium	
2	10	CA Lynn	Saurashtra Cricket Association Stadium	
3	6	GJ Maxwell	Holkar Cricket Stadium	
4	0	KM Jadhav	M Chinnaswamy Stadium	

	umpire1	umpire2	umpire3
0	AY Dandekar	NJ Llong	NaN
1	A Nand Kishore	S Ravi	NaN
2	Nitin Menon	CK Nandan	NaN
3	AK Chaudhary	C Shamshuddin	NaN
4	NaN	NaN	NaN

```
[4]: #looking at number of rows and columns
ipl.shape
```

```
[4]: (636, 18)
```

```
[5]: #getting the frquency of the most man of the match awards
ipl['player_of_match'].value_counts()
```

```
[5]: CH Gayle          18
     YK Pathan         16
     DA Warner         15
     AB de Villiers    15
     RG Sharma         14
     ..
     AD Mathews        1
     LR Shukla         1
     R Bhatia          1
     A Singh           1
     BCJ Cutting       1
     Name: player_of_match, Length: 201, dtype: int64
```

```
[6]: #getting the top 10 players of the match
ipl['player_of_match'].value_counts()[0:10]
```

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

```
[7]: #getting the top 5 players of the match
ipl['player_of_match'].value_counts()[0:5]
```

```
[7]: CH Gayle          18
      YK Pathan        16
      DA Warner        15
      AB de Villiers   15
      RG Sharma        14
      Name: player_of_match, dtype: int64
```

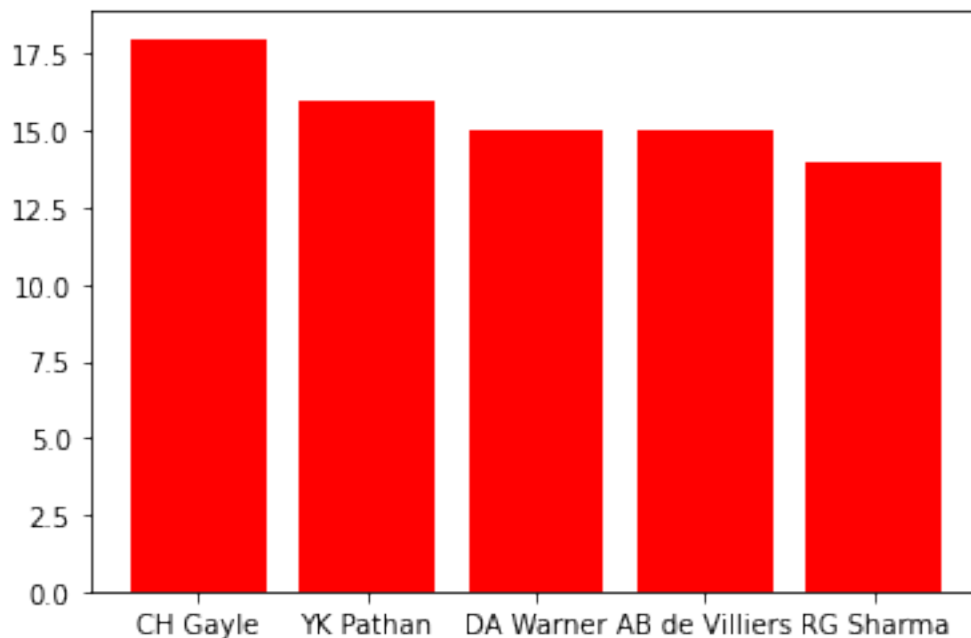
```
[8]: list(ipl['player_of_match'].value_counts()[0:5].keys())
```

```
[8]: ['CH Gayle', 'YK Pathan', 'DA Warner', 'AB de Villiers', 'RG Sharma']
```

```
[9]: ipl['player_of_match'].value_counts()[0:5].value_counts()
```

```
[9]: 15    2
      18    1
      16    1
      14    1
      Name: player_of_match, dtype: int64
```

```
[10]: #plotting a bar graph for the player of the match
      plt.figure(figsize=(6,4))
      plt.bar(list(ipl['player_of_match'].value_counts()[0:5].keys()),
               ↪ipl['player_of_match'].value_counts()[0:5], color='r')
      plt.show()
```



```
[11]: #getting information of the result data
ipl['result'].value_counts()
```

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

```
[12]: #getting information of the toss winner
ipl['toss_winner'].value_counts()
```

```
[12]: 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
```

```
[13]: #extracting data of winners who match first
batting_first=ipl[ipl['win_by_runs']!=0]
```

```
[14]: batting_first.head()
```

```
[14]:
```

	id	season	city	date	team1 \
0	1	2017	Hyderabad	2017-04-05	Sunrisers Hyderabad
4	5	2017	Bangalore	2017-04-08	Royal Challengers Bangalore
8	9	2017	Pune	2017-04-11	Delhi Daredevils
13	14	2017	Kolkata	2017-04-15	Kolkata Knight Riders
14	15	2017	Delhi	2017-04-15	Delhi Daredevils

		team2	toss_winner	toss_decision \
0	Royal Challengers Bangalore	Royal Challengers Bangalore	field	
4	Delhi Daredevils	Royal Challengers Bangalore	bat	
8	Rising Pune Supergiant	Rising Pune Supergiant	field	
13	Sunrisers Hyderabad	Sunrisers Hyderabad	field	
14	Kings XI Punjab	Delhi Daredevils	bat	

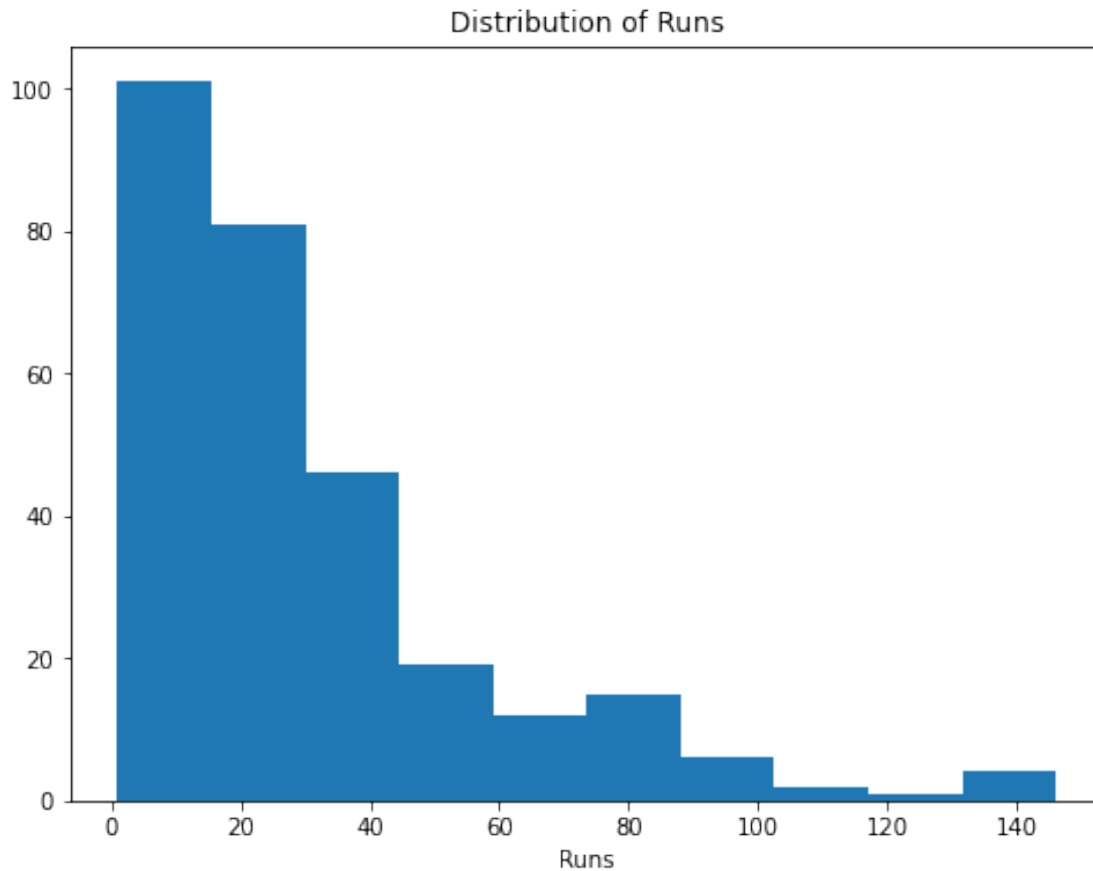
	result	dl_applied	winner	win_by_runs \
--	--------	------------	--------	---------------

0	normal	0	Sunrisers Hyderabad	35
4	normal	0	Royal Challengers Bangalore	15
8	normal	0	Delhi Daredevils	97
13	normal	0	Kolkata Knight Riders	17
14	normal	0	Delhi Daredevils	51

	win_by_wickets	player_of_match	venue	\
0	0	Yuvraj Singh	Rajiv Gandhi International Stadium, Uppal	
4	0	KM Jadhav	M Chinnaswamy Stadium	
8	0	SV Samson	Maharashtra Cricket Association Stadium	
13	0	RV Uthappa	Eden Gardens	
14	0	CJ Anderson	Feroz Shah Kotla	

	umpire1	umpire2	umpire3
0	AY Dandekar	NJ Llong	NaN
4	NaN	NaN	NaN
8	AY Dandekar	S Ravi	NaN
13	AY Dandekar	NJ Llong	NaN
14	YC Barde	Nitin Menon	NaN

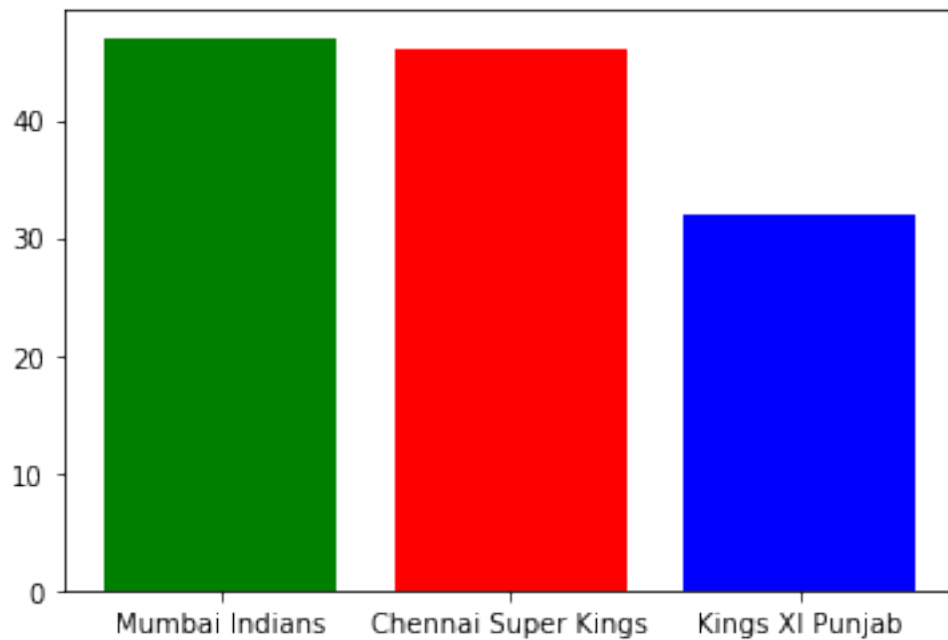
```
[15]: plt.figure(figsize=(8,6))
plt.hist(batting_first["win_by_runs"])
plt.xlabel("Runs")
plt.title("Distribution of Runs")
plt.show()
```



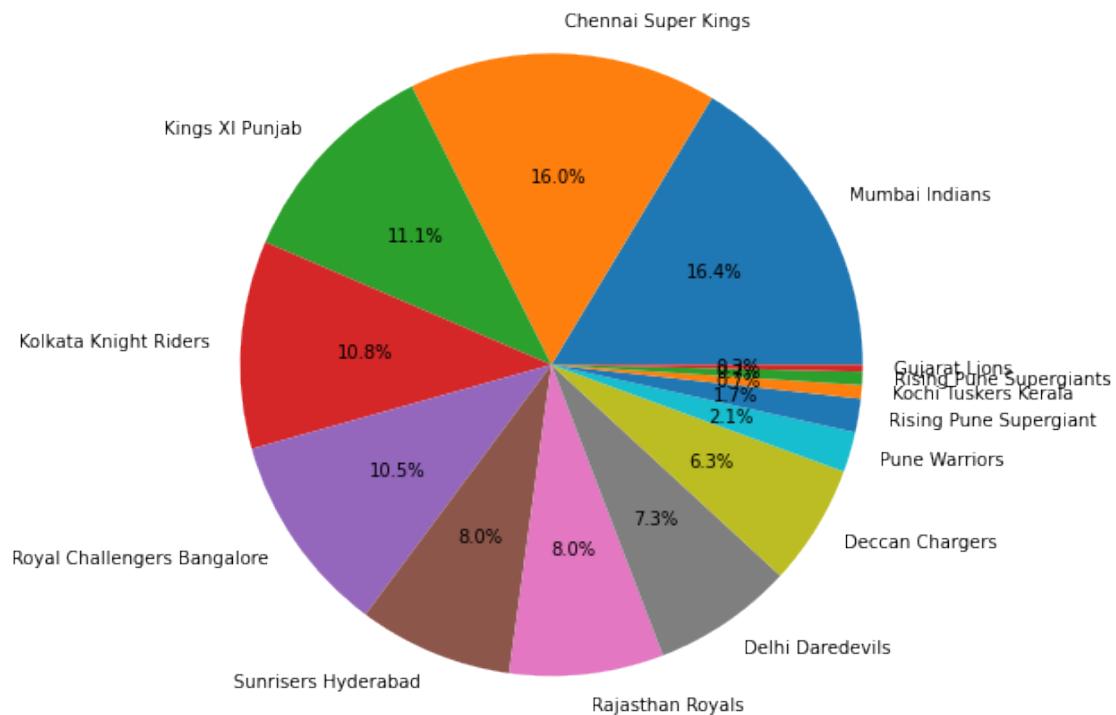
```
[16]: batting_first['winner'].value_counts()
```

```
[16]: Mumbai Indians           47
      Chennai Super Kings    46
      Kings XI Punjab        32
      Kolkata Knight Riders   31
      Royal Challengers Bangalore 30
      Sunrisers Hyderabad    23
      Rajasthan Royals        23
      Delhi Daredevils        21
      Deccan Chargers         18
      Pune Warriors           6
      Rising Pune Supergiant   5
      Kochi Tuskers Kerala     2
      Rising Pune Supergiants  2
      Gujarat Lions           1
      Name: winner, dtype: int64
```

```
[17]: plt.figure(figsize=(6,4))
plt.bar(list(batting_first['winner'].value_counts()[0:3].
↳keys()),batting_first['winner'].value_counts()[0:3], color=('green', 'red',
↳'blue'))
plt.show()
```



```
[18]: plt.figure(figsize=(8,8))
plt.pie(list(batting_first['winner'].value_counts()),
↳labels=list(batting_first['winner'].value_counts().keys()), autopct='%0.
↳1f%%')
plt.show()
```



```
[19]: #extracting data where team won after the batting second
batting_second=ipl[ipl['win_by_wickets']!=0]
```

```
[20]: batting_second.head()
```

```
[20]:  id  season    city    date    team1 \
1    2    2017    Pune  2017-04-06    Mumbai Indians
2    3    2017    Rajkot  2017-04-07    Gujarat Lions
3    4    2017    Indore  2017-04-08    Rising Pune Supergiant
5    6    2017    Hyderabad  2017-04-09    Gujarat Lions
6    7    2017    Mumbai  2017-04-09    Kolkata Knight Riders

      team2    toss_winner  toss_decision  result \
1  Rising Pune Supergiant  Rising Pune Supergiant    field  normal
2  Kolkata Knight Riders  Kolkata Knight Riders    field  normal
3    Kings XI Punjab    Kings XI Punjab    field  normal
5  Sunrisers Hyderabad  Sunrisers Hyderabad    field  normal
6    Mumbai Indians    Mumbai Indians    field  normal

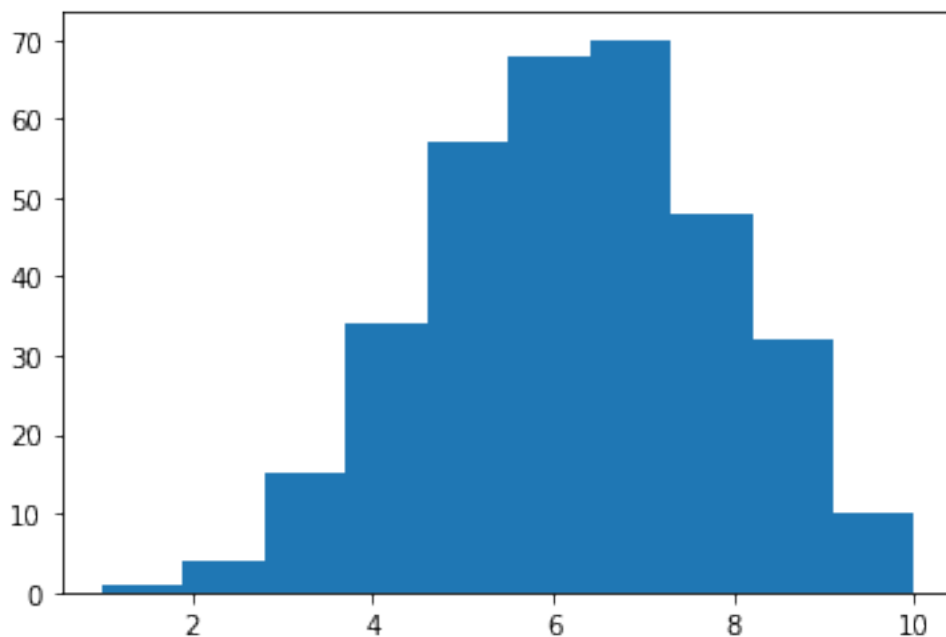
      dl_applied    winner  win_by_runs  win_by_wickets \
1            0  Rising Pune Supergiant    0            7
2            0  Kolkata Knight Riders    0           10
```


3	0	Kings XI Punjab	0	6
5	0	Sunrisers Hyderabad	0	9
6	0	Mumbai Indians	0	4

	player_of_match	venue	umpire1 \
1	SPD Smith	Maharashtra Cricket Association Stadium	A Nand Kishore
2	CA Lynn	Saurashtra Cricket Association Stadium	Nitin Menon
3	GJ Maxwell	Holkar Cricket Stadium	AK Chaudhary
5	Rashid Khan	Rajiv Gandhi International Stadium, Uppal	A Deshmukh
6	N Rana	Wankhede Stadium	Nitin Menon

	umpire2	umpire3
1	S Ravi	NaN
2	CK Nandan	NaN
3	C Shamshuddin	NaN
5	NJ Llong	NaN
6	CK Nandan	NaN

```
[21]: #making a histogram for the frequency of win w.r.t to wickets
plt.figure(figsize=(6,4))
plt.hist(batting_second['win_by_wickets'])
plt.show()
```

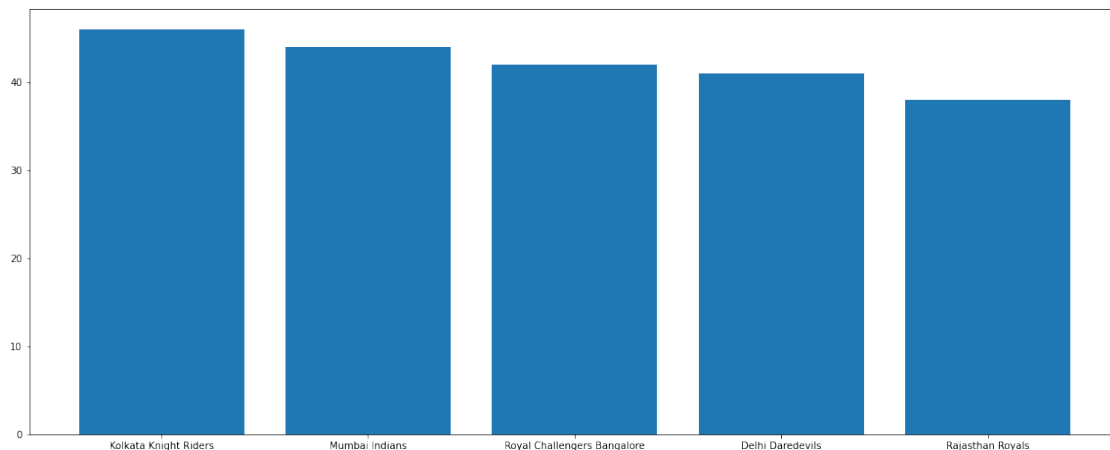


```
[22]: #finding the frequency of number of win with respect to the each time after
      ↳batting second
```

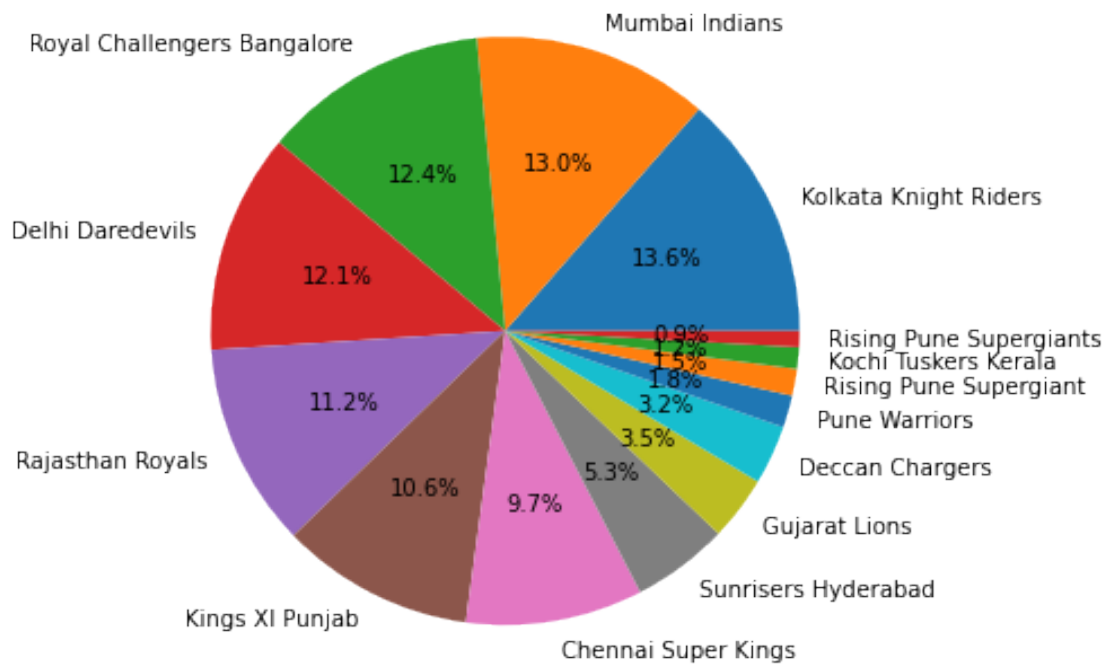
```
batting_second['winner'].value_counts()
```

```
[22]: Kolkata Knight Riders      46
      Mumbai Indians            44
      Royal Challengers Bangalore 42
      Delhi Daredevils          41
      Rajasthan Royals          38
      Kings XI Punjab           36
      Chennai Super Kings       33
      Sunrisers Hyderabad       18
      Gujarat Lions             12
      Deccan Chargers           11
      Pune Warriors             6
      Rising Pune Supergiant     5
      Kochi Tuskers Kerala      4
      Rising Pune Supergiants    3
      Name: winner, dtype: int64
```

```
[23]: #making a bar plot for top 5 teams winner after batting second
plt.figure(figsize=(20,8))
plt.bar(list(batting_second['winner'].value_counts()[0:5].
    ↳keys()),batting_second['winner'].value_counts()[0:5])
plt.show()
```



```
[24]: #making a pie chart for the number of wins after the batting second
plt.figure(figsize=(6,6))
plt.pie(batting_second['winner'].value_counts(),
    ↳labels=batting_second['winner'].value_counts().keys(), autopct='%0.1f%%')
plt.show()
```



```
[25]: #looking at the number of the match in each season
ipl['season'].value_counts()
```

```
[25]: 2013    76
      2012    74
      2011    73
      2010    60
      2014    60
      2016    60
      2017    59
      2015    59
      2008    58
      2009    57
      Name: season, dtype: int64
```

```
[26]: #looking at number of matches played in the different city
ipl['city'].value_counts()
```

```
[26]: 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
Cape Town	7
Abu Dhabi	7
Ranchi	7
Port Elizabeth	7
Cuttack	7
Raipur	6
Sharjah	6
Kochi	5
Indore	5
Kanpur	4
Nagpur	3
Kimberley	3
East London	3
Bloemfontein	2

Name: city, dtype: int64

```
[36]: #how many times a team won the match after winning the toss out of total 636
      ↳ matches
      np.sum(ipl['toss_winner']==ipl['winner'])
```

[36]: 325

```
[37]: #percentage of winning matches after winning the tosses
      325/636
```

[37]: 0.5110062893081762

```
[39]: deliveries=pd.read_csv('deliveries.csv')
```

```
[40]: deliveries.head()
```

```
[40]:   match_id  inning  batting_team  bowling_team  over  \
0         1        1  Sunrisers Hyderabad  Royal Challengers Bangalore    1
1         1        1  Sunrisers Hyderabad  Royal Challengers Bangalore    1
2         1        1  Sunrisers Hyderabad  Royal Challengers Bangalore    1
3         1        1  Sunrisers Hyderabad  Royal Challengers Bangalore    1
```

```
4          1          1 Sunrisers Hyderabad Royal Challengers Bangalore 1
```

	ball	batsman	non_striker	bowler	is_super_over	...	bye_runs	\
0	1	DA Warner	S Dhawan	TS Mills	0	...	0	
1	2	DA Warner	S Dhawan	TS Mills	0	...	0	
2	3	DA Warner	S Dhawan	TS Mills	0	...	0	
3	4	DA Warner	S Dhawan	TS Mills	0	...	0	
4	5	DA Warner	S Dhawan	TS Mills	0	...	0	

	legbye_runs	noball_runs	penalty_runs	batsman_runs	extra_runs	\
0	0	0	0	0	0	
1	0	0	0	0	0	
2	0	0	0	4	0	
3	0	0	0	0	0	
4	0	0	0	0	2	

	total_runs	player_dismissed	dismissal_kind	fielder
0	0	NaN	NaN	NaN
1	0	NaN	NaN	NaN
2	4	NaN	NaN	NaN
3	0	NaN	NaN	NaN
4	2	NaN	NaN	NaN

```
[5 rows x 21 columns]
```

```
[41]: deliveries.shape
```

```
[41]: (150460, 21)
```

```
[43]: deliveries['match_id'].unique()
```

```
[43]: 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],
dtype=int64)

```

```
[47]: match_1=deliveries[deliveries['match_id']==1]
```

```
[48]: match_1
```

```

[48]:      match_id  inning      batting_team \
0           1         1      Sunrisers Hyderabad
1           1         1      Sunrisers Hyderabad
2           1         1      Sunrisers Hyderabad
3           1         1      Sunrisers Hyderabad
4           1         1      Sunrisers Hyderabad
..          ...       ...
243         1         2  Royal Challengers Bangalore

```

244	1	2	Royal Challengers Bangalore
245	1	2	Royal Challengers Bangalore
246	1	2	Royal Challengers Bangalore
247	1	2	Royal Challengers Bangalore

	bowling_team	over	ball	batsman	non_striker	\
0	Royal Challengers Bangalore	1	1	DA Warner	S Dhawan	
1	Royal Challengers Bangalore	1	2	DA Warner	S Dhawan	
2	Royal Challengers Bangalore	1	3	DA Warner	S Dhawan	
3	Royal Challengers Bangalore	1	4	DA Warner	S Dhawan	
4	Royal Challengers Bangalore	1	5	DA Warner	S Dhawan	
..	
243	Sunrisers Hyderabad	19	6	YS Chahal	A Choudhary	
244	Sunrisers Hyderabad	20	1	YS Chahal	A Choudhary	
245	Sunrisers Hyderabad	20	2	YS Chahal	A Choudhary	
246	Sunrisers Hyderabad	20	3	A Choudhary	YS Chahal	
247	Sunrisers Hyderabad	20	4	A Choudhary	YS Chahal	

	bowler	is_super_over	...	bye_runs	legbye_runs	noball_runs	\
0	TS Mills	0	...	0	0	0	
1	TS Mills	0	...	0	0	0	
2	TS Mills	0	...	0	0	0	
3	TS Mills	0	...	0	0	0	
4	TS Mills	0	...	0	0	0	
..	
243	B Kumar	0	...	0	0	0	
244	BCJ Cutting	0	...	0	0	0	
245	BCJ Cutting	0	...	0	0	0	
246	BCJ Cutting	0	...	0	0	0	
247	BCJ Cutting	0	...	0	0	0	

	penalty_runs	batsman_runs	extra_runs	total_runs	player_dismissed	\
0	0	0	0	0		NaN
1	0	0	0	0		NaN
2	0	4	0	4		NaN
3	0	0	0	0		NaN
4	0	0	2	2		NaN
..	
243	0	1	0	1		NaN
244	0	0	0	0		NaN
245	0	1	0	1		NaN
246	0	6	0	6		NaN
247	0	0	0	0	YS Chahal	

	dismissal_kind	fielder
0	NaN	NaN
1	NaN	NaN

```

2          NaN          NaN
3          NaN          NaN
4          NaN          NaN
..        ...          ...
243        NaN          NaN
244        NaN          NaN
245        NaN          NaN
246        NaN          NaN
247        run out  CJ Jordan (sub)

```

[248 rows x 21 columns]

```
[49]: srh=match_1[match_1['inning']==1]
```

```
[59]: srh.head()
```

```
[59]:
```

	match_id	inning	batting_team	bowling_team	over	\
0	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	
1	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	
2	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	
3	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	
4	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	

	ball	batsman	non_striker	bowler	is_super_over	...	bye_runs	\
0	1	DA Warner	S Dhawan	TS Mills	0	...	0	
1	2	DA Warner	S Dhawan	TS Mills	0	...	0	
2	3	DA Warner	S Dhawan	TS Mills	0	...	0	
3	4	DA Warner	S Dhawan	TS Mills	0	...	0	
4	5	DA Warner	S Dhawan	TS Mills	0	...	0	

	legbye_runs	noball_runs	penalty_runs	batsman_runs	extra_runs	\
0	0	0	0	0	0	
1	0	0	0	0	0	
2	0	0	0	4	0	
3	0	0	0	0	0	
4	0	0	0	0	2	

	total_runs	player_dismissed	dismissal_kind	fielder
0	0	NaN	NaN	NaN
1	0	NaN	NaN	NaN
2	4	NaN	NaN	NaN
3	0	NaN	NaN	NaN
4	2	NaN	NaN	NaN

[5 rows x 21 columns]

```
[51]: srh['batsman_runs'].value_counts()
```



```
[51]: 1    57
      0    32
      4    17
      6     9
      2     9
      3     1
      Name: batsman_runs, dtype: int64
```

```
[56]: srh['dismissal_kind'].value_counts()
```

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

```
[57]: rcb=match_1[match_1['inning']==2]
```

```
[58]: rcb.head()
```

```
[58]:      match_id  inning      batting_team      bowling_team  over  \
125         1        2  Royal Challengers Bangalore  Sunrisers Hyderabad    1
126         1        2  Royal Challengers Bangalore  Sunrisers Hyderabad    1
127         1        2  Royal Challengers Bangalore  Sunrisers Hyderabad    1
128         1        2  Royal Challengers Bangalore  Sunrisers Hyderabad    1
129         1        2  Royal Challengers Bangalore  Sunrisers Hyderabad    1
```

```
      ball      batsman  non_striker  bowler  is_super_over  ...  \
125     1        CH Gayle  Mandeep Singh  A Nehra             0  ...
126     2  Mandeep Singh        CH Gayle  A Nehra             0  ...
127     3  Mandeep Singh        CH Gayle  A Nehra             0  ...
128     4  Mandeep Singh        CH Gayle  A Nehra             0  ...
129     5  Mandeep Singh        CH Gayle  A Nehra             0  ...
```

```
      bye_runs  legbye_runs  noball_runs  penalty_runs  batsman_runs  \
125         0           0           0           0           1
126         0           0           0           0           0
127         0           0           0           0           0
128         0           0           0           0           2
129         0           0           0           0           4
```

```
      extra_runs  total_runs  player_dismissed  dismissal_kind  fielder
125         0           1           NaN           NaN           NaN
126         0           0           NaN           NaN           NaN
127         0           0           NaN           NaN           NaN
128         0           2           NaN           NaN           NaN
129         0           4           NaN           NaN           NaN
```

```
[5 rows x 21 columns]
```

```
[60]: rcb['batsman_runs'].value_counts()
```

```
[60]: 0    49  
      1    44  
      4    15  
      6     8  
      2     7  
      Name: batsman_runs, dtype: int64
```

```
[63]: rcb['dismissal_kind'].value_counts()
```

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

```
[ ]:
```