In [2]:
```python
#loading the required libraries
import pandas as pd

from matplotlib import pyplot as plt
import seaborn as sns
```

In [3]:
```python
#loading the ipl datasets
ipl=pd.read_csv(r'C:\Users\USER\Pictures\Downloads\matches.csv')
```

In [5]:
```python
#having a glance at the data set
ipl.head()
```

Out[5]:

on	city	date	team1	team2	toss_winner	toss_decision	result	dl_applied	winne
17	Hyderabad	2017-04-05	Sunrisers Hyderabad	Royal Challengers Bangalore	Royal Challengers Bangalore	field	normal	0	Sunriser Hyderaba
17	Pune	2017-04-06	Mumbai Indians	Rising Pune Supergiant	Rising Pune Supergiant	field	normal	0	Risin Pun Supergian
17	Rajkot	2017-04-07	Gujarat Lions	Kolkata Knight Riders	Kolkata Knight Riders	field	normal	0	Kolkat Knigh Rider
17	Indore	2017-04-08	Rising Pune Supergiant	Kings XI Punjab	Kings XI Punjab	field	normal	0	Kings Punja
17	Bangalore	2017-04-08	Royal Challengers Bangalore	Delhi Daredevils	Royal Challengers Bangalore	bat	normal	0	Roya Challenge Bangalo

In [6]:
```python
#looking at the number of rowsand columns in the dataset
ipl.shape
```

Out[6]: (756, 18)

In [7]:
```python
#getting the frequency of most man of the match awards
ipl['player_of_match'].value_counts()[0:10]
```
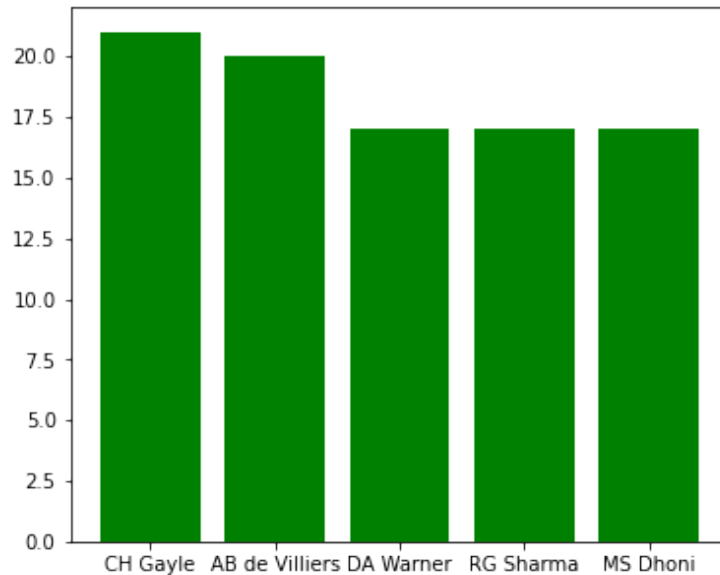
Out[7]:
```
CH Gayle           21
AB de Villiers     20
DA Warner          17
RG Sharma          17
MS Dhoni           17
YK Pathan          16
SR Watson          15
SK Raina           14
G Gambhir          13
V Kohli            12
Name: player_of_match, dtype: int64
```

In [8]: `#getting the frequency of most man of the match top 5 name`
`ipl['player_of_match'].value_counts().keys()[0:5]`

Out[8]: `Index(['CH Gayle', 'AB de Villiers', 'DA Warner', 'RG Sharma', 'MS Dhoni'], dtype`
`='object')`

In [32]: `#making a bar plot with top 5 players`
`plt.figure(figsize=(6,5))`
`plt.bar(list(ipl['player_of_match'].value_counts()[0:5].keys()),list(ipl['player_o`
`plt.show()`

In [11]: `#getting the freuency of result column`
`ipl['result'].value_counts()`

Out[11]:
```
normal        743
tie             9
no result       4
Name: result, dtype: int64
```

In [12]: ```python
#finding out the number of toss wins with respect to each team
ipl['toss_winner'].value_counts()
```

Out[12]:
```
Mumbai Indians   98
Kolkata Knight Riders   92
Chennai Super Kings   89
Kings XI Punjab   81
Royal Challengers Bangalore   81
Rajasthan Royals   80
Delhi Daredevils   80
Sunrisers Hyderabad   46
Deccan Chargers   43
Pune Warriors   20
Gujarat Lions   15
Delhi Capitals   10
Kochi Tuskers Kerala   8
Rising Pune Supergiants   7
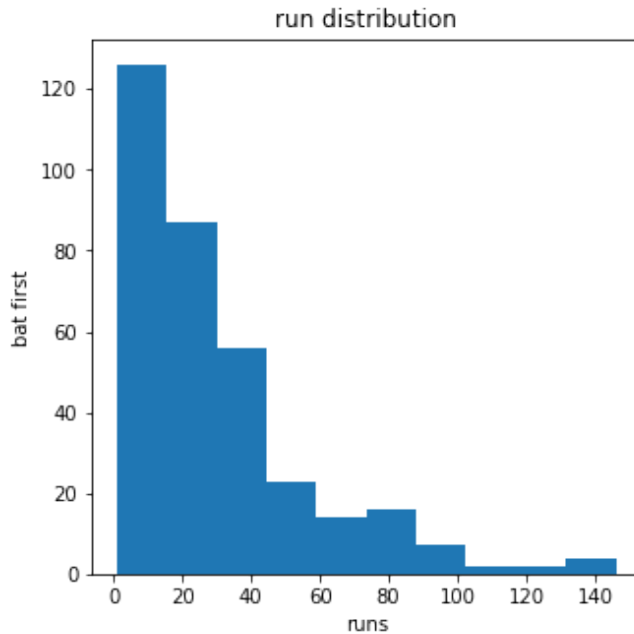Rising Pune Supergiant   6
Name: toss_winner, dtype: int64
```

In [13]: ```python
#extracting records where a team won by batting first
batting_first=ipl[ipl['win_by_runs']!=0]
```

In [14]: ```python
#getting a view of won by bat first
batting_first.head()
```

Out[14]:

| | id | season | city | date | team1 | team2 | toss_winner | toss_decision | result | dl_app |
|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 1 | 2017 | Hyderabad | 2017-04-05 | Sunrisers Hyderabad | Royal Challengers Bangalore | Royal Challengers Bangalore | field | normal | |
| **4** | 5 | 2017 | Bangalore | 2017-04-08 | Royal Challengers Bangalore | Delhi Daredevils | Royal Challengers Bangalore | bat | normal | |
| **8** | 9 | 2017 | Pune | 2017-04-11 | Delhi Daredevils | Rising Pune Supergiant | Rising Pune Supergiant | field | normal | |
| **13** | 14 | 2017 | Kolkata | 2017-04-15 | Kolkata Knight Riders | Sunrisers Hyderabad | Sunrisers Hyderabad | field | normal | |
| **14** | 15 | 2017 | Delhi | 2017-04-15 | Delhi Daredevils | Kings XI Punjab | Delhi Daredevils | bat | normal | |

In [51]:
```python
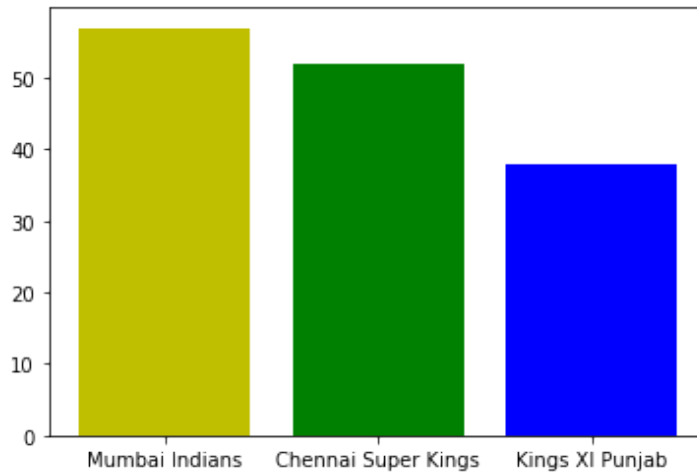#making a histogram of run distribution
plt.figure(figsize=(5,5))
plt.hist(batting_first['win_by_runs'])
plt.xlabel("runs")
plt.ylabel("bat first")
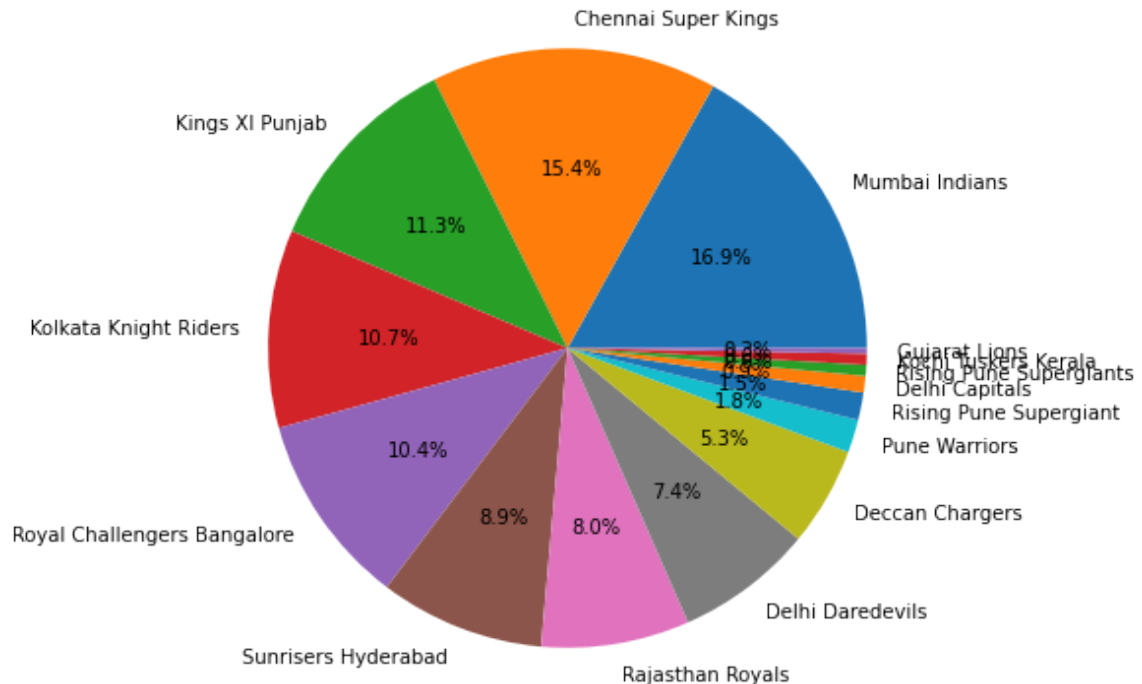plt.title("run distribution")
plt.show()
```


In [53]:
```python
#finding out the number ofwins w.r.t each team after batting first
batting_first['winner'].value_counts()
```

Out[53]:
```
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
Kochi Tuskers Kerala             2
Rising Pune Supergiants          2
Gujarat Lions                    1
Name: winner, dtype: int64
```

In [60]:
```python
#making a bar plot fortop 3 teams with most wins after batting first
plt.figure(figsize=(6,4))
plt.bar(list(batting_first['winner'].value_counts()[0:3].keys()),list(batting_firs
plt.show()
```


In [31]:
```python
#making a pie chart
plt.figure(figsize=(7,7))
plt.pie(list(batting_first['winner'].value_counts()),labels=list(batting_first['wi
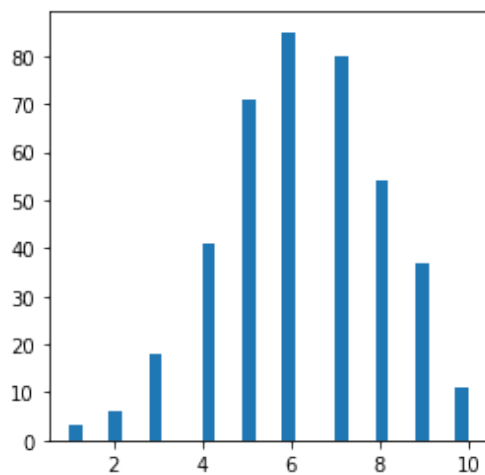plt.show()
```


In [15]:
```python
#extracting those records where a team has won after batting second
batting_second=ipl[ipl['win_by_wickets']!=0]
```

In [16]: `batting_second.head()`

Out[16]:

	id	season	city	date	team1	team2	toss_winner	toss_decision	result	dl_applied
1	2	2017	Pune	2017-04-06	Mumbai Indians	Rising Pune Supergiant	Rising Pune Supergiant	field	normal	(
2	3	2017	Rajkot	2017-04-07	Gujarat Lions	Kolkata Knight Riders	Kolkata Knight Riders	field	normal	(
3	4	2017	Indore	2017-04-08	Rising Pune Supergiant	Kings XI Punjab	Kings XI Punjab	field	normal	(
5	6	2017	Hyderabad	2017-04-09	Gujarat Lions	Sunrisers Hyderabad	Sunrisers Hyderabad	field	normal	(
6	7	2017	Mumbai	2017-04-09	Kolkata Knight Riders	Mumbai Indians	Mumbai Indians	field	normal	(

In [33]:
```python
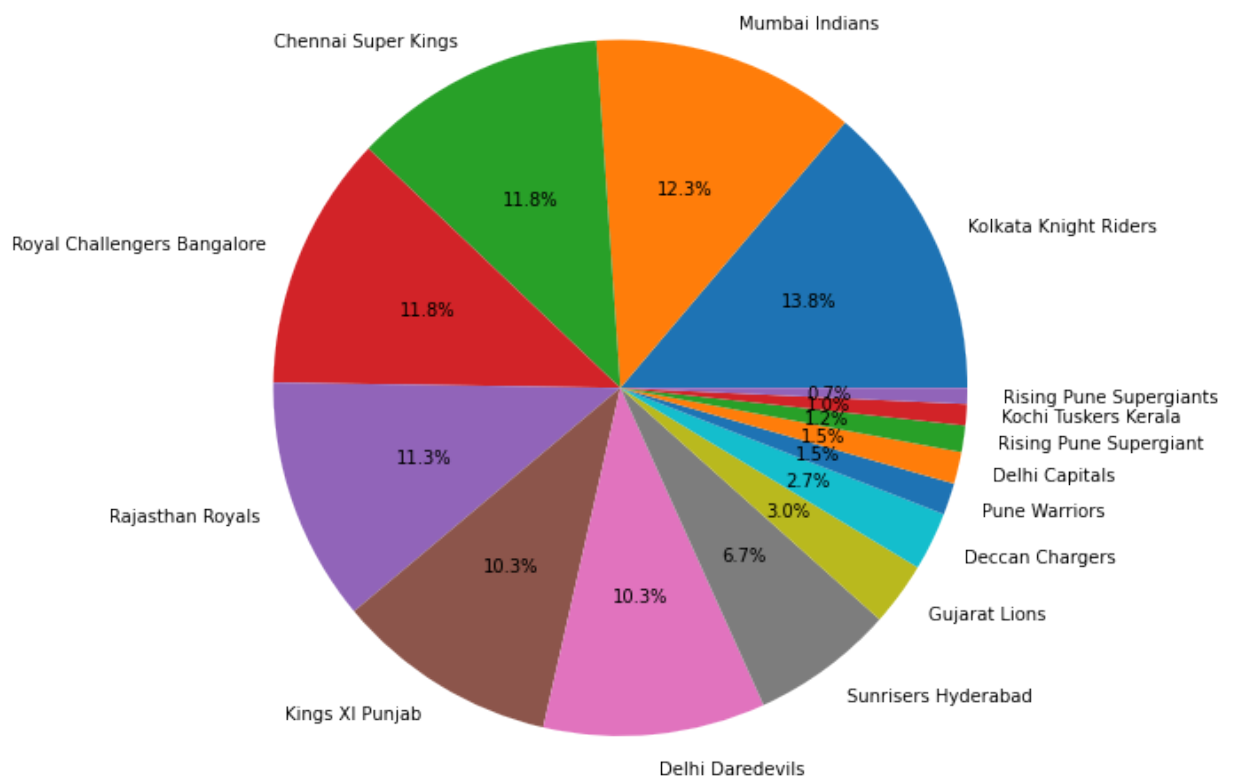#making a histogram for freaquecy of wins w.r.t number of wickets
plt.figure(figsize=(4,4))
plt.hist(batting_second['win_by_wickets'],bins=30)
plt.show()
```

In [17]:
```python
#finding out the frequency of number of wins w.r.t each time after batting second
batting_second['winner'].value_counts()
```

Out[17]:
```
Kolkata Knight Riders          56
Mumbai Indians                 50
Chennai Super Kings            48
Royal Challengers Bangalore    48
Rajasthan Royals               46
Kings XI Punjab                42
Delhi Daredevils               42
Sunrisers Hyderabad            27
Gujarat Lions                  12
Deccan Chargers                11
Pune Warriors                   6
Delhi Capitals                  6
Rising Pune Supergiant          5
Kochi Tuskers Kerala            4
Rising Pune Supergiants         3
Name: winner, dtype: int64
```

In [25]:
```python
#making a pie chart for distribution of most wins after batting second
plt.figure(figsize=(9,9))
plt.pie(list(batting_second['winner'].value_counts()),labels=list(batting_second['
plt.show()
```

In [26]: `#number of matches played each season`
`ipl['season'].value_counts()`

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

Out[27]:
```
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
Abu Dhabi           7
Cape Town           7
Ranchi              7
Cuttack             7
Port Elizabeth      7
Sharjah             6
Raipur              6
Kochi               5
Kanpur              4
East London         3
Kimberley           3
Nagpur              3
Bloemfontein        2
Name: city, dtype: int64
```

In [29]:
```python
#finding out how many times a team has won after winning the toss
import numpy as np
np.sum(ipl['toss_winner']==ipl['winner'])
```

Out[29]: 393

In [38]:
```python
ipl['venue'].value_counts()
```

Out[38]:
```
Eden Gardens                                                    77
Wankhede Stadium                                               73
M Chinnaswamy Stadium                                         73
Feroz Shah Kotla                                              67
Rajiv Gandhi International Stadium, Uppal                     56
MA Chidambaram Stadium, Chepauk                              49
Sawai Mansingh Stadium                                        47
Punjab Cricket Association Stadium, Mohali                   35
Maharashtra Cricket Association Stadium                      21
Dr DY Patil Sports Academy                                   17
Subrata Roy Sahara Stadium                                   17
Kingsmead                                                     15
Punjab Cricket Association IS Bindra Stadium, Mohali         14
SuperSport Park                                              12
Sardar Patel Stadium, Motera                                12
Brabourne Stadium                                            11
Dr. Y.S. Rajasekhara Reddy ACA-VDCA Cricket Stadium         11
Saurashtra Cricket Association Stadium                       10
Holkar Cricket Stadium                                        9
Himachal Pradesh Cricket Association Stadium                  9
Rajiv Gandhi Intl. Cricket Stadium                            8
New Wanderers Stadium                                         8
M. A. Chidambaram Stadium                                     8
Feroz Shah Kotla Ground                                       7
St George's Park                                              7
Barabati Stadium                                              7
M. Chinnaswamy Stadium                                        7
Dubai International Cricket Stadium                            7
JSCA International Stadium Complex                             7
Newlands                                                      7
Sheikh Zayed Stadium                                          7
IS Bindra Stadium                                             7
Shaheed Veer Narayan Singh International Stadium              6
Sharjah Cricket Stadium                                       6
Nehru Stadium                                                 5
Green Park                                                    4
Buffalo Park                                                  3
De Beers Diamond Oval                                         3
Vidarbha Cricket Association Stadium, Jamtha                  3
OUTsurance Oval                                               2
ACA-VDCA Stadium                                              2
Name: venue, dtype: int64
```

In [39]:
```python
ipl['city'].value_counts().head(10)
```

Out[39]:
```
Mumbai          101
Kolkata          77
Delhi            74
Bangalore        66
Hyderabad        64
Chennai          57
Jaipur           47
Chandigarh       46
Pune             38
Durban           15
Name: city, dtype: int64
```

In [43]:
```python
ipl['win_by_runs'].max()
```

Out[43]:
```
146
```

In [46]:
```python
ipl.iloc[ipl['win_by_runs'].idxmax()]
```

Out[46]:
```
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 [49]:
```python
ipl.iloc[ipl['win_by_wickets'].idxmax()]
```

Out[49]:
```
id                                                  3
season                                           2017
city                                           Rajkot
date                                       2017-04-07
team1                                   Gujarat Lions
team2                           Kolkata Knight Riders
toss_winner                     Kolkata Knight Riders
toss_decision                                   field
result                                         normal
dl_applied                                          0
winner                          Kolkata Knight Riders
win_by_runs                                         0
win_by_wickets                                     10
player_of_match                              CA Lynn
venue               Saurashtra Cricket Association Stadium
umpire1                                    Nitin Menon
umpire2                                     CK Nandan
umpire3                                           NaN
Name: 2, dtype: object
```

In [52]:
```python
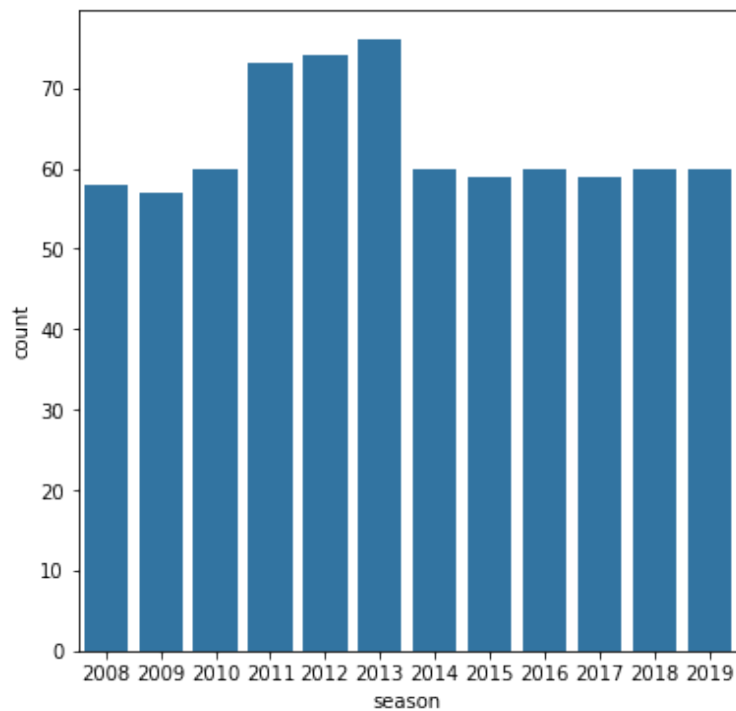ipl.iloc[ipl['win_by_runs'].idxmax()]['winner']
```

Out[52]: 'Mumbai Indians'

In [56]:
```python
ipl.iloc[ipl[ipl['win_by_wickets'].ge(1)].win_by_wickets.idxmin()]
```

Out[56]: 'Kolkata Knight Riders'

In [57]:
```python
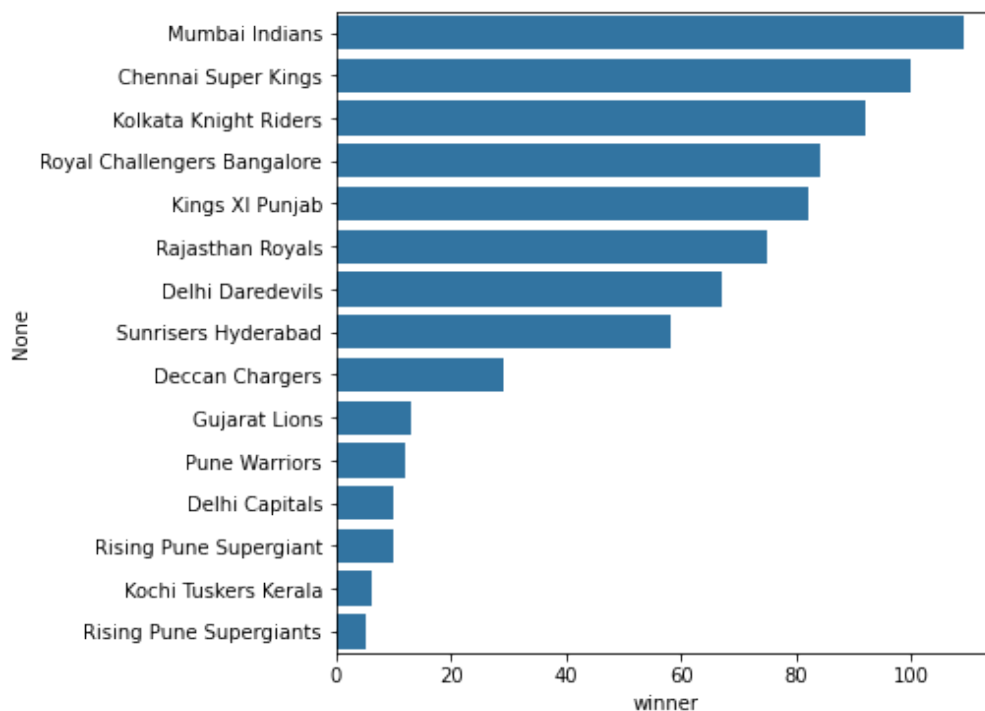ipl.iloc[ipl[ipl['win_by_wickets'].ge(1)].win_by_wickets.idxmin()]['winner']
```

Out[57]: 'Kolkata Knight Riders'

In [62]:
```python
plt.figure(figsize=(6,6))
sns.countplot(x='season' , data=ipl)
plt.show()
```


In [65]:
```python
#mumbai indian are the winners in most ofthe matches
plt.figure(figsize=(6,6))
data = ipl.winner.value_counts()
sns.barplot(y = data.index, x = data, orient='h')
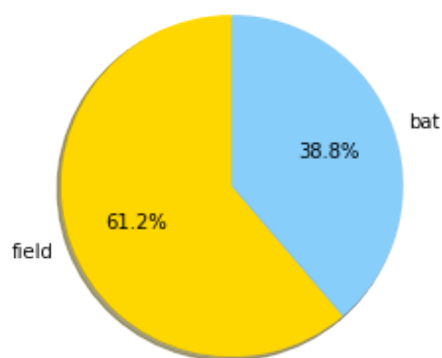plt.show()
```

In [72]:
```python
temp_df = ipl.drop_duplicates(subset=['season'], keep='last')[['season', 'winner']
temp_df
```

Out[72]:

	season	winner
0	2017	Mumbai Indians
1	2008	Rajasthan Royals
2	2009	Deccan Chargers
3	2010	Chennai Super Kings
4	2011	Chennai Super Kings
5	2012	Kolkata Knight Riders
6	2013	Mumbai Indians
7	2014	Kolkata Knight Riders
8	2015	Mumbai Indians
9	2016	Sunrisers Hyderabad
10	2018	Chennai Super Kings
11	2019	Mumbai Indians

In [75]:
```python
temp_series = ipl.toss_decision.value_counts()
labels = (np.array(temp_series.index))
sizes = (np.array((temp_series / temp_series.sum())*100))
colors = ['gold', 'lightskyblue']
plt.pie(sizes, labels=labels, colors=colors,
        autopct='%1.1f%%', shadow=True, startangle=90)
plt.title("Toss decision percentage")
plt.show()
```


Toss decision percentage

In [ ]: