In [1]:
```
%matplotlib inline
import pandas as pd
from matplotlib import pyplot as plt
import numpy as np
import re
```

In [2]:
```
data_dir = 'C:/Users/36205/Desktop/Gitre/F1'
import os
os.chdir(data_dir)
pldf = pd.read_csv(data_dir+"/season1819data.csv", delimiter=',')
pldf.head()
```

Out[2]:

	Div	Date	HomeTeam	AwayTeam	FTHG	FTAG	FTR	HTHG	HTAG	HTR	...	BbAv<2.5
0	E0	10/08/2018	Man United	Leicester	2	1	H	1	0	H	...	1.79
1	E0	11/08/2018	Bournemouth	Cardiff	2	0	H	1	0	H	...	1.83
2	E0	11/08/2018	Fulham	Crystal Palace	0	2	A	0	1	A	...	1.87
3	E0	11/08/2018	Huddersfield	Chelsea	0	3	A	0	2	A	...	1.84
4	E0	11/08/2018	Newcastle	Tottenham	1	2	A	1	2	A	...	1.81

5 rows × 62 columns

In [ ]:
```
# Div = League Division
# Date = Match Date (dd/mm/yy)
# HomeTeam = Home Team
# AwayTeam = Away Team
# FTHG = Full Time Home Team Goals
# FTAG = Full Time Away Team Goals
# FTR and Res = Full Time Result (H=Home Win, D=Draw, A=Away Win)
# HTHG = Half Time Home Team Goals
# HTAG = Half Time Away Team Goals
# HTR = Half Time Result (H=Home Win, D=Draw, A=Away Win)

# Match Statistics (where available)

# HS = Home Team Shots
# AS = Away Team Shots
# HST = Home Team Shots on Target
# AST = Away Team Shots on Target
# HC = Home Team Corners
# AC = Away Team Corners
# HF = Home Team Fouls Committed
# AF = Away Team Fouls Committed
# HY = Home Team Yellow Cards
# AY = Away Team Yellow Cards
# HR = Home Team Red Cards
# AR = Away Team Red Cards

# Key to 1X2 (match) betting odds data:

# B365H = Bet365 home win odds
# B365D = Bet365 draw odds
# B365A = Bet365 away win odds
```

In [3]:
```
#Adatok átalakítása --> Felesleges oszlopokat kiszedtem a dataframeből

fdf = pldf.drop(columns=['Div'])
fdf = fdf.drop(columns=['Date'])
fdf = fdf.drop(columns=['Referee'])
fdf.drop(fdf.iloc[:, 23:], inplace = True, axis = 1)
fdf.head()
```

Out[3]:

	HomeTeam	AwayTeam	FTHG	FTAG	FTR	HTHG	HTAG	HTR	HS	AS	...	AF	HC	AC	HY
0	Man United	Leicester	2	1	H	1	0	H	8	13	...	8	2	5	2
1	Bournemouth	Cardiff	2	0	H	1	0	H	12	10	...	9	7	4	1
2	Fulham	Crystal Palace	0	2	A	0	1	A	15	10	...	11	5	5	1
3	Huddersfield	Chelsea	0	3	A	0	2	A	6	13	...	8	2	5	2
4	Newcastle	Tottenham	1	2	A	1	2	A	15	15	...	12	3	5	2

5 rows × 23 columns

In [ ]:
```
fdf.info()
```

In [6]:
```
#Létrehoztam egy győztes mezőt, hogy ne csak a FTR-ből lássam mi lett a meccs eredmé
fdf['Winner'] = ''
fdf.loc[(fdf['FTR'] == 'H'), 'Winner'] = fdf['HomeTeam']
fdf.loc[(fdf['FTR'] == 'D'), 'Winner'] = 'Draw'
fdf.loc[(fdf['FTR'] == 'A'), 'Winner'] = fdf['AwayTeam']
fdf.head(10)
```

Out[6]:

	HomeTeam	AwayTeam	FTHG	FTAG	FTR	HTHG	HTAG	HTR	HS	AS	...	HC	AC	HY	AY
0	Man United	Leicester	2	1	H	1	0	H	8	13	...	2	5	2	1
1	Bournemouth	Cardiff	2	0	H	1	0	H	12	10	...	7	4	1	1
2	Fulham	Crystal Palace	0	2	A	0	1	A	15	10	...	5	5	1	2
3	Huddersfield	Chelsea	0	3	A	0	2	A	6	13	...	2	5	2	1
4	Newcastle	Tottenham	1	2	A	1	2	A	15	15	...	3	5	2	2
5	Watford	Brighton	2	0	H	1	0	H	19	6	...	8	2	2	2
6	Wolves	Everton	2	2	D	1	1	D	11	6	...	3	6	0	1
7	Arsenal	Man City	0	2	A	0	1	A	9	17	...	2	9	2	2
8	Liverpool	West Ham	4	0	H	2	0	H	18	5	...	5	4	1	2
9	Southampton	Burnley	0	0	D	0	0	D	18	16	...	8	5	0	1

10 rows × 24 columns

In [7]:
```
#kigyűjtöttem a nyertes oddsokat
```

```
fdf['WOdds'] = ''
fdf.loc[(fdf['FTR'] == 'H'), 'WOdds'] = fdf['B365H'].astype('float')
fdf.loc[(fdf['FTR'] == 'D'), 'WOdds'] = fdf['B365D'].astype('float')
fdf.loc[(fdf['FTR'] == 'A'), 'WOdds'] = fdf['B365A'].astype('float')
fdf = fdf.astype({'WOdds':'float'})
fdf
```

Out[7]:

	HomeTeam	AwayTeam	FTHG	FTAG	FTR	HTHG	HTAG	HTR	HS	AS	...	AC	HY	AY
0	Man United	Leicester	2	1	H	1	0	H	8	13	...	5	2	1
1	Bournemouth	Cardiff	2	0	H	1	0	H	12	10	...	4	1	1
2	Fulham	Crystal Palace	0	2	A	0	1	A	15	10	...	5	1	2
3	Huddersfield	Chelsea	0	3	A	0	2	A	6	13	...	5	2	1
4	Newcastle	Tottenham	1	2	A	1	2	A	15	15	...	5	2	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
375	Liverpool	Wolves	2	0	H	1	0	H	13	7	...	1	0	2
376	Man United	Cardiff	0	2	A	0	1	A	26	13	...	2	3	3
377	Southampton	Huddersfield	1	1	D	1	0	H	10	10	...	3	0	1
378	Tottenham	Everton	2	2	D	1	0	H	11	17	...	4	0	2
379	Watford	West Ham	1	4	A	0	2	A	17	16	...	2	1	0

380 rows × 25 columns

In [8]:

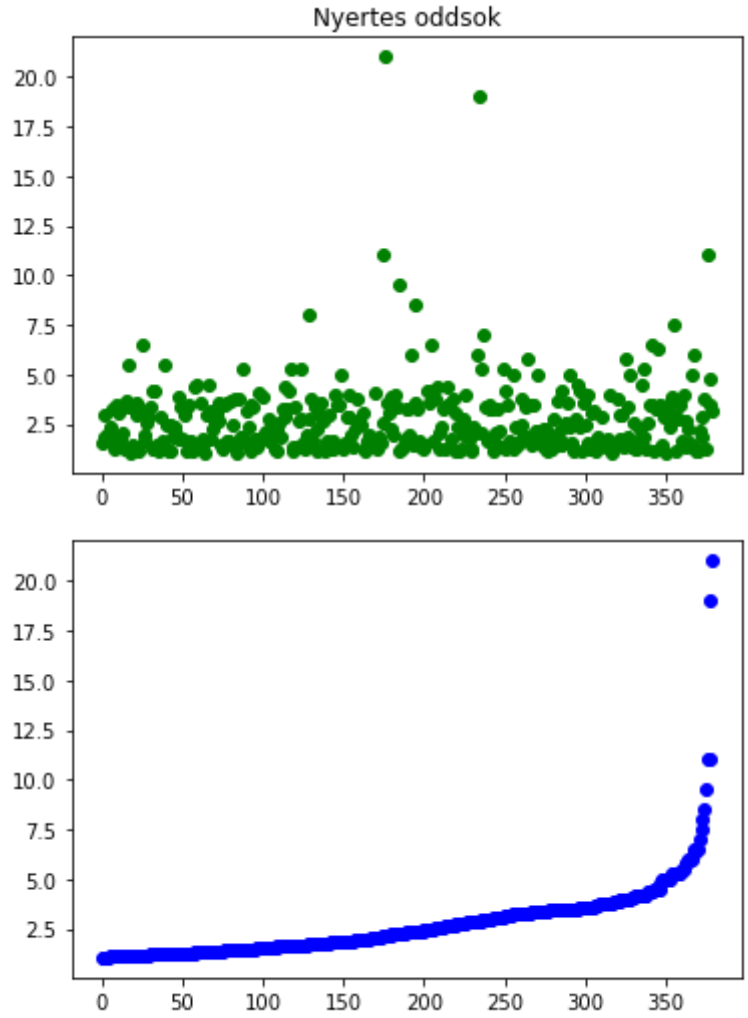
```
#Szemláltetésnek kirajzolom pontonként a nyertes oddsokat
#jól látható, hogy nagyon kevés nagy odds nyert
df = fdf['WOdds']

x = np.arange(380)
y = np.array(df)
z = np.sort(df)

plt.title("Nyertes oddsok")

plt.scatter(x, y, color="green")
plt.show()

plt.scatter(x,z,color="blue")
plt.show()
```



In [9]:

```
bigwin = len(fdf.loc[fdf['WOdds'] >= 10])
print("Mindössze", bigwin,"db 10-es vagy annál nagyobb odds nyert,")

decentwin = len(fdf.loc[(fdf['WOdds'] <= 10) & (fdf['WOdds'] >= 5)])
print("Viszont", decentwin,"db 5-ös és 10-es odds közti nyert.")

print("Végül a tutik:")
allfixwin = len(fdf.loc[fdf["B365H"] <= 1.5]) + len(fdf.loc[fdf["B365D"] <= 1.5]) +
fixwin = len(fdf.loc[fdf['WOdds'] <= 1.5])
notthatfixwin = allfixwin - fixwin

print("A(z)",allfixwin,"db 1,5 vagy azalatti szorzóból csak",fixwin,"db lett nyertes
```

```
Mindössze 4 db 10-es vagy annál nagyobb odds nyert,
Viszont 28 db 5-ös és 10-es odds közti nyert.
Végül a tutik:
A(z) 116 db 1,5 vagy azalatti szorzóból csak 96 db lett nyertes
```

In [10]:

```
#Legnagyobb egyszeres végeredményre tett fogadási nyereményt ez a meccs hozta, ha va
(fdf.sort_values(by='WOdds', ascending=False)).head(1)
```

Out[10]:

	HomeTeam	AwayTeam	FTHG	FTAG	FTR	HTHG	HTAG	HTR	HS	AS	...	AC	HY	AY	HI
176	Man City	Crystal Palace	2	3	A	1	2	A	19	5	...	0	0	4	(

1 rows × 25 columns

In [11]:
```
#Fulham össze meccse látható külön
fulham = fdf.loc[(fdf['HomeTeam'] == 'Fulham') | (fdf['AwayTeam'] == 'Fulham')]
fulham
```

Out[11]:

	HomeTeam	AwayTeam	FTHG	FTAG	FTR	HTHG	HTAG	HTR	HS	AS	...	AC	HY	AY
2	Fulham	Crystal Palace	0	2	A	0	1	A	15	10	...	5	1	2
14	Tottenham	Fulham	3	1	H	1	0	H	25	10	...	2	0	0
26	Fulham	Burnley	4	2	H	3	2	H	25	12	...	4	2	1
30	Brighton	Fulham	2	2	D	0	1	A	15	10	...	1	3	3
43	Man City	Fulham	3	0	H	2	0	H	28	9	...	4	0	0
54	Fulham	Watford	1	1	D	0	1	A	15	11	...	8	2	1
62	Everton	Fulham	3	0	H	0	0	D	19	6	...	1	0	3
77	Fulham	Arsenal	1	5	A	1	1	D	21	9	...	2	2	0
81	Cardiff	Fulham	4	2	H	2	2	D	22	9	...	4	3	3
91	Fulham	Bournemouth	0	3	A	0	1	A	11	12	...	5	2	1
109	Huddersfield	Fulham	1	0	H	1	0	H	10	7	...	4	1	2
118	Liverpool	Fulham	2	0	H	1	0	H	20	8	...	3	1	1
122	Fulham	Southampton	3	2	H	2	1	H	10	19	...	5	2	3
138	Chelsea	Fulham	2	0	H	1	0	H	16	9	...	6	2	1
146	Fulham	Leicester	1	1	D	1	0	H	25	13	...	8	0	0
156	Man United	Fulham	4	1	H	3	0	H	20	10	...	3	1	1
161	Fulham	West Ham	0	2	A	0	2	A	16	6	...	4	2	1
177	Newcastle	Fulham	0	0	D	0	0	D	9	4	...	0	1	2
183	Fulham	Wolves	1	1	D	0	0	D	11	14	...	0	2	1
191	Fulham	Huddersfield	1	0	H	0	0	D	14	9	...	3	3	1
200	Arsenal	Fulham	4	1	H	1	0	H	16	9	...	3	0	1
211	Burnley	Fulham	2	1	H	2	1	H	11	12	...	6	1	2
228	Fulham	Tottenham	1	2	A	1	0	H	12	14	...	10	2	3
231	Fulham	Brighton	4	2	H	0	2	A	24	15	...	1	2	3
244	Crystal Palace	Fulham	2	0	H	1	0	H	17	8	...	1	2	3
253	Fulham	Man United	0	3	A	0	2	A	15	15	...	4	3	2
262	West Ham	Fulham	3	1	H	2	1	H	21	8	...	0	1	1
278	Southampton	Fulham	2	0	H	2	0	H	14	14	...	4	0	1
287	Fulham	Chelsea	1	2	A	1	2	A	12	20	...	4	2	1
292	Leicester	Fulham	3	1	H	1	0	H	18	6	...	5	0	2
303	Fulham	Liverpool	1	2	A	0	1	A	7	16	...	10	2	1
307	Fulham	Man City	0	2	A	0	2	A	5	24	...	11	2	0
314	Watford	Fulham	4	1	H	1	1	D	15	17	...	4	3	2

	HomeTeam	AwayTeam	FTHG	FTAG	FTR	HTHG	HTAG	HTR	HS	AS	...	AC	HY	AY
328	Fulham	Everton	2	0	H	0	0	D	12	8	...	3	2	1
336	Bournemouth	Fulham	0	1	A	0	0	D	15	17	...	7	1	3
353	Fulham	Cardiff	1	0	H	0	0	D	8	13	...	3	0	0
365	Wolves	Fulham	1	0	H	0	0	D	19	6	...	1	1	3
373	Fulham	Newcastle	0	4	A	0	2	A	16	13	...	5	1	0

38 rows × 25 columns

In [16]:
```
#Fulham győzelmei, döntetlenjei,vereségei
record = len(fulham.loc[fulham['Winner'] == 'Fulham']),len(fulham.loc[fulham['Winner
print("A Fulham győzelmei, döntetlenjei, vereségei:",record)
```

```
A Fulham győzelmei, döntetlenjei, vereségei: (7, 5, 26)
```

In [17]:
```
#Fulham összesen ennyi pontot szerzett
points = len(fulham.loc[fulham['Winner'] == 'Fulham'])*3 + len(fulham.loc[fulham['Wi
print("A Fulham bajnoki pontjai:",points)
```

```
A Fulham bajnoki pontjai: 26
```

In [19]:
```
#2018-2019-es szezont a Manchester City nyerte
#Megnézem mennyi pénzt nyertem/vesztettem volna, ha minden meccsen arra fogadok, hog

city = fdf.loc[(fdf['HomeTeam'] == 'Man City') | (fdf['AwayTeam'] == 'Man City')]
city.insert(25,'Profit',-500)
city.loc[(city['Winner'] == 'Man City'), 'Profit'] = ((city['WOdds']*500)-500)
print("A profit:", sum(city['Profit']),"Ft")
```

```
A profit: 1375.0 Ft
```