In [3]:
```python
# Loading the required library
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
```

In [4]:
```python
#loading the ipl matches dataset
ipl=pd.read_csv('matches.csv')
```

In [5]:
```python
#first five records of the dataset
ipl.head()
```

Out[5]:

	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	um
0	1	2017	Hyderabad	2017-04-05	Sunrisers Hyderabad	Royal Challengers Bangalore	Royal Challengers Bangalore	field	normal	0	Sunrisers Hyderabad	35	0	Yuvraj Singh	Rajiv Gandhi International Stadium, Uppal	AY Dandekar	NJ
1	2	2017	Pune	2017-04-06	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	S
2	3	2017	Rajkot	2017-04-07	Gujarat Lions	Kolkata Knight Riders	Kolkata Knight Riders	field	normal	0	Kolkata Knight Riders	0	10	CA Lynn	Saurashtra Cricket Association Stadium	Nitin Menon	CK Na
3	4	2017	Indore	2017-04-08	Rising Pune Supergiant	Kings XI Punjab	Kings XI Punjab	field	normal	0	Kings XI Punjab	0	6	GJ Maxwell	Holkar Cricket Stadium	AK Chaudhary	Shamsh
4	5	2017	Bangalore	2017-04-08	Royal Challengers Bangalore	Delhi Daredevils	Royal Challengers Bangalore	bat	normal	0	Royal Challengers Bangalore	15	0	KM Jadhav	M Chinnaswamy Stadium	NaN	

In [6]:
```python
#looking at the numbers of rows & columns in the datasets
ipl.shape
```

Out[6]:
```
(756, 18)
```

In [7]:
```python
#getting the friquency of the most man of the mathch awards
ipl['player_of_match'].value_counts()
```

Out[7]:
```
CH Gayle          21
AB de Villiers    20
DA Warner         17
RG Sharma         17
MS Dhoni          17
                  ..
A Chandila         1
AP Tare            1
A Joseph           1
KV Sharma          1
AD Mathews         1
Name: player_of_match, Length: 226, dtype: int64
```

In [8]:
```python
#Getting the top 10 players with most man of the match awards
ipl['player_of_match'].value_counts()[0:10]
```

Out[8]:
```
CH Gayle          21
AB de Villiers    20
DA Warner         17
RG Sharma         17
MS Dhoni          17
YK Pathan         16
SR Watson         15
SK Raina          14
G Gambhir         13
MEK Hussey        12
Name: player_of_match, dtype: int64
```

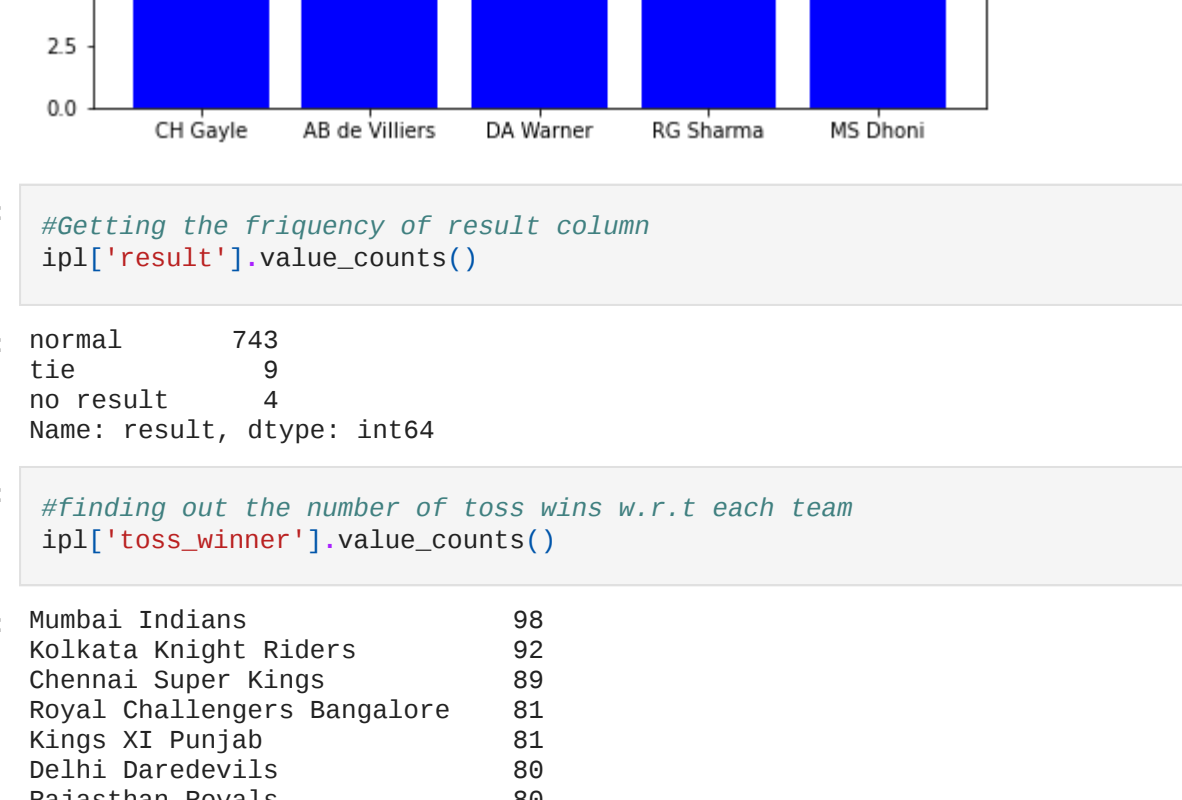
In [9]:
```python
#Getting the top 5 players with most man of the match awards
ipl['player_of_match'].value_counts()[0:5]
```

Out[9]:
```
CH Gayle          21
AB de Villiers    20
DA Warner         17
RG Sharma         17
MS Dhoni          17
Name: player_of_match, dtype: int64
```

In [10]:
```python
list(ipl['player_of_match'].value_counts()[0:5].keys())
```

Out[10]:
```
['CH Gayle', 'AB de Villiers', 'DA Warner', 'RG Sharma', 'MS Dhoni']
```

In [12]:
```python
plt.figure(figsize=(8,5))
plt.bar(list(ipl['player_of_match'].value_counts()[0:5].keys()),list(ipl['player_of_match'].value_counts()[0:5]),color='b')
plt.show()
```



In [13]:
```python
#Getting the frequency of result column
ipl['result'].value_counts()
```

Out[13]:
```
normal       743
tie            9
no result      4
Name: result, dtype: int64
```

In [14]:
```python
#finding out the number of toss wins w.r.t each team
ipl['toss_winner'].value_counts()
```

Out[14]:
```
Mumbai Indians                 98
Kolkata Knight Riders          92
Chennai Super Kings            89
Royal Challengers Bangalore    81
Kings XI Punjab                81
Delhi Daredevils               80
Rajasthan Royals               80
Sunrisers Hyderabad            46
Deccan Chargers                43
Pune Warriors                  20
Gujarat Lions                  15
Delhi Capitals                 10
Kochi Tuskers Kerala            8
Rising Pune Supergiants         7
Rising Pune Supergiant          6
Name: toss_winner, dtype: int64
```

In [37]:
```python
#Extracting the records where a team won batting first
batting_first=ipl[ipl['win_by_runs']!=0]
```

In [38]:
```python
batting_first.head()
```

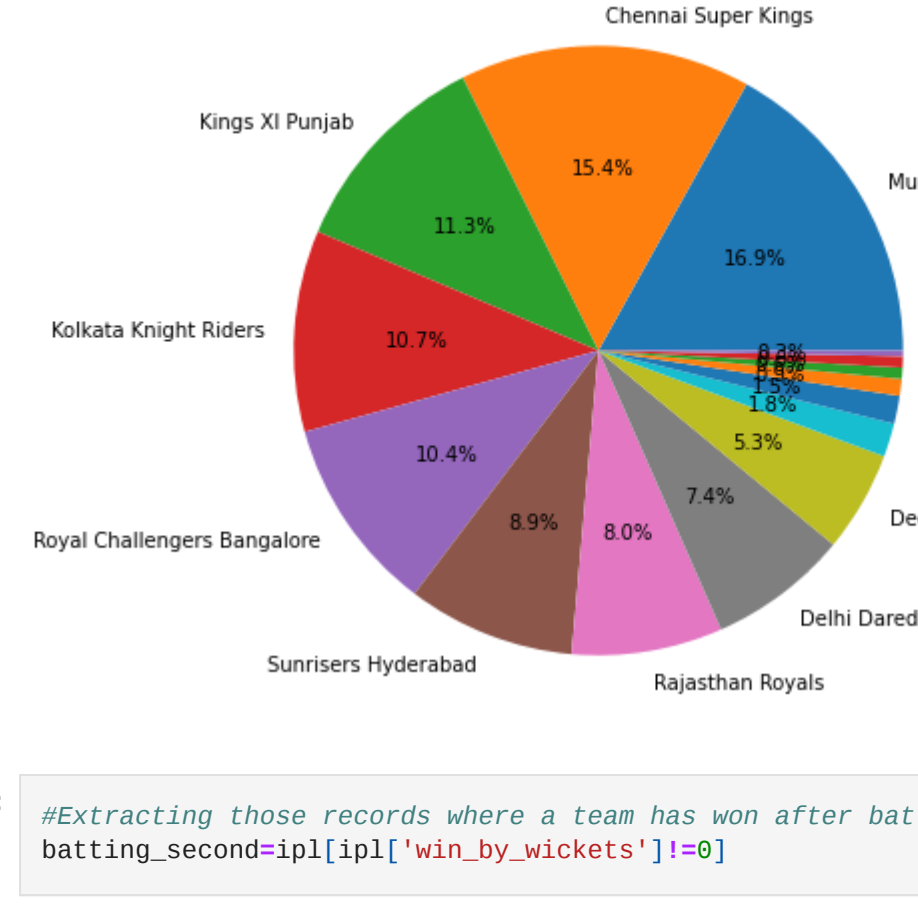
Out[38]:

	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	umpire
0	1	2017	Hyderabad	2017-04-05	Sunrisers Hyderabad	Royal Challengers Bangalore	Royal Challengers Bangalore	field	normal	0	Sunrisers Hyderabad	35	0	Yuvraj Singh	Rajiv Gandhi International Stadium, Uppal	AY Dandekar	N Llon
4	5	2017	Bangalore	2017-04-08	Royal Challengers Bangalore	Delhi Daredevils	Royal Challengers Bangalore	bat	normal	0	Royal Challengers Bangalore	15	0	KM Jadhav	M Chinnaswamy Stadium	NaN	Na
8	9	2017	Pune	2017-04-11	Delhi Daredevils	Rising Pune Supergiant	Rising Pune Supergiant	field	normal	0	Delhi Daredevils	97	0	SV Samson	Maharashtra Cricket Association Stadium	AY Dandekar	S Ra
13	14	2017	Kolkata	2017-04-15	Kolkata Knight Riders	Sunrisers Hyderabad	Sunrisers Hyderabad	field	normal	0	Kolkata Knight Riders	17	0	RV Uthappa	Eden Gardens	AY Dandekar	N Llon
14	15	2017	Delhi	2017-04-15	Delhi Daredevils	Kings XI Punjab	Delhi Daredevils	bat	normal	0	Delhi Daredevils	51	0	CJ Anderson	Feroz Shah Kotla	YC Barde	Niti Meno

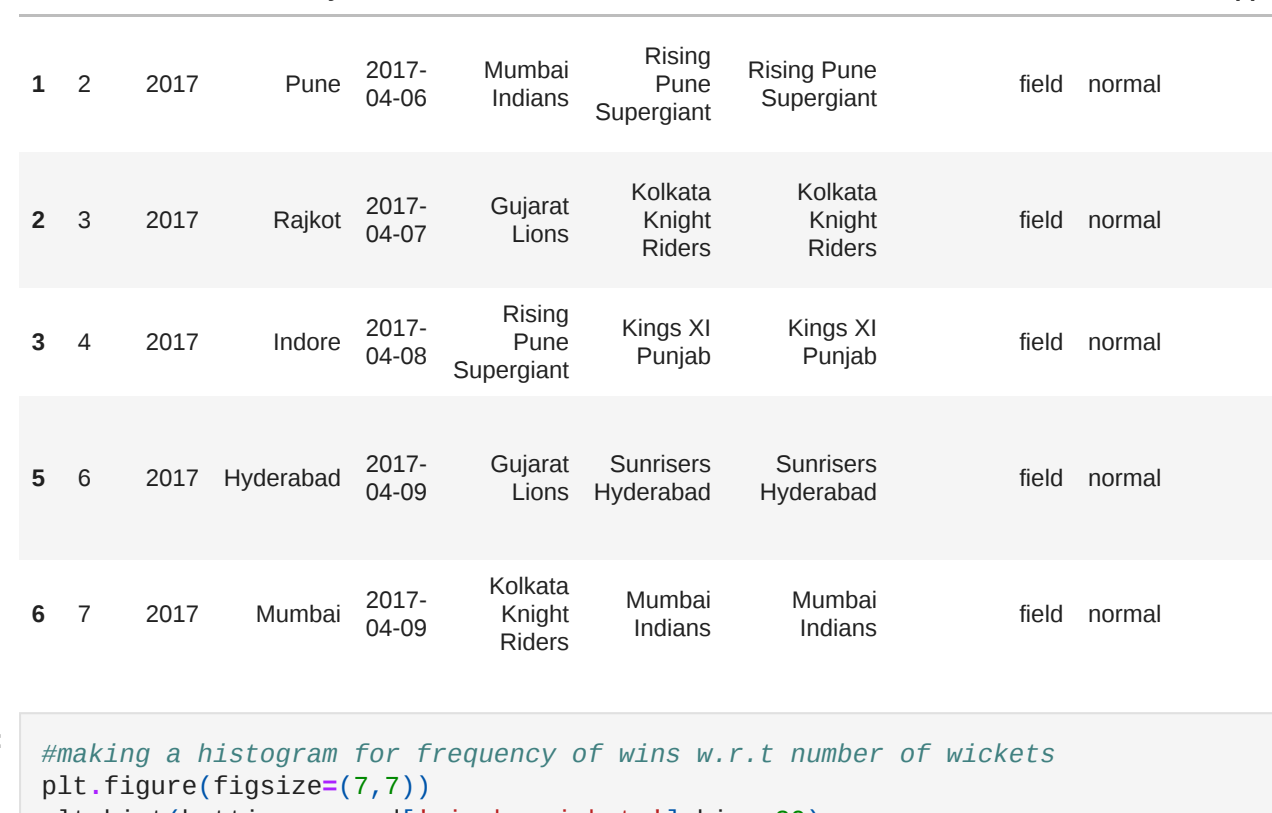
In [39]:
```python
#finding out the numbers of wins w.r.t each team after batting first
batting_first['winner'].value_counts()
```

Out[39]:
```
Mumbai Indians                 57
Chennai Super Kings            52
Kings XI Punjab                38
Kolkata Knight Riders          36
Royal Challengers Bangalore    35
Sunrisers Hyderabad            30
Rajasthan Royals               27
Delhi Daredevils               25
Deccan Chargers                18
Pune Warriors                   6
Rising Pune Supergiant          5
Delhi Capitals                  3
Rising Pune Supergiants         2
Kochi Tuskers Kerala            2
Gujarat Lions                   1
Name: winner, dtype: int64
```

In [40]:
```python
#making a Bar plot for top 3 teams with the most wins after bating first
plt.figure(figsize=(6,6))
plt.bar(list(batting_first['winner'].value_counts()[0:3].keys()),list(batting_first['winner'].value_counts()[0:3]),color='r')
plt.show()
```



In [41]:
```python
# Making A pie Chart
plt.figure(figsize=(7,7))
plt.pie(list(batting_first['winner'].value_counts()),labels=list(batting_first['winner'].value_counts().keys()),autopct='%0.1f%%')
plt.show()
```



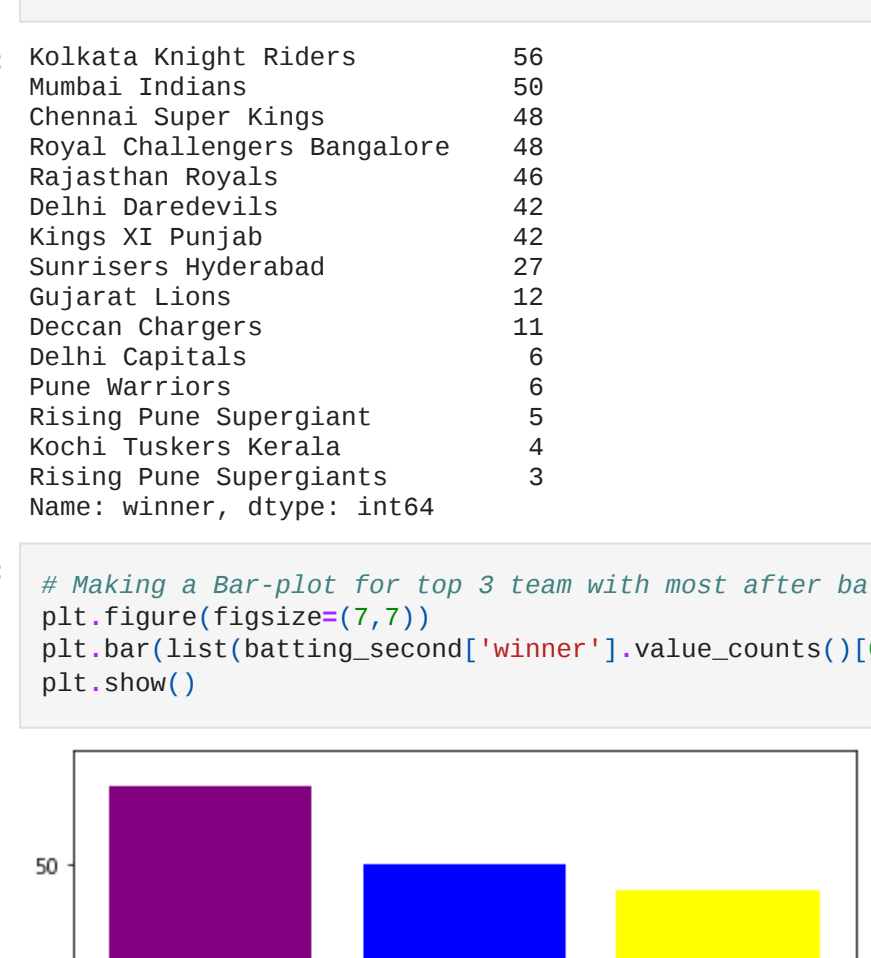
In [43]:
```python
#Extracting those records where a team has won after batting second
batting_second=ipl[ipl['win_by_wickets']!=0]
```

In [44]:
```python
batting_second.head()
```

Out[44]:

	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	umpire2
1	2	2017	Pune	2017-04-06	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	S Ra
2	3	2017	Rajkot	2017-04-07	Gujarat Lions	Kolkata Knight Riders	Kolkata Knight Riders	field	normal	0	Kolkata Knight Riders	0	10	CA Lynn	Saurashtra Cricket Association Stadium	Nitin Menon	CK Nanda
3	4	2017	Indore	2017-04-08	Rising Pune Supergiant	Kings XI Punjab	Kings XI Punjab	field	normal	0	Kings XI Punjab	0	6	GJ Maxwell	Holkar Cricket Stadium	AK Chaudhary	C Shamshuddi
5	6	2017	Hyderabad	2017-04-09	Gujarat Lions	Sunrisers Hyderabad	Sunrisers Hyderabad	field	normal	0	Sunrisers Hyderabad	0	9	Rashid Khan	Rajiv Gandhi International Stadium, Uppal	A Deshmukh	NJ Llon
6	7	2017	Mumbai	2017-04-09	Kolkata Knight Riders	Mumbai Indians	Mumbai Indians	field	normal	0	Mumbai Indians	0	4	N Rana	Wankhede Stadium	Nitin Menon	CK Nanda

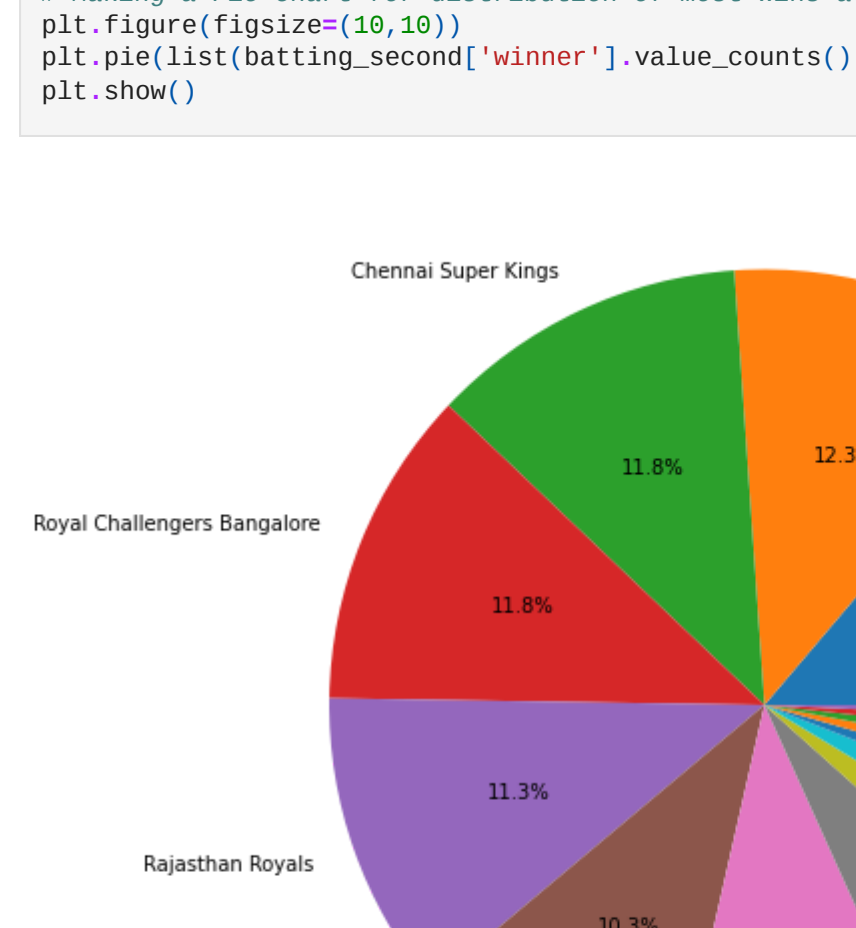
In [46]:
```python
#making a histogram for frequency of wins w.r.t number of wickets
plt.figure(figsize=(7,7))
plt.hist(batting_second['win_by_wickets'],bins=30)
plt.grid(True)
plt.show()
```



In [47]:
```python
#Finding out the frequency of number of wins w.r.t each team after batting second
batting_second['winner'].value_counts()
```

Out[47]:
```
Kolkata Knight Riders          56
Mumbai Indians                 50
Chennai Super Kings            48
Royal Challengers Bangalore    48
Rajasthan Royals               46
Delhi Daredevils               42
Kings XI Punjab                42
Sunrisers Hyderabad            27
Gujarat Lions                  12
Deccan Chargers                11
Delhi Capitals                  6
Pune Warriors                   6
Rising Pune Supergiant          5
Kochi Tuskers Kerala            4
Rising Pune Supergiants         3
Name: winner, dtype: int64
```

In [52]:
```python
# Making a Bar-plot for top 3 team with most after bating second
plt.figure(figsize=(7,7))
plt.bar(list(batting_second['winner'].value_counts()[0:3].keys()),list(batting_second['winner'].value_counts()[0:3]),color=['purple','blue','yellow'])
plt.show()
```



In [56]:
```python
# Making a Pie chart for distribution of most wins after batting seconds
plt.figure(figsize=(10,10))
plt.pie(list(batting_second['winner'].value_counts()),labels=list(batting_second['winner'].value_counts().keys()),autopct='%0.1f%%')
plt.show()
```

In [58]:
```python
# Looking at the number of matches played each seasons
ipl['season'].value_counts()
```

Out[58]:
```
2013    76
2012    74
2011    73
2010    60
2014    60
2016    60
2018    60
2019    60
2015    59
2017    59
2008    58
2009    57
Name: season, dtype: int64
```

In [59]:
```python
# Looking at the number of matches played each city
ipl['city'].value_counts()
```

Out[59]:
```
Mumbai            101
Kolkata            77
Delhi              74
Bangalore          66
Hyderabad          64
Chennai            57
Jaipur             47
Chandigarh         46
Pune               38
Durban             15
Bengaluru          14
Visakhapatnam      13
Ahmedabad          12
Centurion          12
Rajkot             10
Mohali             10
Indore              9
Dharamsala          9
Johannesburg        8
Port Elizabeth      7
Abu Dhabi           7
Cuttack             7
Cape Town           7
Ranchi              7
Sharjah             6
Raipur              6
Kochi               5
Kanpur              4
East London         3
Kimberley           3
Nagpur              3
Bloemfontein        2
Name: city, dtype: int64
```

In [60]:
```python
# finding out how many times a team has won the toss after winning the toss
import numpy as np
np.sum(ipl['toss_winner']==ipl['winner'])
```

Out[60]:
```
393
```

In [61]:
```python
393/756
```

Out[61]:
```
0.5198412698412699
```

In [64]:
```python
deleveries=pd.read_csv('deliveries.csv')
```

In [65]:
```python
deleveries.head()
```

Out[65]:

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

5 rows × 21 columns

In [66]:
```python
deleveries['match_id'].unique()
```

Out[66]:
```
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,  7894,  7895,  7896,
        7897,  7898,  7899,  7900,  7901,  7902,  7903,  7904,  7905,
        7906,  7907,  7908,  7909,  7910,  7911,  7912,  7913,  7914,
        7915,  7916,  7917,  7918,  7919,  7920,  7921,  7922,  7923,
        7924,  7925,  7926,  7927,  7928,  7929,  7930,  7931,  7932,
        7933,  7934,  7935,  7936,  7937,  7938,  7939,  7940,  7941,
        7942,  7943,  7944,  7945,  7946,  7947,  7948,  7949,  7950,
        7951,  7952,  7953, 11137, 11138, 11139, 11140, 11141, 11142,
       11143, 11144, 11145, 11146, 11147, 11148, 11149, 11150, 11151,
       11152, 11153, 11309, 11310, 11311, 11312, 11313, 11314, 11315,
       11316, 11317, 11318, 11319, 11320, 11321, 11322, 11323, 11324,
       11325, 11326, 11327, 11328, 11329, 11330, 11331, 11332, 11333,
       11334, 11335, 11336, 11337, 11338, 11339, 11340, 11341, 11342,
       11343, 11344, 11345, 11346, 11347, 11412, 11413, 11414, 11415],
      dtype=int64)
```

In [67]:
```python
match_1=deleveries[deleveries['match_id']==1]
```

In [68]:
```python
match_1.head()
```

Out[68]:

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

5 rows × 21 columns

In [69]:
```python
match_1.shape
```

Out[69]:
```
(248, 21)
```

In [71]:
```python
srh=match_1[match_1['inning']==1]
```

In [72]:
```python
srh['batsman_runs'].value_counts()
```

Out[72]:
```
1    57
0    32
4    17
2     9
6     9
3     1
Name: batsman_runs, dtype: int64
```

In [73]:
```python
srh['dismissal_kind'].value_counts()
```

Out[73]:
```
caught    3
bowled    1
Name: dismissal_kind, dtype: int64
```

In [74]:
```python
rcb=match_1[match_1['inning']==2]
```

In [75]:
```python
rcb['batsman_runs'].value_counts()
```

Out[75]:
```
0    49
1    44
4    15
6     8
2     7
Name: batsman_runs, dtype: int64
```

In [76]:
```python
rcb['dismissal_kind'].value_counts()
```

Out[76]:
```
caught     6
bowled     2
run out    2
Name: dismissal_kind, dtype: int64
```

In [ ]: