Fixtures

In [1]:
```
#importing relevant packages
import requests
from bs4 import BeautifulSoup
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

In [2]:
```
#Gatering URL, hopefully shouldnt change
#200 means success, anything beginning with a 4 is usually an error
url = "https://playerdatabase247.com/include_premier_league_fixture
r = requests.get(url)
print(r.status_code)
```

```
200
```

In [3]:
```
#Gathering the data
soup = BeautifulSoup(r.text, 'html.parser')
table = soup.find('table')
cells = table.find_all("td")
```

In [4]:
```
#scrape function
def scrape(cells):
    lizt = []
    for cell in cells:
        text = cell.text.strip()
        lizt.append(text)
    return(lizt)

output = scrape(cells)
```

In [5]:
```
#Converting to workable dataframe
output = np.array(output)
output = output.reshape(21,8)
output = pd.DataFrame(output)
header_row = 0
output.columns = output.iloc[header_row]
output = output.drop(header_row)
output = output.reset_index(drop = True)
output.columns = ["team", "gw1", "gw2", "gw3", "gw4", "gw5", "gw6",
```

Overall plot for EG

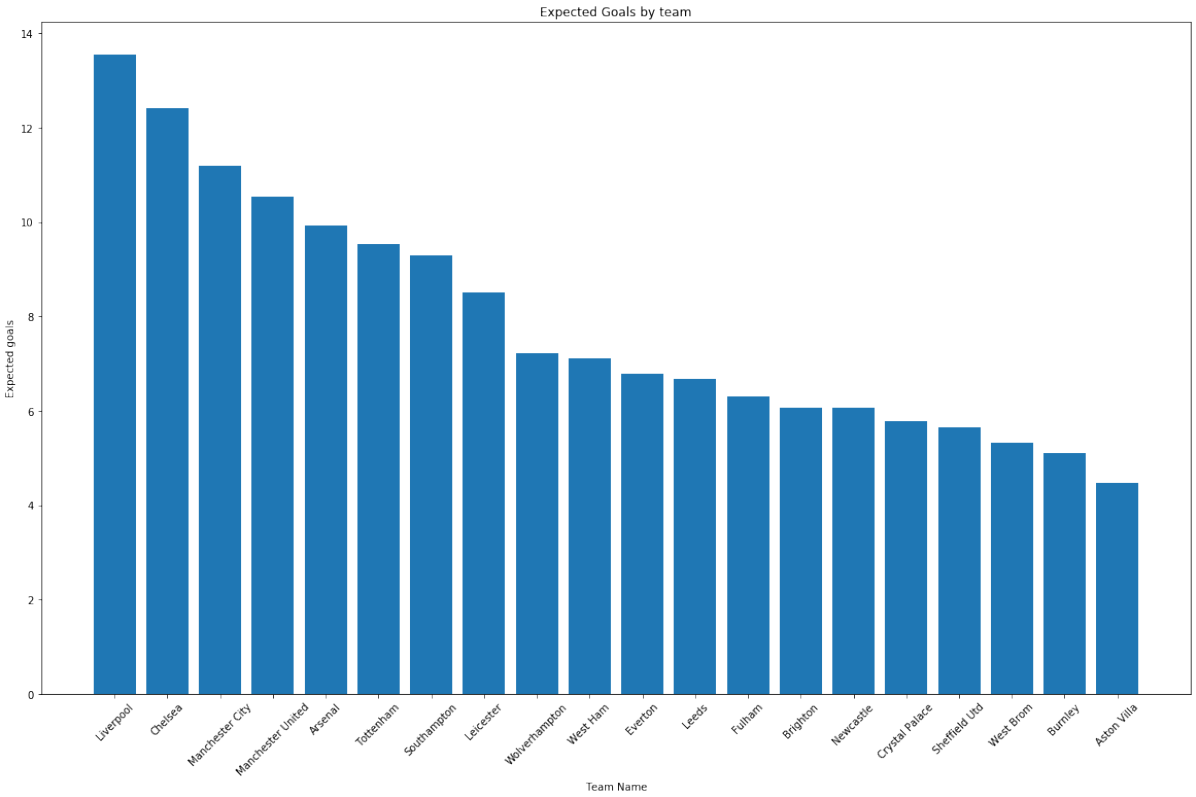
In [6]:
```
output
```

Out[6]:

	team	gw1	gw2	gw3	gw4	gw5	gw6	total
0	Liverpool	LEE2.68	che 2.09	ARS2.31	avl 2.18	eve 1.96	SHU2.34	13.56
1	Chelsea	bha 2.04	LIV1.90	wba 2.55	CRY2.63	SOU2.11	mun 1.20	12.42
2	Manchester City	-0.00	wol 1.23	LEI2.64	lee 2.31	ARS2.47	wes 2.55	11.19
3	Manchester United	-0.00	CRY2.51	bha 1.89	TOT1.79	new 2.09	CHE2.27	10.54
4	Arsenal	ful 2.03	WES2.24	liv 1.18	SHU1.77	mci 0.93	LEI1.77	9.92
5	Tottenham	EVE1.83	sou 1.31	NEW2.17	mun 0.90	WES2.11	bur 1.22	9.53
6	Southampton	cry 1.53	TOT1.39	bur 1.17	WBA2.15	che 1.39	EVE1.66	9.29
7	Leicester	wba 1.66	BUR1.35	mci 0.80	WES1.82	AVL1.71	ars 1.15	8.50
8	Wolverhampton	shu 0.99	MCI0.81	wes 1.22	FUL1.66	lee 1.08	NEW1.47	7.23
9	West Ham	NEW1.88	ars 1.18	WOL0.88	lei 1.20	tot 1.01	MCI0.97	7.12
10	Everton	tot 0.84	WBA1.66	cry 1.15	BHA1.29	LIV0.97	sou 0.89	6.79
11	Leeds	liv 0.88	FUL1.87	shu 1.09	MCI0.86	WOL0.76	avl 1.22	6.67
12	Fulham	ARS1.13	lee 1.06	AVL1.35	wol 0.53	shu 0.92	CRY1.32	6.30
13	Brighton	CHE1.14	new 1.05	MUN0.69	eve 0.86	cry 0.96	WBA1.38	6.07
14	Newcastle	wes 1.28	BHA1.39	tot 0.88	BUR1.11	MUN0.82	wol 0.58	6.07
15	Crystal Palace	SOU0.97	mun 0.56	EVE1.10	che 0.89	BHA1.11	ful 1.15	5.77
16	Sheffield Utd	WOL0.61	avl 0.98	LEE1.18	ars 0.80	FUL1.42	liv 0.67	5.66
17	West Brom	LEI1.00	eve 0.84	CHE1.07	sou 0.72	BUR0.86	bha 0.84	5.33
18	Burnley	-0.00	lei 0.90	SOU1.03	new 1.08	wba 1.18	TOT0.92	5.10
19	Aston Villa	-0.00	SHU0.94	ful 1.05	LIV0.74	lei 0.74	LEE1.02	4.48

In [7]:
```
graph = pd.DataFrame(output)
x = np.array(graph.team)
y = graph.total.apply(float)
fig, ax = plt.subplots(figsize = (20,12))
ax.bar(x, y)
ax.set_ylabel("Expected goals")
ax.set_xlabel("Team Name")
ax.set_title("Expected Goals by team")
plt.xticks(rotation = 45)
```

Out[7]:
```
([0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18
, 19],
 <a list of 20 Text xticklabel objects>)
```



Regex to remove names and leave just numeric

In [8]:
```
def remove_char(string):
    import re
    string = re.sub("[A-Za-z]", "", string);
    return string
```

In [9]:
```
output.head()
```

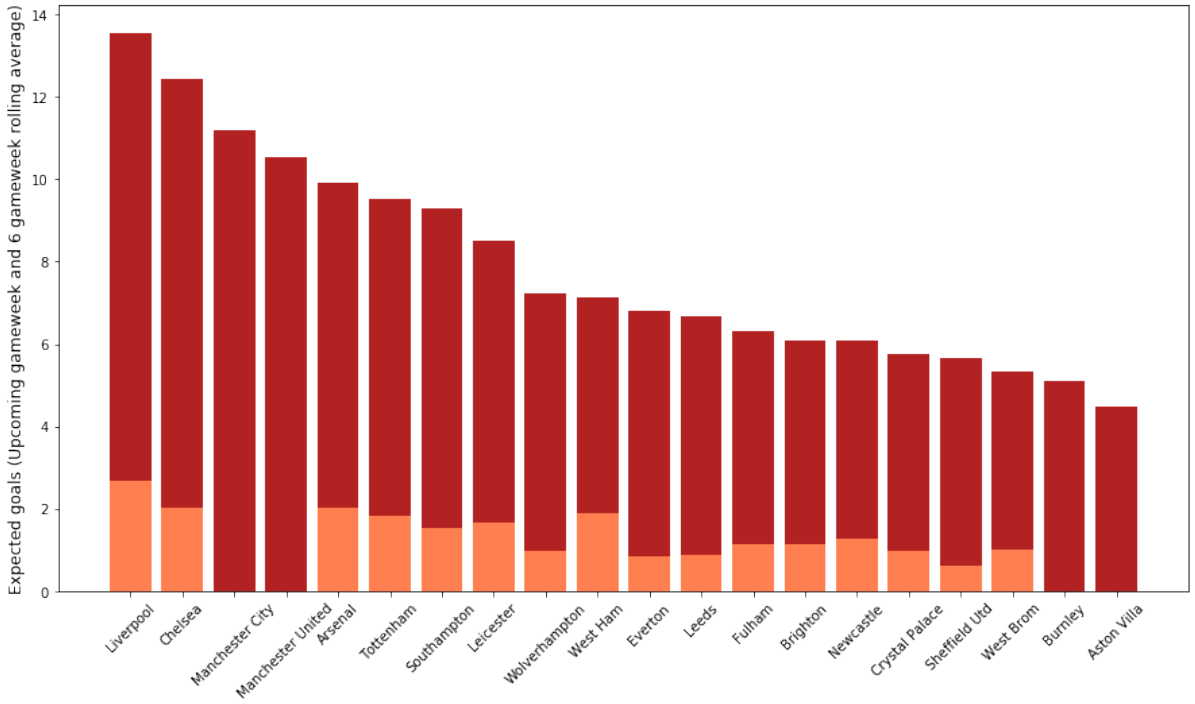
Out[9]:

	team	gw1	gw2	gw3	gw4	gw5	gw6	total
0	Liverpool	LEE2.68	che 2.09	ARS2.31	avl 2.18	eve 1.96	SHU2.34	13.56
1	Chelsea	bha 2.04	LIV1.90	wba 2.55	CRY2.63	SOU2.11	mun 1.20	12.42
2	Manchester City	-0.00	wol 1.23	LEI2.64	lee 2.31	ARS2.47	wes 2.55	11.19
3	Manchester United	-0.00	CRY2.51	bha 1.89	TOT1.79	new 2.09	CHE2.27	10.54
4	Arsenal	ful 2.03	WES2.24	liv 1.18	SHU1.77	mci 0.93	LEI1.77	9.92

In [10]:
```
output.gw1 = output.gw1.apply(remove_char)
output.gw1 = output.gw1.apply(float)
output.gw2 = output.gw2.apply(remove_char)
output.gw2 = output.gw2.apply(float)
output.gw3 = output.gw3.apply(remove_char)
output.gw3 = output.gw3.apply(float)
output.gw4 = output.gw4.apply(remove_char)
output.gw4 = output.gw4.apply(float)
output.gw5 = output.gw5.apply(remove_char)
output.gw5 = output.gw5.apply(float)
output.gw6 = output.gw6.apply(remove_char)
output.gw6 = output.gw6.apply(float)
```

In [11]:
```
fig, ax = plt.subplots(figsize = (15,8))
output.total = output.total.apply(float)
ax.bar(output.team, output.total, color = "firebrick")
ax.bar(output.team, output.gw1, color = "coral")
ax.set_ylabel("Expected goals (Upcoming gameweek and 6 gameweek rol
plt.xticks(rotation = 45)

plt.show()
```



As can be seen above, this figure shows the expected goals for both the upcoming (orange) week and a 6 gameweek moving average (red). This script will auto-update the fresh fixtures each week when ran. This can he used to make decicions on both which players to start and which players to bring in.

In [ ]: