In [206]:
```
import pandas as pd
```

Reading the data from CSV file

In [207]:
```
matches_data = pd.read_csv('IPL Matches 2008-2020.csv')
matches_data.head()
```

Out[207]:

	id	city	date	player_of_match	venue	neutral_venue	team1	team
0	335982	Bangalore	2008-04-18	BB McCullum	M Chinnaswamy Stadium	0	Royal Challengers Bangalore	Kolkat Knigl Rider
1	335983	Chandigarh	2008-04-19	MEK Hussey	Punjab Cricket Association Stadium, Mohali	0	Kings XI Punjab	Chenn Supe King
2	335984	Delhi	2008-04-19	MF Maharoof	Feroz Shah Kotla	0	Delhi Daredevils	Rajastha Roya
3	335985	Mumbai	2008-04-20	MV Boucher	Wankhede Stadium	0	Mumbai Indians	Roy Challenger Bangalor
4	335986	Kolkata	2008-04-20	DJ Hussey	Eden Gardens	0	Kolkata Knight Riders	Decca Charger

Total Matches : Result Declared by D/L Method

In [208]:
```
matches_data[matches_data["method"]=="D/L"].count()
```

Out[208]:
```
id                19
city              19
date              19
player_of_match   19
venue             19
neutral_venue     19
team1             19
team2             19
toss_winner       19
toss_decision     19
winner            19
result            19
result_margin     19
eliminator        19
method            19
umpire1           19
umpire2           19
dtype: int64
```

Ans : 19

Matches Won by 10 Wickets

In [209]:
```
matches_data[(matches_data["result"]=="wickets") & (matches_data["result_margin"]
```

Out[209]:
```
id                14
city              14
date              14
player_of_match   14
venue             14
neutral_venue     14
team1             14
team2             14
toss_winner       14
toss_decision     14
winner            14
result            14
result_margin     14
eliminator        14
method             1
umpire1           14
umpire2           14
dtype: int64
```

Ans : 14

Some data cleaning part

In [210]:
```
matches_data["team1"] = matches_data["team1"].replace('Rising Pune Supergiants',
matches_data["team2"] = matches_data["team2"].replace('Rising Pune Supergiants',
matches_data["toss_winner"] = matches_data["toss_winner"].replace('Rising Pune Su
matches_data["winner"] = matches_data["winner"].replace('Rising Pune Supergiants'
```

Teams Participated

In [211]:
```
import numpy as np
pd.Series(np.sort(matches_data["team1"].unique()))
```

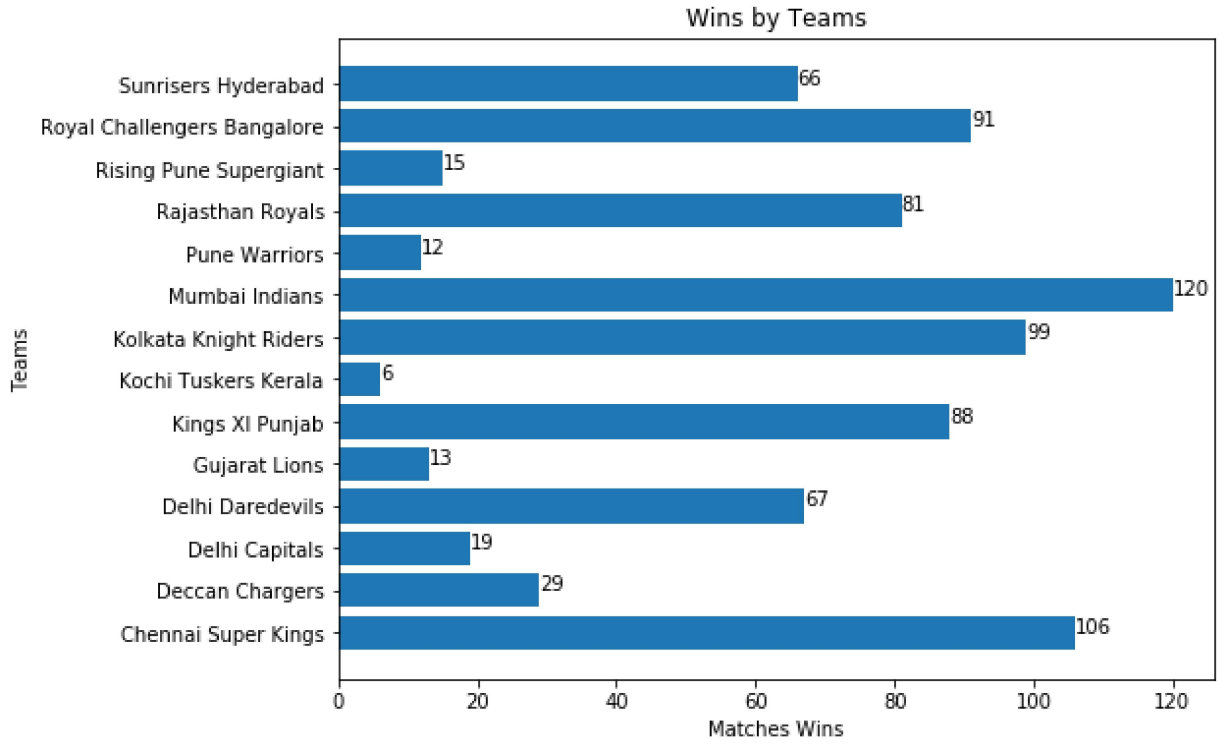
Out[211]:
```
0             Chennai Super Kings
1                 Deccan Chargers
2                  Delhi Capitals
3                Delhi Daredevils
4                   Gujarat Lions
5                  Kings XI Punjab
6              Kochi Tuskers Kerala
7            Kolkata Knight Riders
8                   Mumbai Indians
9                    Pune Warriors
10                Rajasthan Royals
11           Rising Pune Supergiant
12    Royal Challengers Bangalore
13              Sunrisers Hyderabad
dtype: object
```

Matches won by each team

In [212]:
```
results = matches_data.groupby("winner").count()
results["result"].sort_values()
```

Out[212]:
```
winner
Kochi Tuskers Kerala              6
Pune Warriors                    12
Gujarat Lions                    13
Rising Pune Supergiant           15
Delhi Capitals                   19
Deccan Chargers                  29
Sunrisers Hyderabad              66
Delhi Daredevils                 67
Rajasthan Royals                 81
Kings XI Punjab                  88
Royal Challengers Bangalore      91
Kolkata Knight Riders            99
Chennai Super Kings             106
Mumbai Indians                  120
Name: result, dtype: int64
```

In [213]:
```
import matplotlib.pyplot as plt

teams = results.index
plt.figure(figsize=(8,6))
plt.barh(seasons,results["result"])
for index, value in enumerate(results["result"]):
    plt.text(value, index, str(value))
plt.title('Wins by Teams')
plt.xlabel('Matches Wins')
plt.ylabel('Teams')
plt.savefig('Matches won by Teams.png', dpi=300, bbox_inches='tight')
plt.show()
```



Year wise no. of Matches

In [219]:
```
matches_data["date"] = pd.to_datetime(matches_data["date"])
matches_data["Season"]= matches_data["date"].dt.year
```

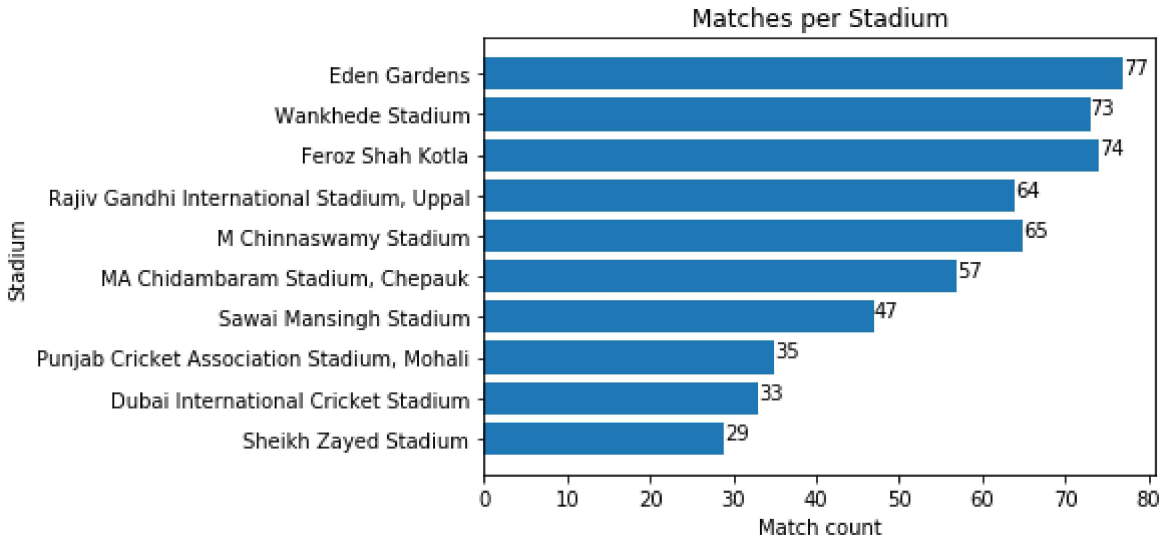
In [220]:
```
results = matches_data.groupby("Season").count()
results["result"]
```

Out[220]:
```
Season
2008    58
2009    57
2010    60
2011    72
2012    74
2013    76
2014    60
2015    57
2016    60
2017    59
2018    60
2019    59
2020    60
Name: result, dtype: int64
```

In [ ]:
```

```

Number of stadiums hosting the matches

In [221]:
```
df = matches_data.groupby("venue").count()
df.sort_values(by="result")["id"]

top10 = df.sort_values(by="result")["id"].tail(10)
top10.values


players = top10.index
plt.barh(players,top10.values)
for index, value in enumerate(top10.values):
    plt.text(value, index, str(value))
plt.title('Matches per Stadium')
plt.xlabel('Match count')
plt.ylabel('Stadium')
plt.savefig('Stadiums.png', dpi=300, bbox_inches='tight')
plt.show()
```

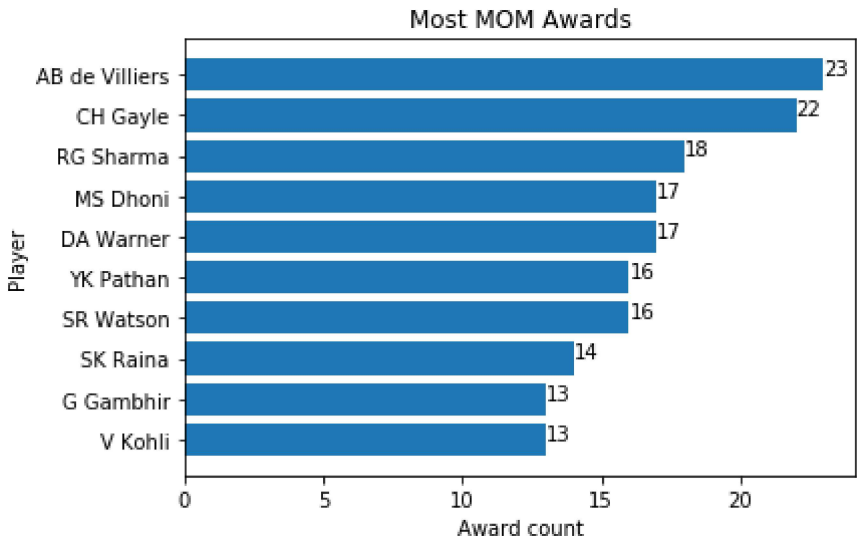


Most MOM AWARDS

In [222]:
```
df = matches_data.groupby("player_of_match").count()

top10 = df.sort_values(by="result")["id"].tail(10)
top10.values
```

Out[222]:
```
array([13, 13, 14, 16, 16, 17, 17, 18, 22, 23], dtype=int64)
```

In [223]:
```
players = top10.index
plt.barh(players,top10.values)
for index, value in enumerate(top10.values):
    plt.text(value, index, str(value))
plt.title('Most MOM Awards')
plt.xlabel('Award count')
plt.ylabel('Player')
plt.savefig('MOM.png', dpi=300, bbox_inches='tight')
plt.show()
```



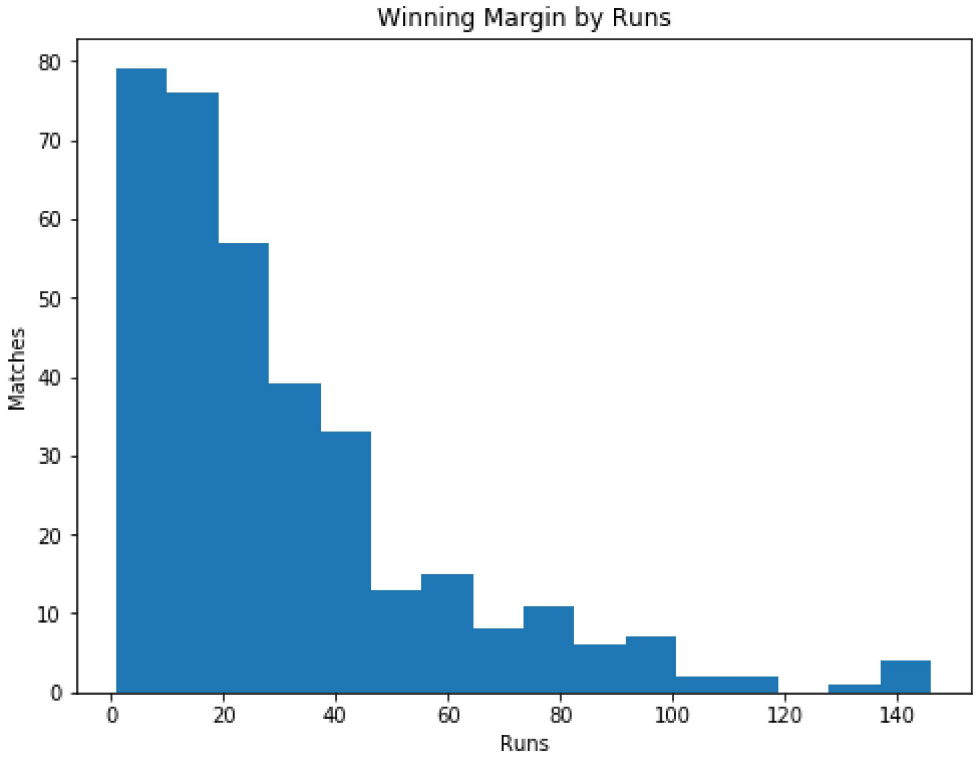
Winning Margins by Runs

In [224]:
```
df = matches_data[(matches_data["result"]=="runs") & (matches_data["method"].isnu
df.head()
```

Out[224]:

	id	city	date	player_of_match	venue	neutral_venue	team1	team2
0	335982	Bangalore	2008-04-18	BB McCullum	M Chinnaswamy Stadium	0	Royal Challengers Bangalore	Kolkata Knight Riders
1	335983	Chandigarh	2008-04-19	MEK Hussey	Punjab Cricket Association Stadium, Mohali	0	Kings XI Punjab	Chennai Super Kings
7	335989	Chennai	2008-04-23	ML Hayden	MA Chidambaram Stadium, Chepauk	0	Chennai Super Kings	Mumbai Indians
9	335991	Chandigarh	2008-04-25	KC Sangakkara	Punjab Cricket Association Stadium, Mohali	0	Kings XI Punjab	Mumbai Indians
14	335996	Bangalore	2008-04-28	MS Dhoni	M Chinnaswamy Stadium	0	Royal Challengers Bangalore	Chennai Super Kings

In [225]:
```
a = range(0,16)
plt.figure(figsize=(8,6))
plt.hist(df["result_margin"],bins=16)
plt.title('Winning Margin by Runs')
plt.xlabel('Runs')
plt.ylabel('Matches')
plt.savefig('Win by Runs.png', dpi=300, bbox_inches='tight')
plt.show()
```



Matches won by Wickets

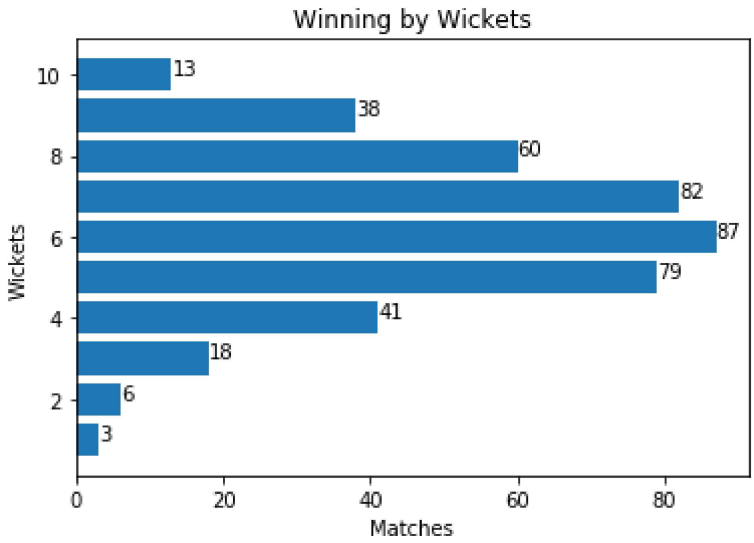
In [226]:
```
df = matches_data[(matches_data["result"]=="wickets") & (matches_data["method"].i
df["result_margin"] = df["result_margin"].astype("int32")
results = df.groupby("result_margin").count()
results
```

```
C:\Users\Prashant Porwal\anaconda\lib\site-packages\ipykernel_launcher.py:2: Se
ttingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/sta
ble/user_guide/indexing.html#returning-a-view-versus-a-copy (https://pandas.pyd
ata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-c
opy)
```

Out[226]:

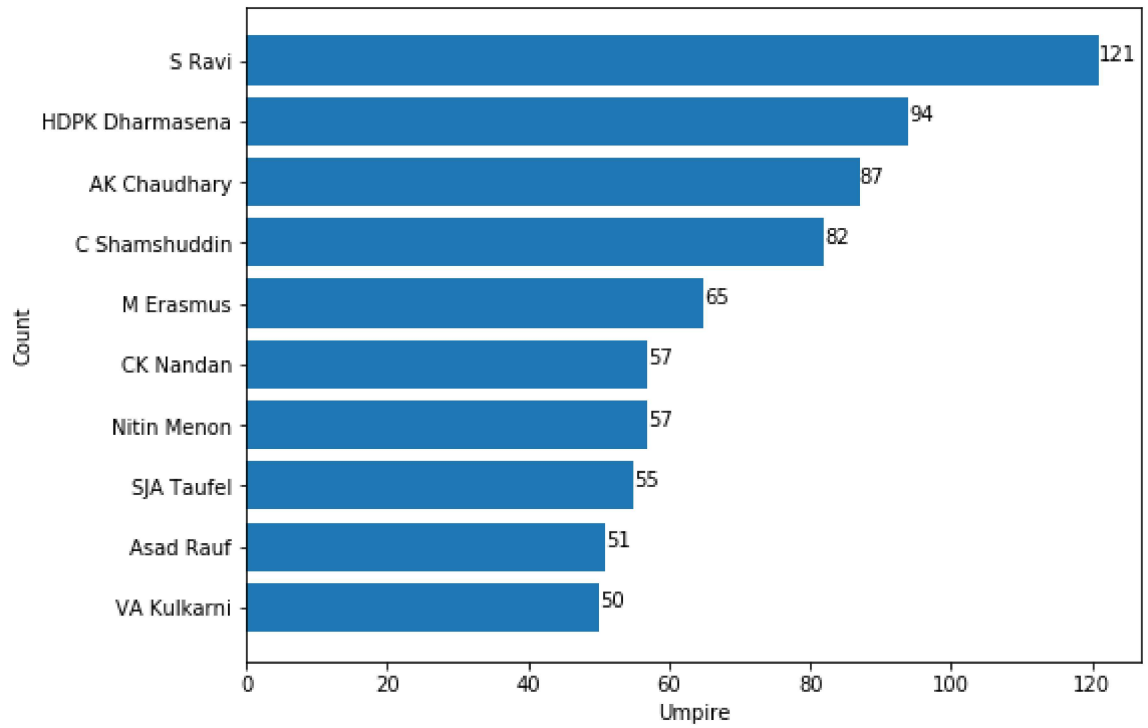
result_margin	id	city	date	player_of_match	venue	neutral_venue	team1	team2	toss_winner
1	3	3	3	3	3	3	3	3	3
2	6	6	6	6	6	6	6	6	6
3	18	18	18	18	18	18	18	18	18
4	41	40	41	41	41	41	41	41	41
5	79	77	79	79	79	79	79	79	79
6	87	86	87	87	87	87	87	87	87
7	82	79	82	82	82	82	82	82	82
8	60	59	60	60	60	60	60	60	60
9	38	38	38	38	38	38	38	38	38
10	13	13	13	13	13	13	13	13	13

In [227]:
```
wickets = results.index
plt.barh(wickets,results["result"])
for index, value in enumerate(results["result"]):
    plt.text(value, index+1, str(value))
plt.title('Winning by Wickets')
plt.xlabel('Matches')
plt.ylabel('Wickets')
plt.savefig('Win by wickets.png', dpi=300, bbox_inches='tight')
plt.show()
```



In [228]:
```
df = pd.concat([matches_data["umpire1"],matches_data["umpire2"]],ignore_index=Tru
results = df.groupby(df).count()
top10 = results.sort_values().tail(10)
```

In [232]:
```
umpires = top10.index
plt.figure(figsize=(8,6))
plt.barh(umpires,top10.values)
for index, value in enumerate(top10.values):
    plt.text(value, index, str(value))

plt.xlabel('Umpire')
plt.ylabel('Count')

plt.show()
plt.savefig('Umpires.png', dpi=300, bbox_inches='tight')
```




```
<Figure size 432x288 with 0 Axes>
```

Largest win by Runs

In [230]:
```
matches_data["result_margin"].max()
```

Out[230]:
```
146.0
```

In [231]:
```
matches_data[matches_data["result_margin"]==146]
```

Out[231]:

	id	city	date	player_of_match	venue	neutral_venue	team1	team2	toss_winne
620	1082635	Delhi	2017-05-06	LMP Simmons	Feroz Shah Kotla	0	Delhi Daredevils	Mumbai Indians	Delh Daredevil

In [ ]:
```

```