

```
In [2]: import pandas as pd
        from matplotlib import pyplot as plt
        import seaborn as sns
```

```
In [5]: data1=pd.read_csv('deliveries.csv')
        data2=pd.read_csv("matches.csv")
        type(data1)
        type(data2)
```

```
Out[5]: pandas.core.frame.DataFrame
```

In [6]: data1

Out[6]:

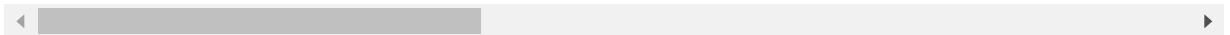
	match_id	inning	batting_team	bowling_team	over	ball	batsman	non_striker	bowler
0	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	1	DA Warner	S Dhawan	TS I
1	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	2	DA Warner	S Dhawan	TS I
2	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	3	DA Warner	S Dhawan	TS I
3	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	4	DA Warner	S Dhawan	TS I
4	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	5	DA Warner	S Dhawan	TS I
5	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	6	S Dhawan	DA Warner	TS I
6	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	7	S Dhawan	DA Warner	TS I
7	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	2	1	S Dhawan	DA Warner	Choud
8	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	2	2	DA Warner	S Dhawan	Choud
9	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	2	3	DA Warner	S Dhawan	Choud
10	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	2	4	DA Warner	S Dhawan	Choud
11	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	2	5	DA Warner	S Dhawan	Choud
12	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	2	6	MC Henriques	S Dhawan	Choud
13	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	2	7	MC Henriques	S Dhawan	Choud
14	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	3	1	S Dhawan	MC Henriques	TS I
15	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	3	2	MC Henriques	S Dhawan	TS I
16	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	3	3	MC Henriques	S Dhawan	TS I

	match_id	inning	batting_team	bowling_team	over	ball	batsman	non_striker	bowler	
	17	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	3	4	MC Henriques	S Dhawan	TS Iyer
	18	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	3	5	S Dhawan	MC Henriques	TS Iyer
	19	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	3	6	MC Henriques	S Dhawan	TS Iyer
	20	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	4	1	MC Henriques	S Dhawan	YS Choudhary
	21	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	4	2	MC Henriques	S Dhawan	YS Choudhary
	22	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	4	3	S Dhawan	MC Henriques	YS Choudhary
	23	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	4	4	S Dhawan	MC Henriques	YS Choudhary
	24	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	4	5	MC Henriques	S Dhawan	YS Choudhary
	25	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	4	6	S Dhawan	MC Henriques	YS Choudhary
	26	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	5	1	S Dhawan	MC Henriques	S Aravind
	27	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	5	2	MC Henriques	S Dhawan	S Aravind
	28	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	5	3	S Dhawan	MC Henriques	S Aravind
	29	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	5	4	MC Henriques	S Dhawan	S Aravind
	
	150430	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	16	1	KL Rahul	SR Watson	Cu
	150431	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	16	2	SR Watson	KL Rahul	Cu
	150432	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	16	3	KL Rahul	SR Watson	Cu
	150433	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	16	4	Sachin Baby	SR Watson	Cu

	match_id	inning	batting_team	bowling_team	over	ball	batsman	non_striker	bowler
150434	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	16	5	Sachin Baby	SR Watson	Cu
150435	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	16	6	SR Watson	Sachin Baby	Cu
150436	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	17	1	SR Watson	Sachin Baby	Musta Rah
150437	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	17	2	SR Watson	Sachin Baby	Musta Rah
150438	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	17	3	SR Watson	Sachin Baby	Musta Rah
150439	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	17	4	Sachin Baby	STR Binny	Musta Rah
150440	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	17	5	STR Binny	Sachin Baby	Musta Rah
150441	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	17	6	STR Binny	Sachin Baby	Musta Rah
150442	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	18	1	STR Binny	Sachin Baby	B Ku
150443	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	18	2	STR Binny	Sachin Baby	B Ku
150444	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	18	3	Sachin Baby	STR Binny	B Ku
150445	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	18	4	STR Binny	Sachin Baby	B Ku
150446	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	18	5	STR Binny	Sachin Baby	B Ku
150447	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	18	6	Sachin Baby	STR Binny	B Ku
150448	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	19	1	STR Binny	Sachin Baby	Musta Rah
150449	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	19	2	CJ Jordan	Sachin Baby	Musta Rah
150450	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	19	3	CJ Jordan	Sachin Baby	Musta Rah

	match_id	inning	batting_team	bowling_team	over	ball	batsman	non_striker	bowler
150451	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	19	4	CJ Jordan	Sachin Baby	Musta Rah
150452	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	19	5	Sachin Baby	CJ Jordan	Musta Rah
150453	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	19	6	Sachin Baby	CJ Jordan	Musta Rah
150454	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	20	1	CJ Jordan	Sachin Baby	B Ku
150455	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	20	2	Sachin Baby	CJ Jordan	B Ku
150456	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	20	3	Sachin Baby	CJ Jordan	B Ku
150457	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	20	4	Iqbal Abdulla	Sachin Baby	B Ku
150458	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	20	5	Sachin Baby	Iqbal Abdulla	B Ku
150459	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	20	6	Iqbal Abdulla	Sachin Baby	B Ku

150460 rows × 21 columns



In [7]: data2

Out[7]:

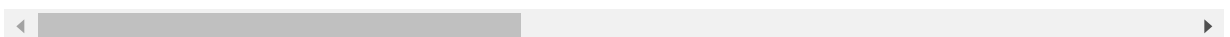
	id	season	city	date	team1	team2	toss_winner	toss_decision	result
0	1	2017	Hyderabad	2017-04-05	Sunrisers Hyderabad	Royal Challengers Bangalore	Royal Challengers Bangalore	field	no
1	2	2017	Pune	2017-04-06	Mumbai Indians	Rising Pune Supergiant	Rising Pune Supergiant	field	no
2	3	2017	Rajkot	2017-04-07	Gujarat Lions	Kolkata Knight Riders	Kolkata Knight Riders	field	no
3	4	2017	Indore	2017-04-08	Rising Pune Supergiant	Kings XI Punjab	Kings XI Punjab	field	no
4	5	2017	Bangalore	2017-04-08	Royal Challengers Bangalore	Delhi Daredevils	Royal Challengers Bangalore	bat	no
5	6	2017	Hyderabad	2017-04-09	Gujarat Lions	Sunrisers Hyderabad	Sunrisers Hyderabad	field	no
6	7	2017	Mumbai	2017-04-09	Kolkata Knight Riders	Mumbai Indians	Mumbai Indians	field	no
7	8	2017	Indore	2017-04-10	Royal Challengers Bangalore	Kings XI Punjab	Royal Challengers Bangalore	bat	no
8	9	2017	Pune	2017-04-11	Delhi Daredevils	Rising Pune Supergiant	Rising Pune Supergiant	field	no
9	10	2017	Mumbai	2017-04-12	Sunrisers Hyderabad	Mumbai Indians	Mumbai Indians	field	no
10	11	2017	Kolkata	2017-04-13	Kings XI Punjab	Kolkata Knight Riders	Kolkata Knight Riders	field	no
11	12	2017	Bangalore	2017-04-14	Royal Challengers Bangalore	Mumbai Indians	Mumbai Indians	field	no
12	13	2017	Rajkot	2017-04-14	Rising Pune Supergiant	Gujarat Lions	Gujarat Lions	field	no
13	14	2017	Kolkata	2017-04-15	Kolkata Knight Riders	Sunrisers Hyderabad	Sunrisers Hyderabad	field	no
14	15	2017	Delhi	2017-04-15	Delhi Daredevils	Kings XI Punjab	Delhi Daredevils	bat	no
15	16	2017	Mumbai	2017-04-16	Gujarat Lions	Mumbai Indians	Mumbai Indians	field	no

	id	season	city	date	team1	team2	toss_winner	toss_decision	result
16	17	2017	Bangalore	2017-04-16	Rising Pune Supergiant	Royal Challengers Bangalore	Royal Challengers Bangalore	field	no
17	18	2017	Delhi	2017-04-17	Delhi Daredevils	Kolkata Knight Riders	Delhi Daredevils	bat	no
18	19	2017	Hyderabad	2017-04-17	Sunrisers Hyderabad	Kings XI Punjab	Kings XI Punjab	field	no
19	20	2017	Rajkot	2017-04-18	Royal Challengers Bangalore	Gujarat Lions	Gujarat Lions	field	no
20	21	2017	Hyderabad	2017-04-19	Sunrisers Hyderabad	Delhi Daredevils	Sunrisers Hyderabad	bat	no
21	22	2017	Indore	2017-04-20	Kings XI Punjab	Mumbai Indians	Mumbai Indians	field	no
22	23	2017	Kolkata	2017-04-21	Kolkata Knight Riders	Gujarat Lions	Gujarat Lions	field	no
23	24	2017	Mumbai	2017-04-22	Mumbai Indians	Delhi Daredevils	Delhi Daredevils	field	no
24	25	2017	Pune	2017-04-22	Sunrisers Hyderabad	Rising Pune Supergiant	Rising Pune Supergiant	field	no
25	26	2017	Rajkot	2017-04-23	Kings XI Punjab	Gujarat Lions	Gujarat Lions	field	no
26	27	2017	Kolkata	2017-04-23	Kolkata Knight Riders	Royal Challengers Bangalore	Royal Challengers Bangalore	field	no
27	28	2017	Mumbai	2017-04-24	Rising Pune Supergiant	Mumbai Indians	Mumbai Indians	field	no
28	29	2017	Pune	2017-04-26	Rising Pune Supergiant	Kolkata Knight Riders	Kolkata Knight Riders	field	no
29	30	2017	Bangalore	2017-04-27	Royal Challengers Bangalore	Gujarat Lions	Gujarat Lions	field	no
...
606	607	2016	Rajkot	2016-05-03	Gujarat Lions	Delhi Daredevils	Delhi Daredevils	field	no
607	608	2016	Kolkata	2016-05-04	Kolkata Knight Riders	Kings XI Punjab	Kings XI Punjab	field	no

	id	season	city	date	team1	team2	toss_winner	toss_decision	result
608	609	2016	Delhi	2016-05-05	Delhi Daredevils	Rising Pune Supergiants	Rising Pune Supergiants	field	no
609	610	2016	Hyderabad	2016-05-06	Gujarat Lions	Sunrisers Hyderabad	Sunrisers Hyderabad	field	no
610	611	2016	Bangalore	2016-05-07	Rising Pune Supergiants	Royal Challengers Bangalore	Royal Challengers Bangalore	field	no
611	612	2016	Chandigarh	2016-05-07	Kings XI Punjab	Delhi Daredevils	Delhi Daredevils	field	no
612	613	2016	Visakhapatnam	2016-05-08	Sunrisers Hyderabad	Mumbai Indians	Mumbai Indians	field	no
613	614	2016	Kolkata	2016-05-08	Kolkata Knight Riders	Gujarat Lions	Gujarat Lions	field	no
614	615	2016	Chandigarh	2016-05-09	Royal Challengers Bangalore	Kings XI Punjab	Kings XI Punjab	field	no
615	616	2016	Visakhapatnam	2016-05-10	Sunrisers Hyderabad	Rising Pune Supergiants	Sunrisers Hyderabad	bat	no
616	617	2016	Bangalore	2016-05-11	Royal Challengers Bangalore	Mumbai Indians	Mumbai Indians	field	no
617	618	2016	Hyderabad	2016-05-12	Sunrisers Hyderabad	Delhi Daredevils	Delhi Daredevils	field	no
618	619	2016	Visakhapatnam	2016-05-13	Mumbai Indians	Kings XI Punjab	Mumbai Indians	bat	no
619	620	2016	Bangalore	2016-05-14	Royal Challengers Bangalore	Gujarat Lions	Gujarat Lions	field	no
620	621	2016	Kolkata	2016-05-14	Rising Pune Supergiants	Kolkata Knight Riders	Rising Pune Supergiants	bat	no
621	622	2016	Chandigarh	2016-05-15	Kings XI Punjab	Sunrisers Hyderabad	Kings XI Punjab	bat	no

	id	season	city	date	team1	team2	toss_winner	toss_decision	r
622	623	2016	Visakhapatnam	2016-05-15	Mumbai Indians	Delhi Daredevils	Delhi Daredevils	field	nc
623	624	2016	Kolkata	2016-05-16	Kolkata Knight Riders	Royal Challengers Bangalore	Royal Challengers Bangalore	field	nc
624	625	2016	Visakhapatnam	2016-05-17	Delhi Daredevils	Rising Pune Supergiants	Rising Pune Supergiants	field	nc
625	626	2016	Bangalore	2016-05-18	Royal Challengers Bangalore	Kings XI Punjab	Kings XI Punjab	field	nc
626	627	2016	Kanpur	2016-05-19	Kolkata Knight Riders	Gujarat Lions	Gujarat Lions	field	nc
627	628	2016	Raipur	2016-05-20	Sunrisers Hyderabad	Delhi Daredevils	Delhi Daredevils	field	nc
628	629	2016	Visakhapatnam	2016-05-21	Kings XI Punjab	Rising Pune Supergiants	Kings XI Punjab	bat	nc
629	630	2016	Kanpur	2016-05-21	Mumbai Indians	Gujarat Lions	Gujarat Lions	field	nc
630	631	2016	Kolkata	2016-05-22	Kolkata Knight Riders	Sunrisers Hyderabad	Sunrisers Hyderabad	field	nc
631	632	2016	Raipur	2016-05-22	Delhi Daredevils	Royal Challengers Bangalore	Royal Challengers Bangalore	field	nc
632	633	2016	Bangalore	2016-05-24	Gujarat Lions	Royal Challengers Bangalore	Royal Challengers Bangalore	field	nc
633	634	2016	Delhi	2016-05-25	Sunrisers Hyderabad	Kolkata Knight Riders	Kolkata Knight Riders	field	nc
634	635	2016	Delhi	2016-05-27	Gujarat Lions	Sunrisers Hyderabad	Sunrisers Hyderabad	field	nc
635	636	2016	Bangalore	2016-05-29	Sunrisers Hyderabad	Royal Challengers Bangalore	Sunrisers Hyderabad	bat	nc

636 rows × 18 columns



```
In [9]: #1)how many seasons we have got in dataset  
data2['season'].unique()
```

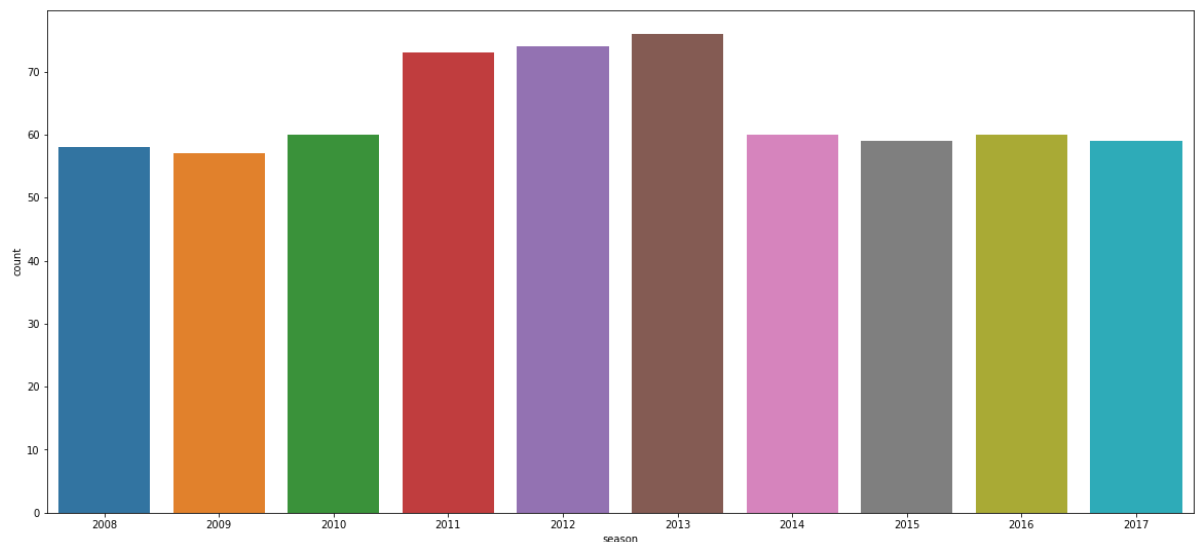
```
Out[9]: array([2017, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016],  
          dtype=int64)
```

```
In [10]: #2)which season had the most number of matches  
data2['season'].value_counts()
```

```
Out[10]: 2013      76  
         2012      74  
         2011      73  
         2016      60  
         2014      60  
         2010      60  
         2017      59  
         2015      59  
         2008      58  
         2009      57  
         Name: season, dtype: int64
```

```
In [11]: #2)Which season had the most number of matches?(graph)
```

```
#Code:  
plt.figure(figsize=(20,9))  
  
sns.countplot(x='season',data=data2)  
  
plt.show()
```



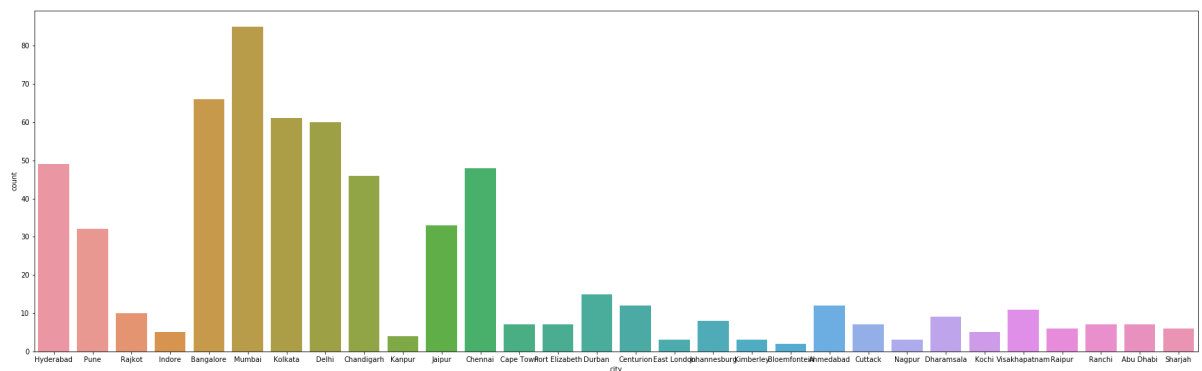
```
In [12]: #3)which city had most matches
data2['city'].value_counts()
```

```
Out[12]: 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
Cuttack              7
Abu Dhabi            7
Port Elizabeth       7
Cape Town            7
Ranchi               7
Raipur               6
Sharjah              6
Kochi                5
Indore               5
Kanpur               4
Kimberley            3
Nagpur               3
East London          3
Bloemfontein         2
Name: city, dtype: int64
```

```
In [13]: plt.figure(figsize=(30,9))

sns.countplot(x='city',data=data2)

plt.show()
```



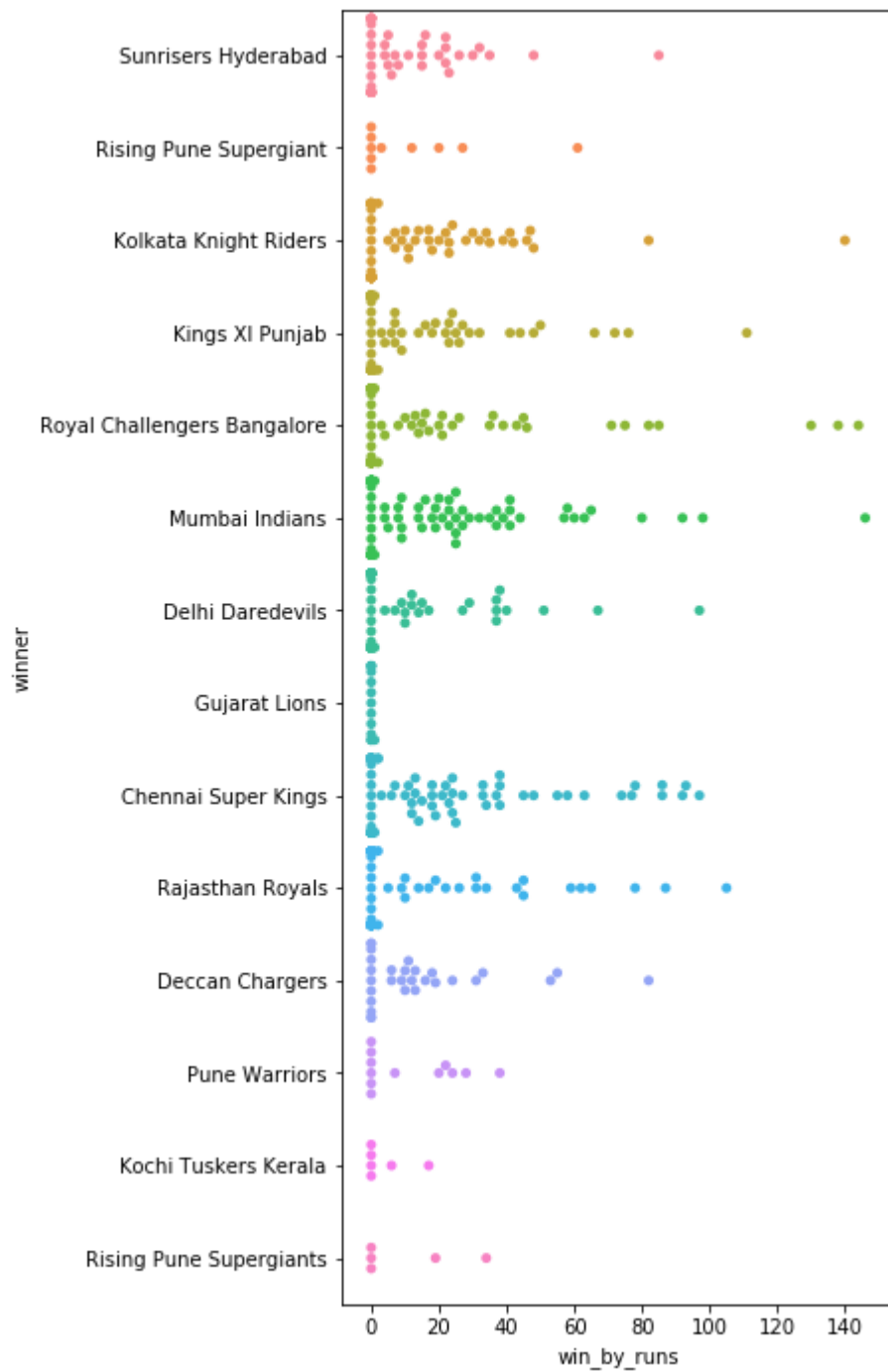
```

In [15]: #4)graph
#Team won by max runs?
#And
#The best defending team?
#Code:
plt.figure(figsize=(5,12))

sns.swarmplot(x='win_by_runs',y='winner',data=data2)

plt.show()

```



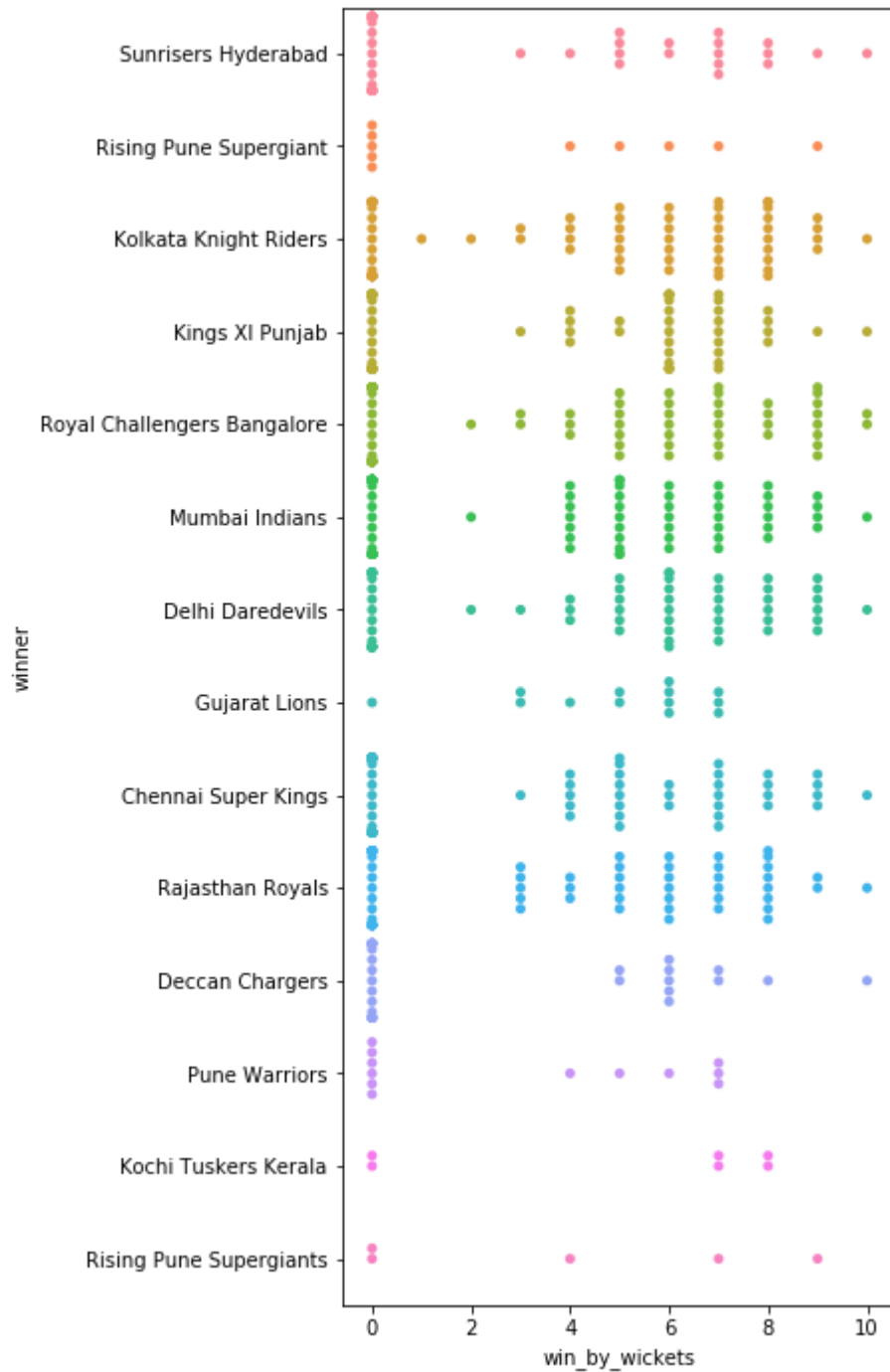
```
In [16]: #5)Which Team had won by maximum runs?  
data2.iloc[data2['win_by_runs'].idxmax()]
```

```
Out[16]: id                44  
season                2017  
city                 Delhi  
date                2017-05-06  
team1                Mumbai Indians  
team2                Delhi Daredevils  
toss_winner          Delhi Daredevils  
toss_decision         field  
result                normal  
dl_applied            0  
winner                Mumbai Indians  
win_by_runs           146  
win_by_wickets        0  
player_of_match       LMP Simmons  
venue                 Feroz Shah Kotla  
umpire1                Nitin Menon  
umpire2                CK Nandan  
umpire3                NaN  
Name: 43, dtype: object
```

```
In [17]: #6)graph-Which Team had won by maximum wickets?
plt.figure(figsize=(5,12))

sns.swarmplot(x='win_by_wickets',y='winner',data=data2)

plt.show()
```




```
In [19]: #7)Which Team had won by minimum runs(closest margin) runs?
data2.iloc[data2['win_by_runs'].idxmin()]
```

```
Out[19]: id                2
season              2017
city                Pune
date              2017-04-06
team1              Mumbai Indians
team2              Rising Pune Supergiant
toss_winner        Rising Pune Supergiant
toss_decision      field
result             normal
dl_applied         0
winner             Rising Pune Supergiant
win_by_runs        0
win_by_wickets     7
player_of_match    SPD Smith
venue              Maharashtra Cricket Association Stadium
umpire1            A Nand Kishore
umpire2            S Ravi
umpire3            NaN
Name: 1, dtype: object
```

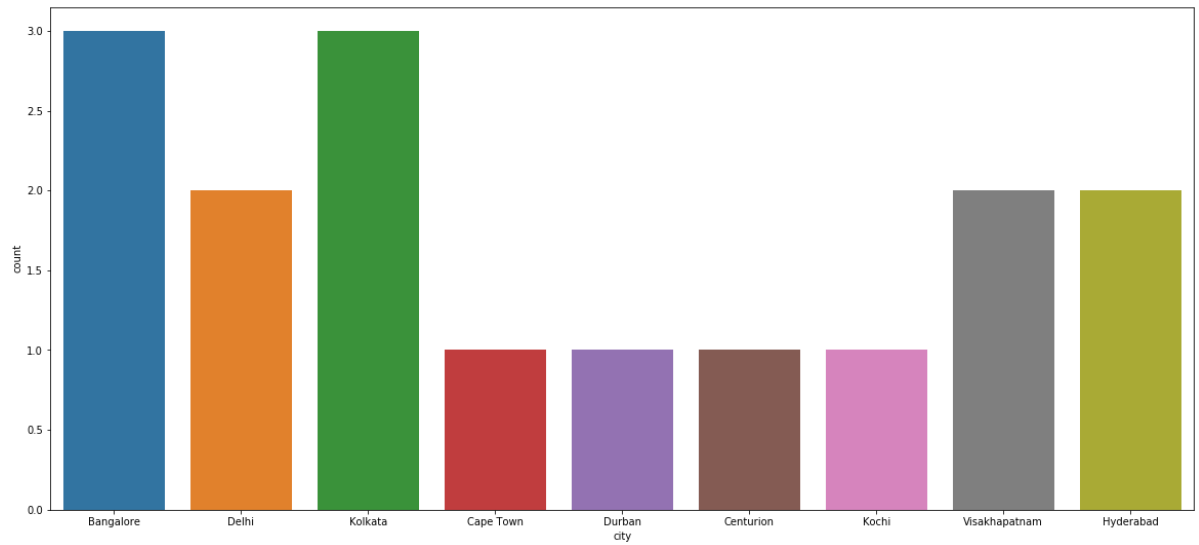
```
In [4]: #8)Which Team had won by minimum wickets?
data2.iloc[data2['win_by_wickets'].idxmin()]
```

```
Out[4]: id                1
season              2017
city              Hyderabad
date              2017-04-05
team1              Sunrisers Hyderabad
team2              Royal Challengers Bangalore
toss_winner        Royal Challengers Bangalore
toss_decision      field
result             normal
dl_applied         0
winner             Sunrisers Hyderabad
win_by_runs        35
win_by_wickets     0
player_of_match    Yuvraj Singh
venue              Rajiv Gandhi International Stadium, Uppal
umpire1            AY Dandekar
umpire2            NJ Llong
umpire3            NaN
Name: 0, dtype: object
```

In [20]: #9) In which city does Weather affected matches?

#Code:

```
plt.figure(figsize=(20,9))  
  
sns.countplot(data2.city[data2.d1_applied==1])  
  
plt.show()
```



In [21]: *#10)Best Stadium to Bat first and Win***
#Best chasing venues?

#Code:

```
plt.figure(figsize=(5,12))
```

```
sns.swarmplot(x='win_by_wickets',y='venue',data=data2)
```

```
plt.show()
```

#Eden Gardens and M Chinnaswamy Stadium are the best venues for chasing, the density of each attribute contributes in the swarmplot figure.



In [22]: #11)Most successful ipl team?

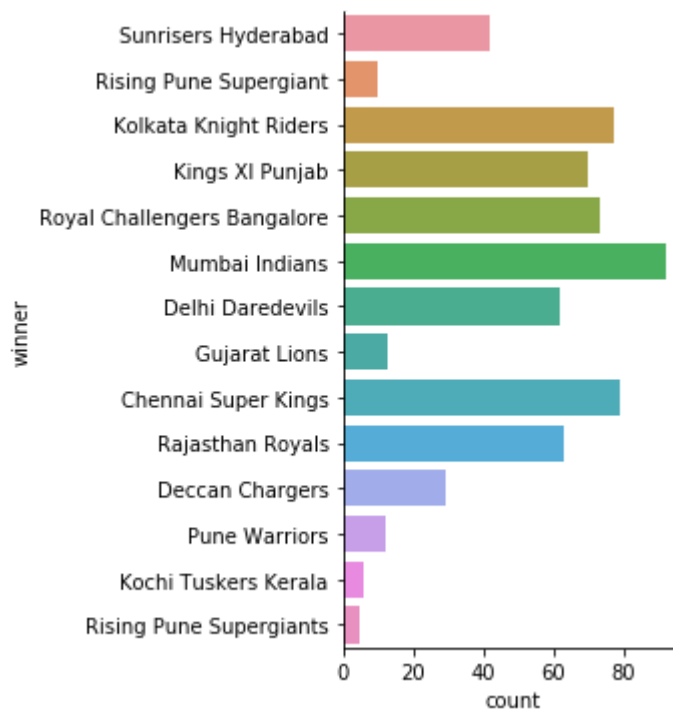
#Code:

```
plt.figure(figsize=(50,60))  
  
sns.factorplot(y='winner',kind='count',data=data2)  
  
plt.show()
```

C:\Users\RISHABH PANDEY\Anaconda3\lib\site-packages\seaborn\categorical.py:3666: UserWarning: The `factorplot` function has been renamed to `catplot`. The original name will be removed in a future release. Please update your code. Note that the default `kind` in `factorplot` (`'point'`) has changed to `strip` in `catplot`.

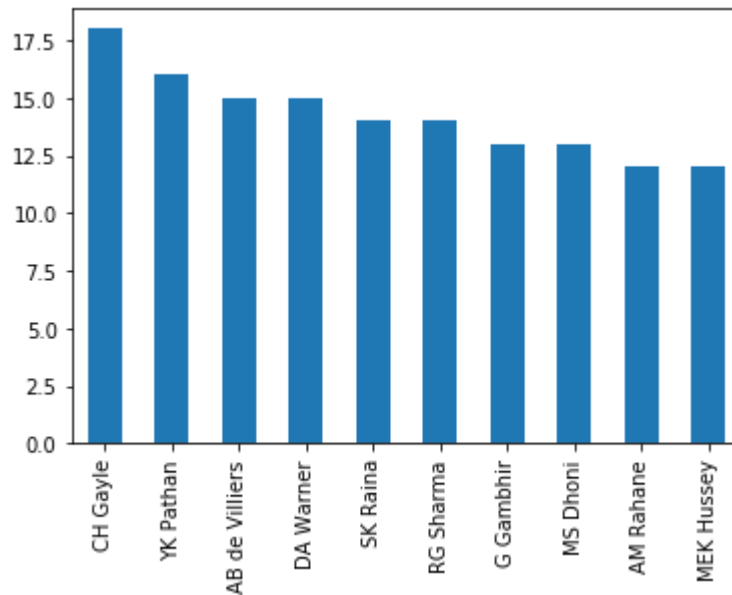
warnings.warn(msg)

<Figure size 3600x4320 with 0 Axes>



```
In [23]: #12)top player of the matches
top_players =data2.player_of_match.value_counts()[:10]
top_players.plot.bar()
```

```
Out[23]: <matplotlib.axes._subplots.AxesSubplot at 0x1d2854579b0>
```



```
In [24]: #13)Has Toss-winning helped in Match-winning?
ss = data2['toss_winner'] == data2['winner']
ss.groupby(ss).size()
```

```
Out[24]: False      311
         True       325
         dtype: int64
```

```
In [33]: #14) data where it was the first over  
data1[data1['over']==1]
```

Out[33]:

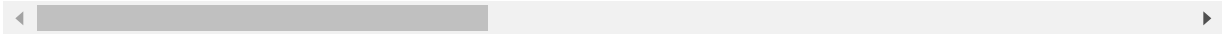
	match_id	inning	batting_team	bowling_team	over	ball	batsman	non_striker	bowler	
	0	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	1	DA Warner	S Dhawan	TS Mill
	1	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	2	DA Warner	S Dhawan	TS Mill
	2	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	3	DA Warner	S Dhawan	TS Mill
	3	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	4	DA Warner	S Dhawan	TS Mill
	4	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	5	DA Warner	S Dhawan	TS Mill
	5	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	6	S Dhawan	DA Warner	TS Mill
	6	1	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	7	S Dhawan	DA Warner	TS Mill
	125	1	2	Royal Challengers Bangalore	Sunrisers Hyderabad	1	1	CH Gayle	Mandeep Singh	A Nehr
	126	1	2	Royal Challengers Bangalore	Sunrisers Hyderabad	1	2	Mandeep Singh	CH Gayle	A Nehr
	127	1	2	Royal Challengers Bangalore	Sunrisers Hyderabad	1	3	Mandeep Singh	CH Gayle	A Nehr
	128	1	2	Royal Challengers Bangalore	Sunrisers Hyderabad	1	4	Mandeep Singh	CH Gayle	A Nehr
	129	1	2	Royal Challengers Bangalore	Sunrisers Hyderabad	1	5	Mandeep Singh	CH Gayle	A Nehr
	130	1	2	Royal Challengers Bangalore	Sunrisers Hyderabad	1	6	Mandeep Singh	CH Gayle	A Nehr
	248	2	1	Mumbai Indians	Rising Pune Supergiant	1	1	PA Patel	JC Buttler	A Dind
	249	2	1	Mumbai Indians	Rising Pune Supergiant	1	2	PA Patel	JC Buttler	A Dind
	250	2	1	Mumbai Indians	Rising Pune Supergiant	1	3	PA Patel	JC Buttler	A Dind
	251	2	1	Mumbai Indians	Rising Pune Supergiant	1	4	JC Buttler	PA Patel	A Dind
	252	2	1	Mumbai Indians	Rising Pune Supergiant	1	5	PA Patel	JC Buttler	A Dind

	match_id	inning	batting_team	bowling_team	over	ball	batsman	non_striker	bowler	
	253	2	1	Mumbai Indians	Rising Pune Supergiant	1	6	PA Patel	JC Buttler	A Dinda
	254	2	1	Mumbai Indians	Rising Pune Supergiant	1	7	PA Patel	JC Buttler	A Dinda
	373	2	2	Rising Pune Supergiant	Mumbai Indians	1	1	AM Rahane	MA Agarwal	Ti Southe
	374	2	2	Rising Pune Supergiant	Mumbai Indians	1	2	MA Agarwal	AM Rahane	Ti Southe
	375	2	2	Rising Pune Supergiant	Mumbai Indians	1	3	MA Agarwal	AM Rahane	Ti Southe
	376	2	2	Rising Pune Supergiant	Mumbai Indians	1	4	MA Agarwal	AM Rahane	Ti Southe
	377	2	2	Rising Pune Supergiant	Mumbai Indians	1	5	AM Rahane	MA Agarwal	Ti Southe
	378	2	2	Rising Pune Supergiant	Mumbai Indians	1	6	AM Rahane	MA Agarwal	Ti Southe
	379	2	2	Rising Pune Supergiant	Mumbai Indians	1	7	AM Rahane	MA Agarwal	Ti Southe
	495	3	1	Gujarat Lions	Kolkata Knight Riders	1	1	JJ Roy	BB McCullum	T. Bou
	496	3	1	Gujarat Lions	Kolkata Knight Riders	1	2	JJ Roy	BB McCullum	T. Bou
	497	3	1	Gujarat Lions	Kolkata Knight Riders	1	3	JJ Roy	BB McCullum	T. Bou

	149849	634	2	Kolkata Knight Riders	Sunrisers Hyderabad	1	2	G Gambhir	RV Uthappa	Kuma
	149850	634	2	Kolkata Knight Riders	Sunrisers Hyderabad	1	3	G Gambhir	RV Uthappa	Kuma
	149851	634	2	Kolkata Knight Riders	Sunrisers Hyderabad	1	4	RV Uthappa	G Gambhir	Kuma
	149852	634	2	Kolkata Knight Riders	Sunrisers Hyderabad	1	5	RV Uthappa	G Gambhir	Kuma
	149853	634	2	Kolkata Knight Riders	Sunrisers Hyderabad	1	6	RV Uthappa	G Gambhir	Kuma
	149968	635	1	Gujarat Lions	Sunrisers Hyderabad	1	1	ER Dwivedi	BB McCullum	Kuma
	149969	635	1	Gujarat Lions	Sunrisers Hyderabad	1	2	BB McCullum	ER Dwivedi	Kuma
	149970	635	1	Gujarat Lions	Sunrisers Hyderabad	1	3	ER Dwivedi	BB McCullum	Kuma
	149971	635	1	Gujarat Lions	Sunrisers Hyderabad	1	4	ER Dwivedi	BB McCullum	Kuma
	149972	635	1	Gujarat Lions	Sunrisers Hyderabad	1	5	ER Dwivedi	BB McCullum	Kuma
	149973	635	1	Gujarat Lions	Sunrisers Hyderabad	1	6	ER Dwivedi	BB McCullum	Kuma

	match_id	inning	batting_team	bowling_team	over	ball	batsman	non_striker	bowler
149974	635	1	Gujarat Lions	Sunrisers Hyderabad	1	7	ER Dwivedi	BB McCullum	Kumar
150093	635	2	Sunrisers Hyderabad	Gujarat Lions	1	1	DA Warner	S Dhawan	Kumar
150094	635	2	Sunrisers Hyderabad	Gujarat Lions	1	2	DA Warner	S Dhawan	Kumar
150095	635	2	Sunrisers Hyderabad	Gujarat Lions	1	3	DA Warner	S Dhawan	Kumar
150096	635	2	Sunrisers Hyderabad	Gujarat Lions	1	4	S Dhawan	DA Warner	Kumar
150097	635	2	Sunrisers Hyderabad	Gujarat Lions	1	5	S Dhawan	DA Warner	Kumar
150098	635	2	Sunrisers Hyderabad	Gujarat Lions	1	6	S Dhawan	DA Warner	Kumar
150210	636	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	1	DA Warner	S Dhawan	Aravin
150211	636	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	2	S Dhawan	DA Warner	Aravin
150212	636	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	3	DA Warner	S Dhawan	Aravin
150213	636	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	4	DA Warner	S Dhawan	Aravin
150214	636	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	5	S Dhawan	DA Warner	Aravin
150215	636	1	Sunrisers Hyderabad	Royal Challengers Bangalore	1	6	S Dhawan	DA Warner	Aravin
150336	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	1	1	CH Gayle	V Kohli	Kumar
150337	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	1	2	CH Gayle	V Kohli	Kumar
150338	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	1	3	V Kohli	CH Gayle	Kumar
150339	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	1	4	V Kohli	CH Gayle	Kumar
150340	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	1	5	V Kohli	CH Gayle	Kumar
150341	636	2	Royal Challengers Bangalore	Sunrisers Hyderabad	1	6	V Kohli	CH Gayle	Kumar

8092 rows × 21 columns



```
In [35]: #15)list of batsmen who played the most no. of balls in the first over  
data1[data1['over']==1]['batsman'].value_counts()
```

```

Out[35]: CH Gayle          335
         G Gambhir        327
         DA Warner        321
         PA Patel         297
         AM Rahane        296
         AC Gilchrist     286
         M Vijay          281
         S Dhawan         274
         DR Smith         268
         V Sehwag         255
         BB McCullum      244
         RV Uthappa       242
         JH Kallis        183
         R Dravid         165
         MEK Hussey       161
         SR Tendulkar     130
         V Kohli          129
         MA Agarwal       115
         AJ Finch         114
         LMP Simmons      114
         SE Marsh         108
         SC Ganguly       108
         ST Jayasuriya    106
         MS Bisla         101
         MK Pandey        101
         SR Watson         99
         Q de Kock        99
         DPMD Jayawardene 92
         Mandeep Singh    91
         JD Ryder         88

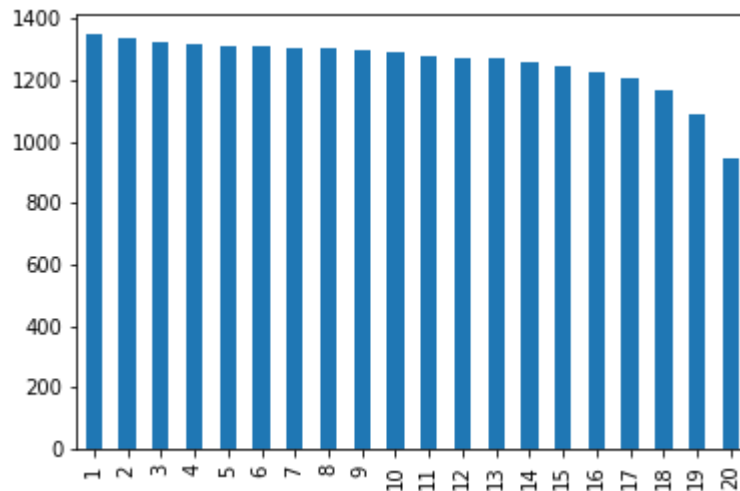
         ...
         KA Pollard       3
         AB Barath        3
         CJ Anderson      3
         Shahid Afridi    3
         R McLaren        3
         LA Carseldine    3
         AB McDonald      2
         J Botha          2
         Vishnu Vinod     2
         JP Faulkner      2
         Anirudh Singh    2
         Shakib Al Hasan  2
         M Rawat          2
         NLTC Perera      2
         MV Boucher       2
         C de Grandhomme  2
         DB Das           1
         WD Parnell       1
         JA Morkel        1
         CA Ingram        1
         VH Zol           1
         AA Jhunjunwala   1
         MC Henriques     1
         R Bishnoi        1
         S Sriram         1
         DA Miller        1

```

```
RE van der Merwe      1
MN van Wyk            1
BJ Rohrer              1
A Mukund               1
Name: batsman, Length: 175, dtype: int64
```

```
In [36]: #16)graph to show no. of times a particular over was bowled in the whole data set
(data1['over'].value_counts()/6).plot(kind='bar')
```

```
Out[36]: <matplotlib.axes._subplots.AxesSubplot at 0x1d285d8d438>
```



```
In [37]: #17)list for no. of times a player was man of the match  
data2['player_of_match'].value_counts()
```

```

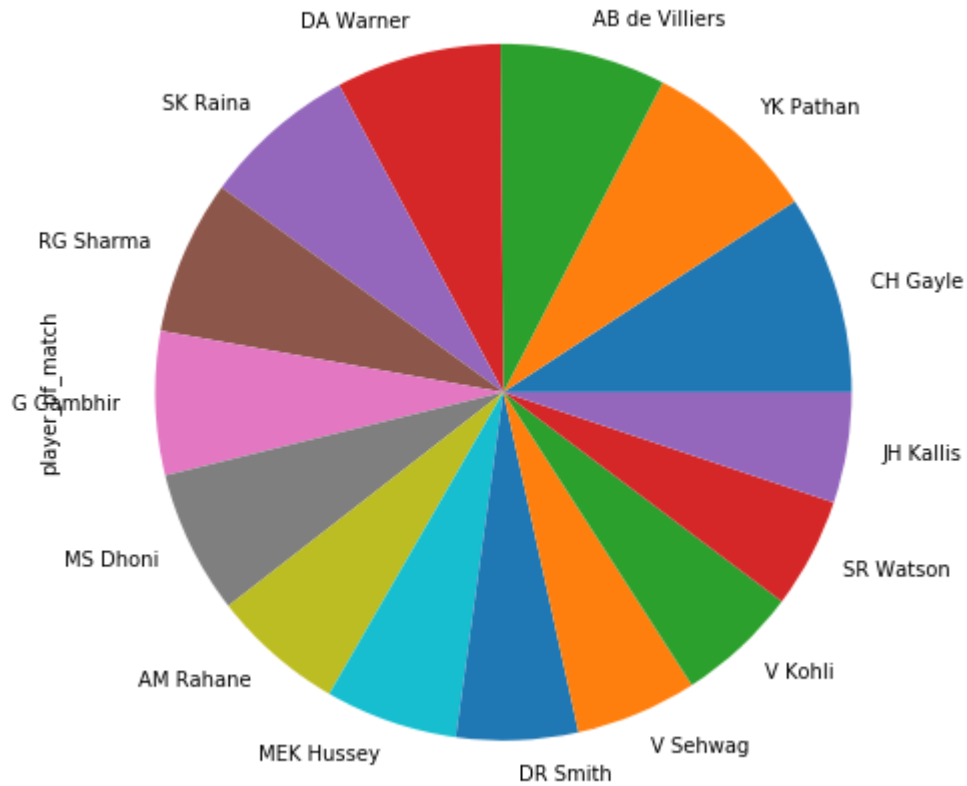
Out[37]: CH Gayle          18
        YK Pathan         16
        AB de Villiers    15
        DA Warner         15
        SK Raina          14
        RG Sharma         14
        G Gambhir         13
        MS Dhoni          13
        AM Rahane         12
        MEK Hussey        12
        DR Smith          11
        V Sehwag          11
        V Kohli           11
        SR Watson         10
        JH Kallis         10
        KA Pollard        9
        SE Marsh          9
        A Mishra          9
        SR Tendulkar       8
        AC Gilchrist       7
        AT Rayudu          7
        RV Uthappa        7
        RA Jadeja         7
        M Vijay           6
        Harbhajan Singh   6
        A Nehra           6
        AD Russell        6
        UT Yadav          6
        SP Narine         6
        BJ Hodge          6
        ..
        Q de Kock         1
        Shoaib Akhtar     1
        MF Maharroof      1
        R Ashwin          1
        AC Voges          1
        RJ Harris         1
        CL White          1
        JC Buttler        1
        DL Vettori        1
        R Bhatia          1
        MA Starc          1
        DP Nannes         1
        LR Shukla         1
        J Theron          1
        KV Sharma         1
        WPUJC Vaas        1
        KMDN Kulasekara   1
        MS Bisla          1
        SA Yadav          1
        YS Chahal         1
        HV Patel          1
        S Aravind         1
        AA Jhunjhunwala   1
        KS Williamson     1
        CR Brathwaite     1
        R McLaren         1

```

```
Umar Gul          1
Z Khan            1
MR Marsh          1
SB Jakati         1
Name: player_of_match, Length: 201, dtype: int64
```

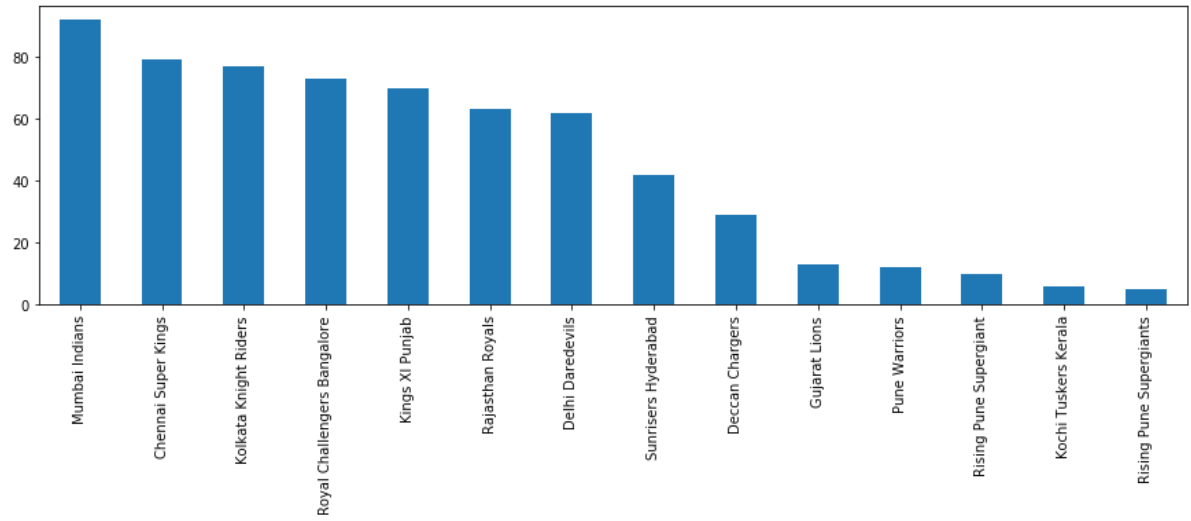
```
In [38]: #18)pie chart for top 15 player of the match
data2['player_of_match'].value_counts().head(15).plot(kind='pie',figsize=(8,8))
```

```
Out[38]: <matplotlib.axes._subplots.AxesSubplot at 0x1d2854dd438>
```




```
In [39]: #19)bar graph for no. of times a team was the winner of the match  
data2['winner'].value_counts().plot(kind='bar',figsize=(15,4))
```

```
Out[39]: <matplotlib.axes._subplots.AxesSubplot at 0x1d2851b6f60>
```



```
In [40]: #20)toss winner of each match  
m=data2['toss_winner']  
m
```

```
Out[40]: 0      Royal Challengers Bangalore
1          Rising Pune Supergiant
2          Kolkata Knight Riders
3          Kings XI Punjab
4      Royal Challengers Bangalore
5          Sunrisers Hyderabad
6          Mumbai Indians
7      Royal Challengers Bangalore
8          Rising Pune Supergiant
9          Mumbai Indians
10         Kolkata Knight Riders
11         Mumbai Indians
12         Gujarat Lions
13         Sunrisers Hyderabad
14         Delhi Daredevils
15         Mumbai Indians
16      Royal Challengers Bangalore
17         Delhi Daredevils
18         Kings XI Punjab
19         Gujarat Lions
20         Sunrisers Hyderabad
21         Mumbai Indians
22         Gujarat Lions
23         Delhi Daredevils
24         Rising Pune Supergiant
25         Gujarat Lions
26      Royal Challengers Bangalore
27         Mumbai Indians
28         Kolkata Knight Riders
29         Gujarat Lions
...
606         Delhi Daredevils
607         Kings XI Punjab
608         Rising Pune Supergiants
609         Sunrisers Hyderabad
610      Royal Challengers Bangalore
611         Delhi Daredevils
612         Mumbai Indians
613         Gujarat Lions
614         Kings XI Punjab
615         Sunrisers Hyderabad
616         Mumbai Indians
617         Delhi Daredevils
618         Mumbai Indians
619         Gujarat Lions
620         Rising Pune Supergiants
621         Kings XI Punjab
622         Delhi Daredevils
623      Royal Challengers Bangalore
624         Rising Pune Supergiants
625         Kings XI Punjab
626         Gujarat Lions
627         Delhi Daredevils
628         Kings XI Punjab
629         Gujarat Lions
630         Sunrisers Hyderabad
631      Royal Challengers Bangalore
```

```
632    Royal Challengers Bangalore
633          Kolkata Knight Riders
634          Sunrisers Hyderabad
635          Sunrisers Hyderabad
Name: toss_winner, Length: 636, dtype: object
```

In []: