

```
In [5]: import pandas as pd
from matplotlib import pyplot as plt
import os
os.chdir("C:\\Users\\01870\\Downloads")
ipl=pd.read_csv("Matches.csv")

In [8]: ipl.shape

Out[8]: (756, 15)

In [9]: #obtain five starting rows of the table
ipl.head()
```

	id	Season	city	date	team1	team2	toss_winner	toss_decision	result	dt_applied	winner	win_by_runs	win_by_wickets	player_of_match
	0	1	IPL	Hyderabad	04-06-2017	Sunrisers Hyderabad	Royal Challengers Bangalore	Royal Challengers Bangalore	field normal	0	Sunrisers Hyderabad	35	0	Yuvraj Singh
	1	2	IPL	Pune	04-06-2017	Mumbai Indians	Rising Pune Supergiant	Rising Pune Supergiant	field normal	0	Rising Pune Supergiant	0	7	SPD Smith
	2	3	IPL	Rajkot	04-07-2017	Gujarat Lions	Kolkata Knight Riders	Kolkata Knight Riders	field normal	0	Kolkata Knight Riders	0	10	CA Lynn
	3	4	IPL	Indore	04-08-2017	Rising Pune Supergiant	Kings XI Punjab	Kings XI Punjab	field normal	0	Kings XI Punjab	0	6	GJ Maxwell
	4	5	IPL	Bangalore	04-09-2017	Royal Challengers Bangalore	Dehli Daredevils	Royal Challengers Bangalore	bat normal	0	Royal Challengers Bangalore	15	0	KM Jadhav

```
In [10]: #getting all player which win player of the match
ipl['player_of_match'].value_counts()
```

player_of_match	
CH Gayle	21
AB de Villiers	20
RG Sharma	17
MS Dhoni	17
DA Warner	17
...	
PO Collingwood	1
KL Rahul	1
AC Voges	1
J Theron	1
S Hetmyer	1
Name: count, dtype: int64	

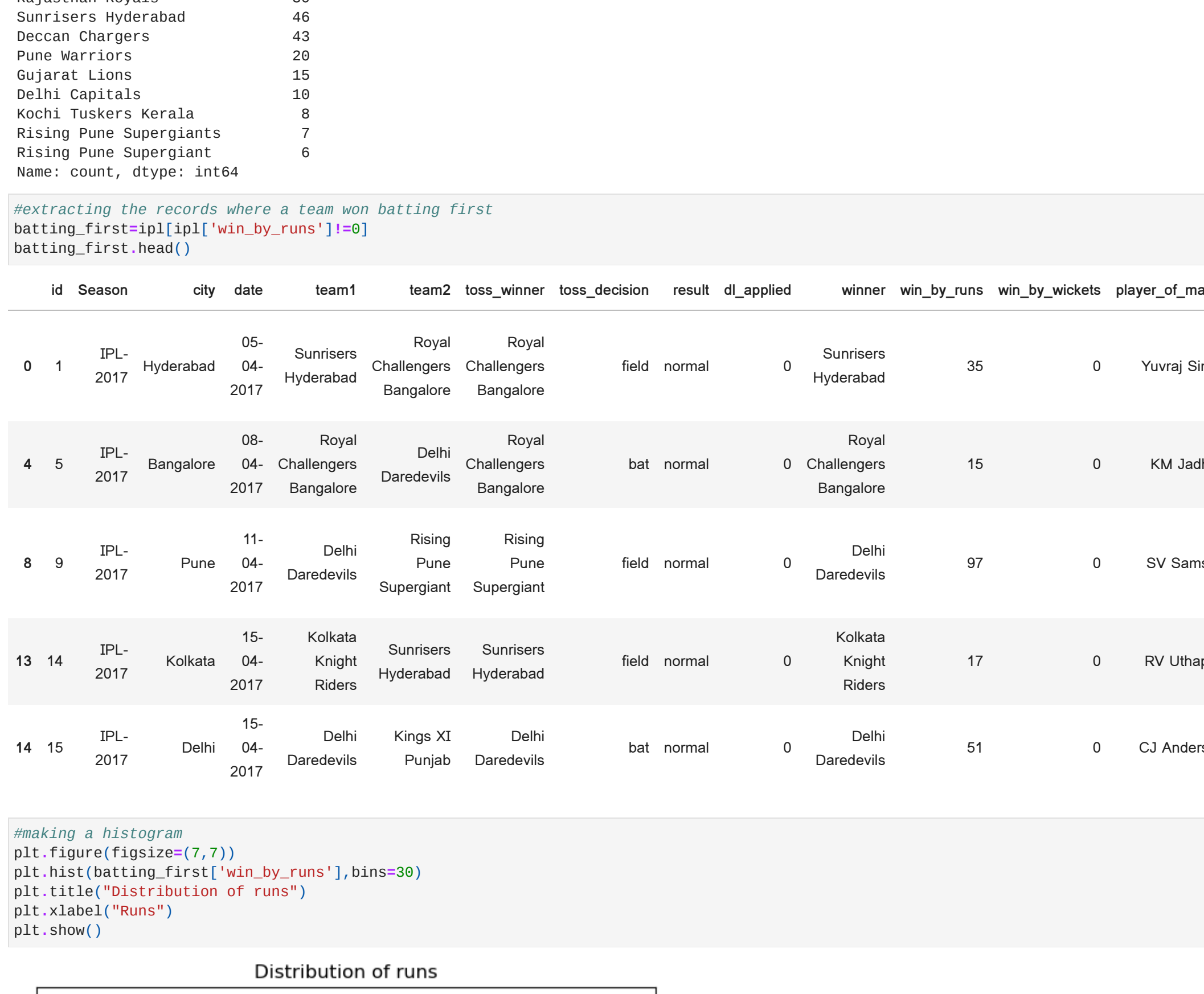
```
In [11]: #getting top5 player
ipl['player_of_match'].value_counts()[0:10]
```

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

```
In [12]: ipl['player_of_match']
```

0	Yuvraj Singh
1	SPD Smith
2	CA Lynn
3	GJ Maxwell
4	KM Jadhav
...	
751	HI Pandya
752	AS Yadav
753	KK Pant
754	F du Plessis
755	JJ Bumrah
Name: player_of_match, Length: 756, dtype: object	

```
In [13]: #making a bar plot of top 5 players.
plt.figure(figsize=(15,5))
plt.bar(list(ipl['player_of_match'].value_counts()[0:10].keys()),list(ipl['player_of_match'].value_counts()[0:10]),color='r')
plt.show()
```



```
In [14]: #frequency of result
ipl['result'].value_counts()
```

result	743
tie	9
no result	4
Name: count, dtype: int64	

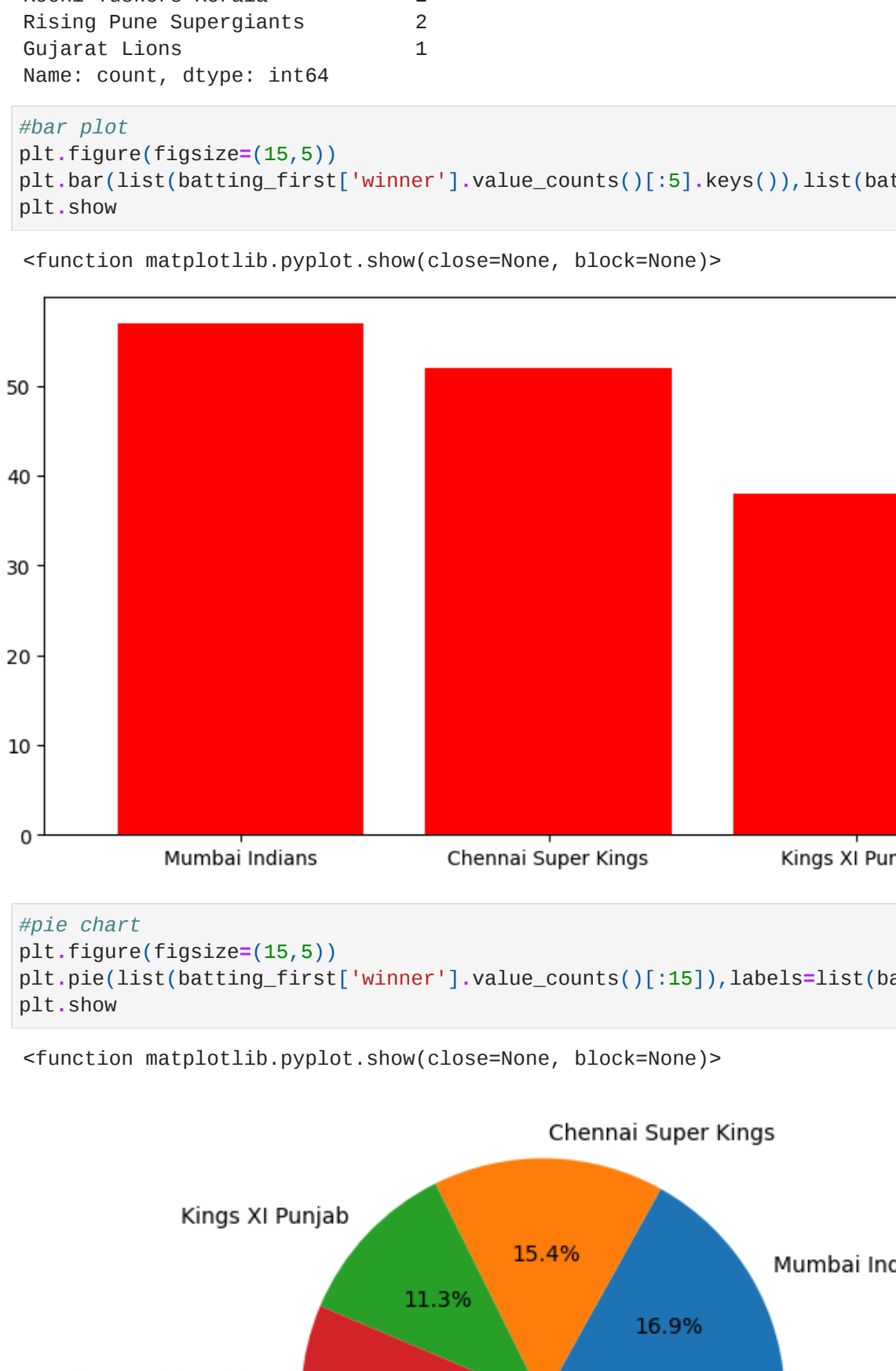
```
In [15]: #team which is win most toss
ipl['toss_winner'].value_counts()
```

toss_winner	
Mumbai Indians	98
Kolkata Knight Riders	97
Chennai Super Kings	89
Royal Challengers Bangalore	81
Kings XI Punjab	81
Dehli Daredevils	80
Rajasthan Royals	80
Sunrisers Hyderabad	72
Deccan Chargers	43
Pune Warriors	20
Gujarat Lions	20
Dehli Capitals	10
Kochi Tuskers Kerala	8
Rising Pune Supergiants	7
Rising Pune Supergiant	6
Name: count, dtype: int64	

```
In [16]: #extracting the records where a team won batting first
batting_first=ipl[ipl['win_by_runs']==0]
batting_first.head()
```

	id	Season	city	date	team1	team2	toss_winner	toss_decision	result	dt_applied	winner	win_by_runs	win_by_wickets	player_of_match
	0	1	IPL	Hyderabad	04-06-2017	Sunrisers Hyderabad	Royal Challengers Bangalore	Royal Challengers Bangalore	field normal	0	Sunrisers Hyderabad	35	0	Yuvraj Sing
	4	5	IPL	Bangalore	04-09-2017	Royal Challengers Bangalore	Dehli Daredevils	Royal Challengers Bangalore	bat normal	0	Royal Challengers Bangalore	15	0	KM Jadhav
	8	9	IPL	Pune	04-11-2017	Dehli Daredevils	Rising Pune Supergiant	Rising Pune Supergiant	field normal	0	Dehli Daredevils	97	0	SV Samso
	13	14	IPL	Kolkata	04-05-2017	Kolkata Knight Riders	Sunrisers Hyderabad	Sunrisers Hyderabad	field normal	0	Kolkata Knight Riders	17	0	RV Uthappa
	14	15	IPL	Dehli	04-05-2017	Dehli Daredevils	Kings XI Punjab	Dehli Daredevils	bat normal	0	Dehli Daredevils	51	0	CJ Anderso

```
In [95]: #making a histogram
plt.figure(figsize=(7,7))
plt.hist(batting_first['win_by_runs'],bins=30)
plt.title("Distribution of runs")
plt.xlabel("Runs")
plt.show()
```

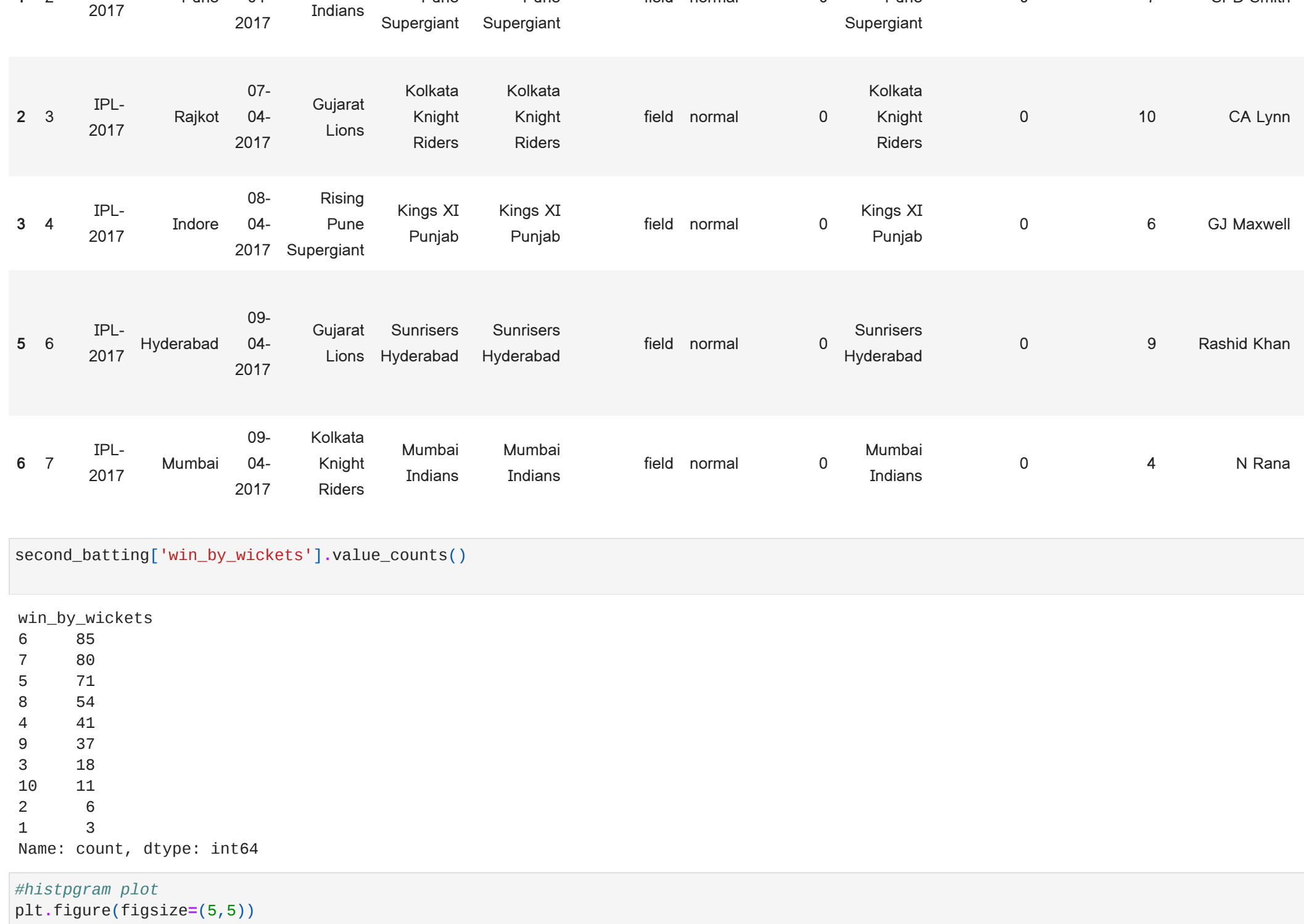


```
In [25]: batting_first['winner'].value_counts()
```

winner	
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
Dehli Daredevils	25
Deccan Chargers	18
Rising Pune Supergiant	6
Kochi Tuskers Kerala	3
Rising Pune Supergiants	2
Gujarat Lions	1
Name: count, dtype: int64	

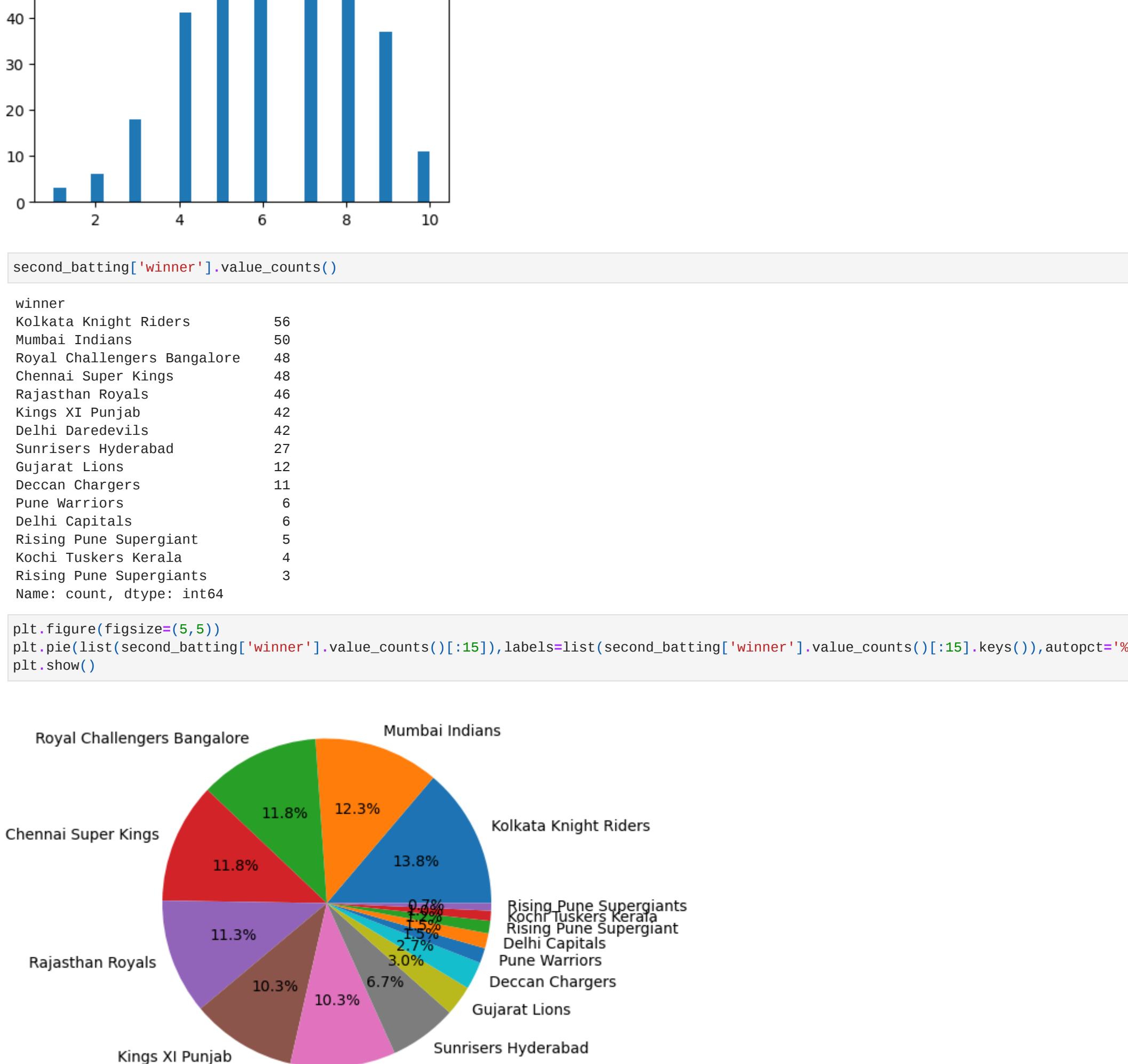
```
In [37]: #bar plot
plt.figure(figsize=(15,5))
plt.bar(list(batting_first['winner'].value_counts()[0:5].keys()),list(batting_first['winner'].value_counts()[0:5]),color='red')
plt.show()
```

```
Out[37]: <function matplotlib.pyplot.show(close=None, block=None)>
```



```
In [41]: #pie chart
plt.figure(figsize=(15,5))
plt.pie(list(batting_first['winner'].value_counts()[0:15]),labels=list(batting_first['winner'].value_counts()[0:15].keys()),autopct='%0.1',plt.show()
```

```
Out[41]: <function matplotlib.pyplot.show(close=None, block=None)>
```



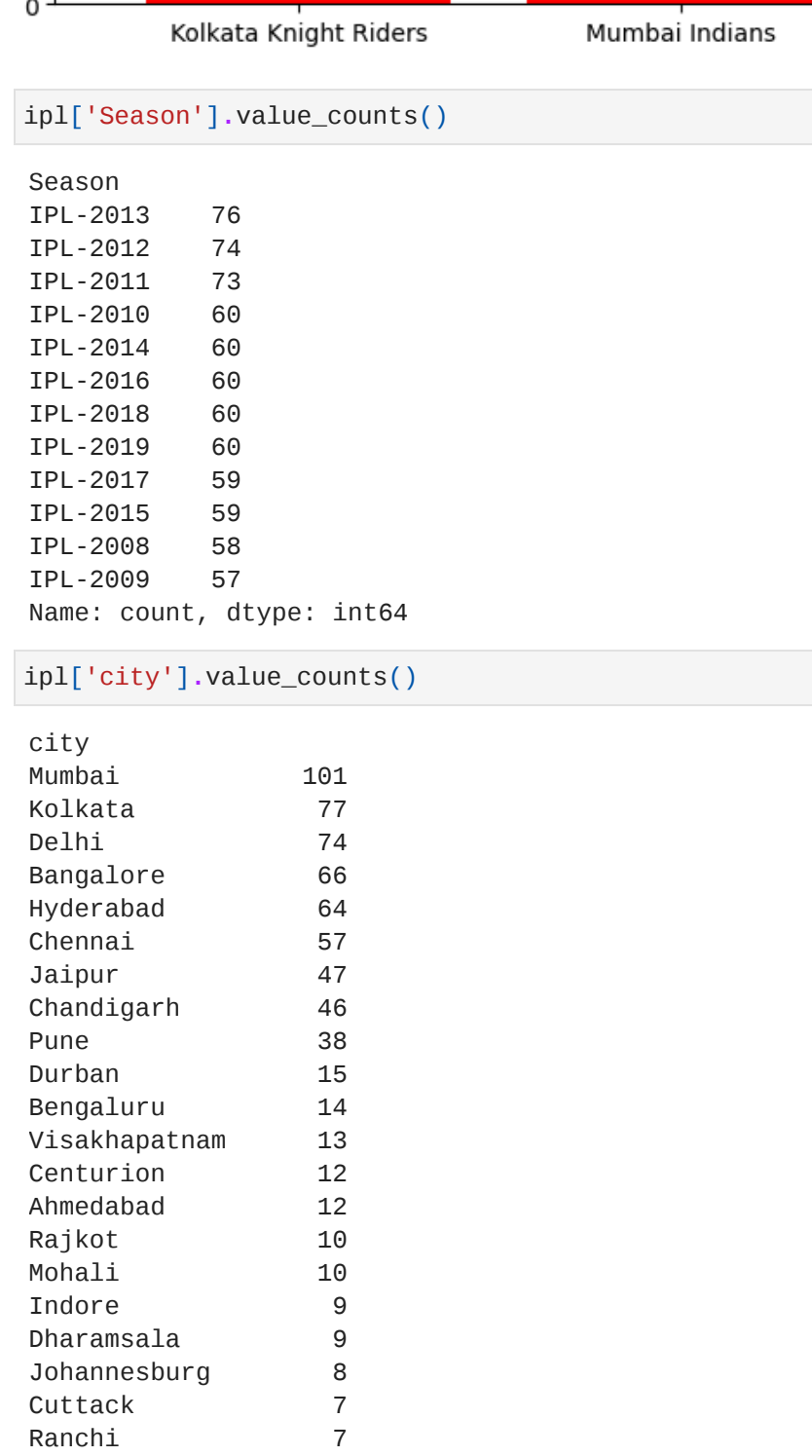
```
In [47]: second_batting=ipl[ipl['win_by_wickets']==0]
second_batting.head()
```

	id	Season	city	date	team1	team2	toss_winner	toss_decision	result	dt_applied	winner	win_by_runs	win_by_wickets	player_of_match
	1	2	IPL	Pune	04-06-2017	Mumbai Indians	Rising Pune Supergiant	Rising Pune Supergiant	field normal	0	Rising Pune Supergiant	0	7	SPD Smith
	2	3	IPL	Rajkot	04-07-2017	Gujarat Lions	Kolkata Knight Riders	Kolkata Knight Riders	field normal	0	Kolkata Knight Riders	0	10	CA Lynn
	3	4	IPL	Indore	04-08-2017	Rising Pune Supergiant	Kings XI Punjab	Kings XI Punjab	field normal	0	Kings XI Punjab	0	6	GJ Maxwell
	5	6	IPL	Hyderabad	04-09-2017	Gujarat Lions	Sunrisers Hyderabad	Sunrisers Hyderabad	field normal	0	Sunrisers Hyderabad	0	9	Rashid Khan
	6	7	IPL	Mumbai	04-09-2017	Kolkata Knight Riders	Mumbai Indians	Mumbai Indians	field normal	0	Mumbai Indians	0	4	N Rana

```
In [51]: second_batting['win_by_wickets'].value_counts()
```

win_by_wickets	
6	85
7	80
8	71
9	54
4	41
0	37
3	18
10	11
2	6
1	3
Name: count, dtype: int64	

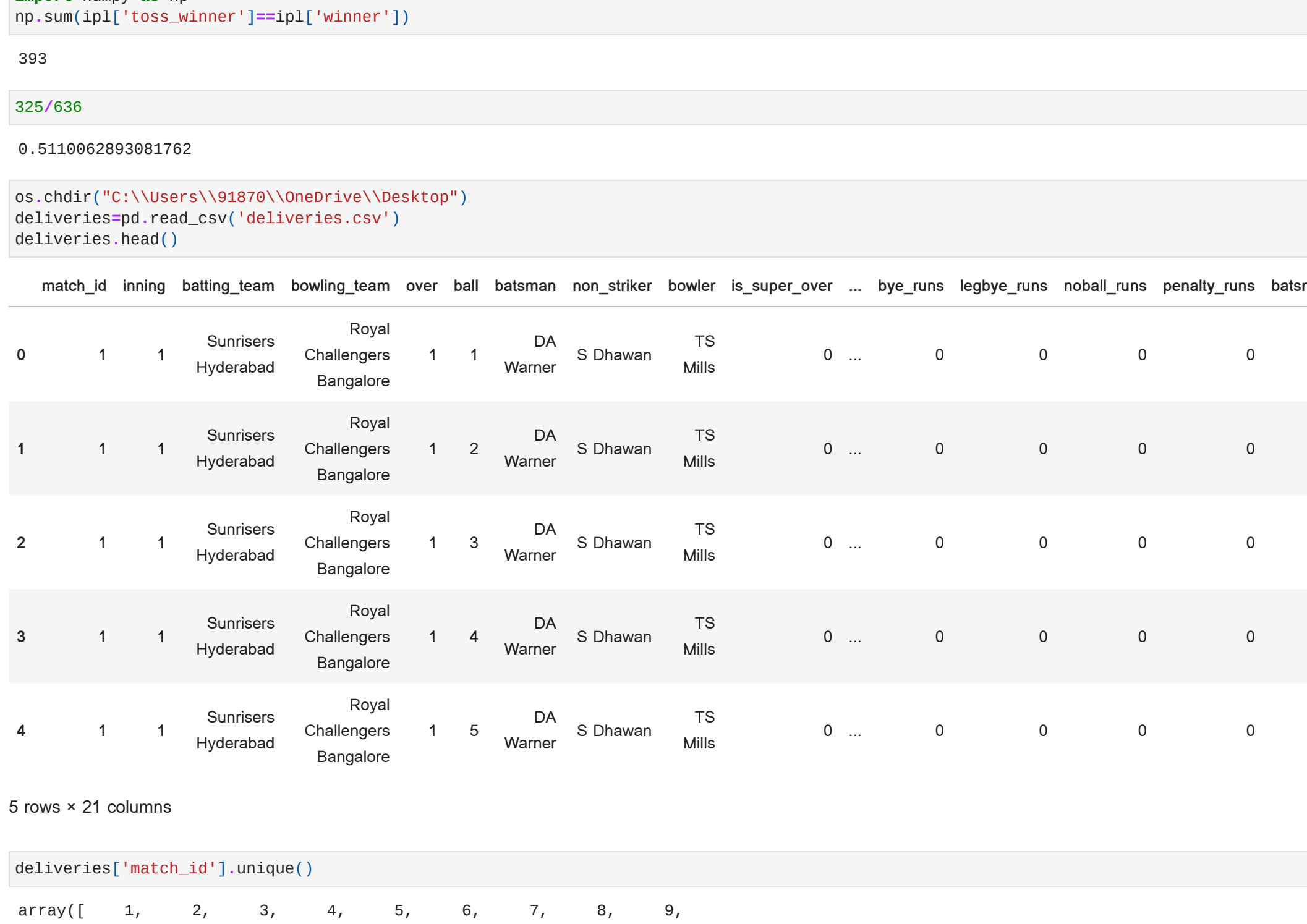
```
In [61]: #histrogram plot
plt.figure(figsize=(15,5))
plt.hist(second_batting['win_by_wickets'],bins=30)
plt.show()
```



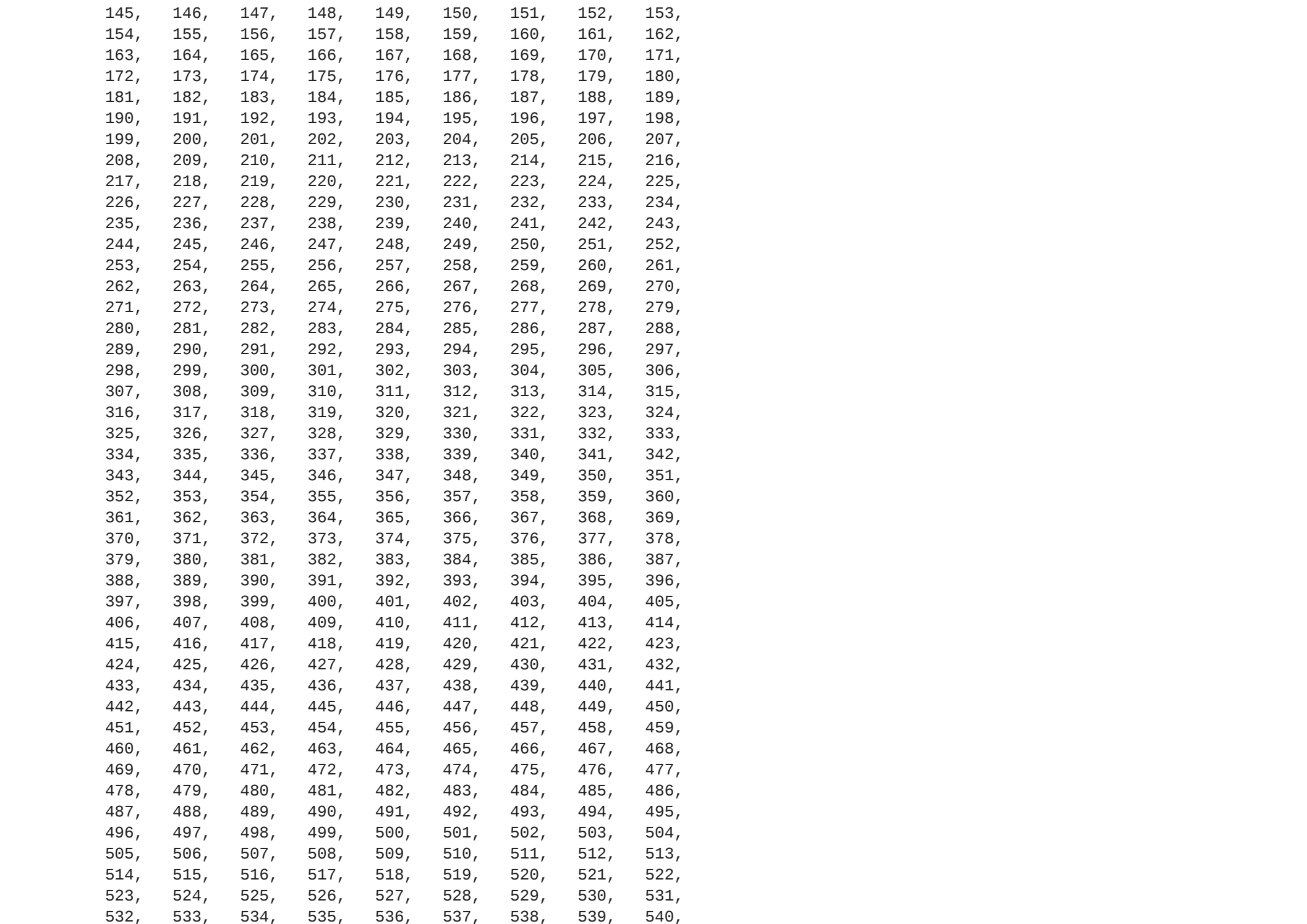
```
In [65]: second_batting['winner'].value_counts()
```

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

```
In [69]: plt.figure(figsize=(5,3))
plt.pie(list(second_batting['winner'].value_counts()[0:15].keys()),list(second_batting['winner'].value_counts()[0:15].keys()),autopct='%0.1',plt.show()
```



```
In [70]: #bar plot
plt.figure(figsize=(15,5))
plt.bar(list(second_batting['winner'].value_counts()[0:5].keys()),list(second_batting['winner'].value_counts()[0:5]),color='red')
plt.show()
```



```
In [72]: ipl['Season'].value_counts()
```

Season	
IPL-2013	76
IPL-2012	74
IPL-2011	73
IPL-2010	60
IPL-2014	60
IPL-2016	60
IPL-2018	60
IPL-2019	60
IPL-2017	59
IPL-2015	59
IPL-2008	58
IPL-2009	57
Name: count, dtype: int64	

```
In [74]: ipl['city'].value_counts()
```

city	
Mumbai	101
Kolkata	77
Dehli	74
Bangalore	66
Hyderabad	64
Chennai	61
Jalpur	47
Chandigarh	46
Pune	38
Durban	35
Bangaluru	14
Visakhapatnam	13
Centurion	12
Ahmedabad	12
Rajkot	10
Mohali	10
Indore	9
Dharamsala	9
Johannesburg	8
Cuttack	7
Ranchi	7
Port Elizabeth	7
Cape Town	7
Abu Dhabi	7
Sharjah	6
Raipur	6
Kochi	5
Kanpur	4
Nagpur	3
Kleberley	3
East London	3
Bloemfontein	2
Name: count, dtype: int64	

```
In [75]: #how many times when team win toss and match also
import numpy as np
np.sum(ipl['toss_winner']==ipl['winner'])
```

```
Out[75]: 393
```

```
In [76]: 325/636
```

```
Out[76]: 0.51098898981762
```

```
In [83]: os.chdir("C:\\Users\\01870\\OneDrive\\Desktop")
deliveries=pd.read_csv("deliveries.csv")
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	batsma
	0	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	1	DA Warner	S Dhawan	TS Mills	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
	2	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	3	DA Warner	S Dhawan	TS Mills	0	...	0	0	0	0
	3	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	4	DA Warner	S Dhawan	TS Mills	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

5 rows × 21 columns

```
In [84]: deliveries['match_id'].unique()
```

```
Out[84]: 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,
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        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,
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        262, 263, 264, 265, 266, 267, 268, 269, 270,
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        298, 299, 300, 301, 302, 303, 304, 305, 306,
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        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,
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        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,
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        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,
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        550, 551, 552, 553, 554, 555, 556, 557, 558,
        559, 560, 561, 562, 563, 564, 565, 566, 567,
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        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,
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        613, 614, 615, 616, 617, 618, 619, 620, 621,
        622, 623, 624, 625, 626, 627, 628, 629, 630,
        631, 632, 633, 634, 635, 636, 7804, 7805, 7806,
        7807, 7808, 7809, 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, 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,
        dtype=int64])
```

```
In [86]: match_1=deliveries[deliveries['match_id']==1]
match_1.head()
```

	id	Season	city	date	team1	team2	toss_winner	toss_decision	result	dt_applied	winner	win_by_runs	win_by_wickets	player_of_match	
	0	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	1	DA Warner	S Dhawan	TS Mills	0	...	0	0	0
	1	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	2	DA Warner	S Dhawan	TS Mills	0	...	0	0	0
	2	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	3	DA Warner	S Dhawan	TS Mills	0	...	0	0	0
	3	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	4	DA Warner	S Dhawan	TS Mills	0	...	0	0	0
	4	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	5	DA Warner	S Dhawan	TS Mills	0	...	0	0	0

5 rows × 21 columns

```
In [87]: match_1.shape
```

```
Out[87]: (248, 21)
```

```
In [88]: srh=match_1[match_1['inning']==1]
srh['batsman_runs'].value_counts()
```

batsman_runs	
1	57
2	44
6	17</