In [140…

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import matplotlib.mlab as mlab
```

In [8]:

```
basketball_player_data = pd.read_csv('C:/Users/danie/OneDrive/DSC-640/week7_8/ex5-2/ppg
costcos_map_data = pd.read_csv('C:/Users/danie/OneDrive/DSC-640/week7_8/ex5-2/costcos-g
```

In [9]:

```
basketball_player_data.head()
```

Out[9]:

	Name	G	MIN	PTS	FGM	FGA	FGP	FTM	FTA	FTP	...	3PA	3PP	ORB	DRB	TRB	AS
0	Dwyane Wade	79	38.6	30.2	10.8	22.0	0.491	7.5	9.8	0.765	...	3.5	0.317	1.1	3.9	5.0	7.5
1	LeBron James	81	37.7	28.4	9.7	19.9	0.489	7.3	9.4	0.780	...	4.7	0.344	1.3	6.3	7.6	7.2
2	Kobe Bryant	82	36.2	26.8	9.8	20.9	0.467	5.9	6.9	0.856	...	4.1	0.351	1.1	4.1	5.2	4.9
3	Dirk Nowitzki	81	37.7	25.9	9.6	20.0	0.479	6.0	6.7	0.890	...	2.1	0.359	1.1	7.3	8.4	2.4
4	Danny Granger	67	36.2	25.8	8.5	19.1	0.447	6.0	6.9	0.878	...	6.7	0.404	0.7	4.4	5.1	2.7

5 rows × 21 columns

In [62]:

```
basketball_player_data.loc[:, 'Name  ']
```

Out[62]:

```
0           Dwyane Wade
1          LeBron James
2           Kobe Bryant
3         Dirk Nowitzki
4         Danny Granger
5          Kevin Durant
6          Kevin Martin
7          Al Jefferson
8            Chris Paul
9       Carmelo Anthony
10           Chris Bosh
11          Brandon Roy
12       Antawn Jamison
13          Tony Parker
14     Amare Stoudemire
15          Joe Johnson
16         Devin Harris
17         Michael Redd
18           David West
19     Zachary Randolph
20         Caron Butler
21         Vince Carter
```

```
22      Stephen Jackson
23           Ben Gordon
24        Dwight Howard
25          Paul Pierce
26        Al Harrington
27       Jamal Crawford
28            Yao Ming
29    Richard Jefferson
30          Jason Terry
31       Deron Williams
32           Tim Duncan
33          Monta Ellis
34             Rudy Gay
35            Pau Gasol
36       Andre Iguodala
37       Corey Maggette
38            O.J. Mayo
39         John Salmons
40     Richard Hamilton
41            Ray Allen
42    LaMarcus Aldridge
43          Josh Howard
44     Maurice Williams
45     Shaquille O'neal
46        Rashard Lewis
47     Chauncey Billups
48        Allen Iverson
49        Nate Robinson
Name: Name  , dtype: object
```

In [63]:
```
len(basketball_player_data.columns)
```

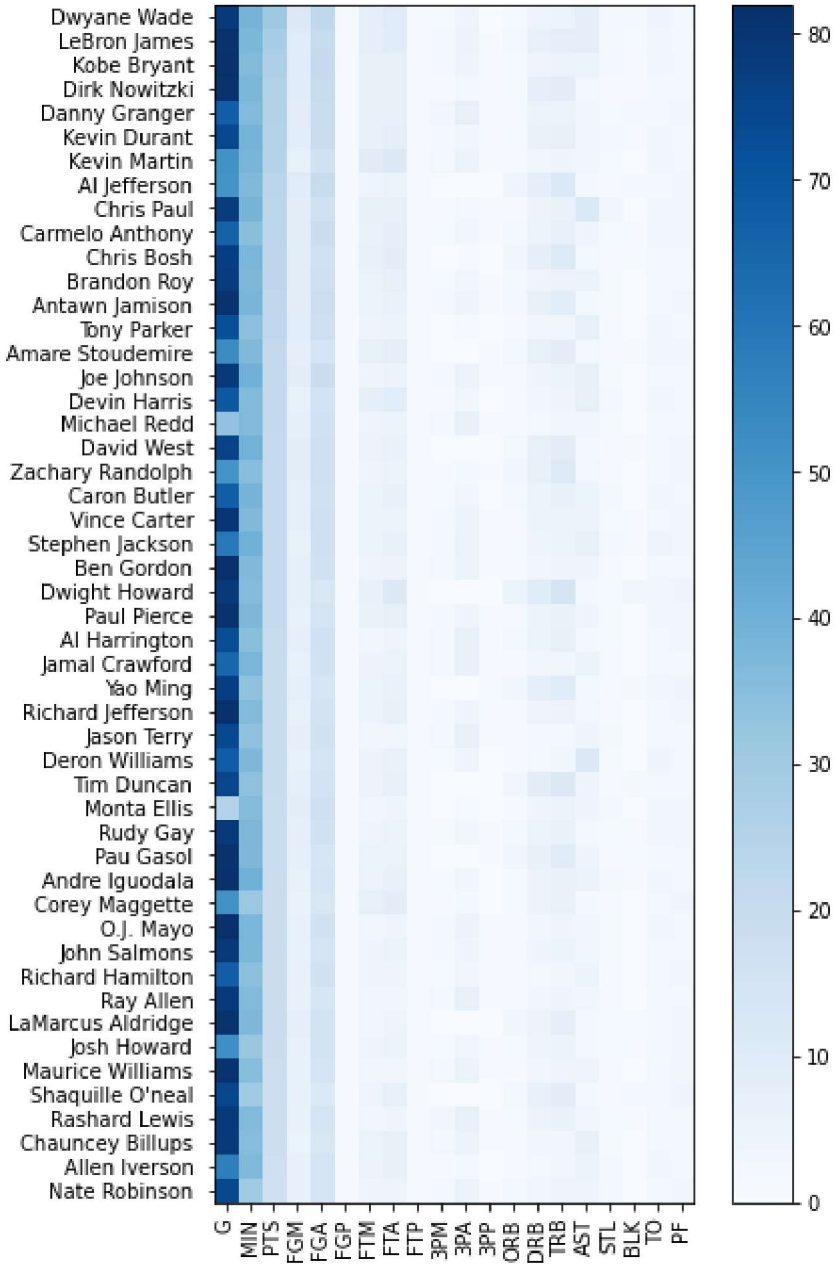
Out[63]:
```
21
```

In [64]:
```
len(basketball_player_data.loc[:, 'Name  '])
```

Out[64]:
```
50
```

In [66]:
```
plt.figure(figsize=(7, 11))

plt.yticks(np.arange(len(basketball_player_data.loc[:, 'Name  '])), labels = basketball
plt.xticks(np.arange(len(basketball_player_data.columns) - 1), labels = basketball_play
his = plt.imshow(basketball_player_data.loc[:, basketball_player_data.columns != 'Name
plt.colorbar(his)
```

Out[66]:
```
<matplotlib.colorbar.Colorbar at 0x1c40cae1970>
```



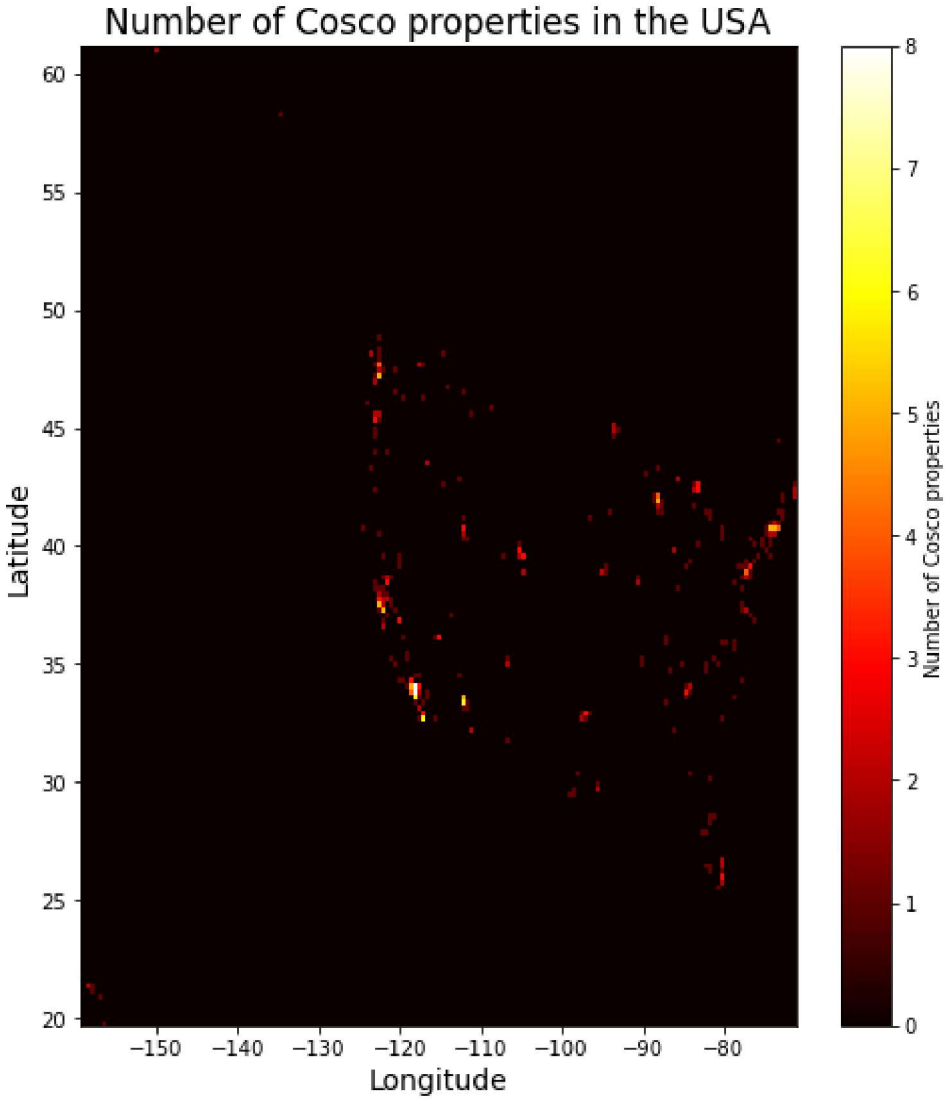
In [5]:
```
costcos_map_data.head()
```

Out[5]:

	Address	City	State	Zip Code	Latitude	Longitude
0	1205 N. Memorial Parkway	Huntsville	Alabama	35801-5930	34.743095	-86.600955
1	3650 Galleria Circle	Hoover	Alabama	35244-2346	33.377649	-86.812420
2	8251 Eastchase Parkway	Montgomery	Alabama	36117	32.363889	-86.150884
3	5225 Commercial Boulevard	Juneau	Alaska	99801-7210	58.359200	-134.483000
4	330 West Dimond Blvd	Anchorage	Alaska	99515-1950	61.143266	-149.884217

In [81]:
```
plt.figure(figsize = (8,9))
plt.hist2d(costcos_map_data.Longitude, costcos_map_data.Latitude, bins=180, cmap='hot')
plt.colorbar().set_label('Number of Cosco properties')
plt.xlabel('Longitude', fontsize=14)
```

```
plt.ylabel('Latitude', fontsize=14)
plt.title('Number of Cosco properties in the USA', fontsize=17)
plt.show()
```



In [106…

```
# Label encoding to simple integer

from sklearn.preprocessing import OrdinalEncoder

ord_enc = OrdinalEncoder()
costcos_map_data["enc"] = ord_enc.fit_transform(costcos_map_data[["State"]])
costcos_map_data[["State", "enc"]].head(11)
```

Out[106…

	State	enc
0	Alabama	0.0
1	Alabama	0.0
2	Alabama	0.0
3	Alaska	1.0
4	Alaska	1.0

	State	enc
5	Alaska	1.0
6	Arizona	2.0
7	Arizona	2.0
8	Arizona	2.0
9	Arizona	2.0
10	Arizona	2.0

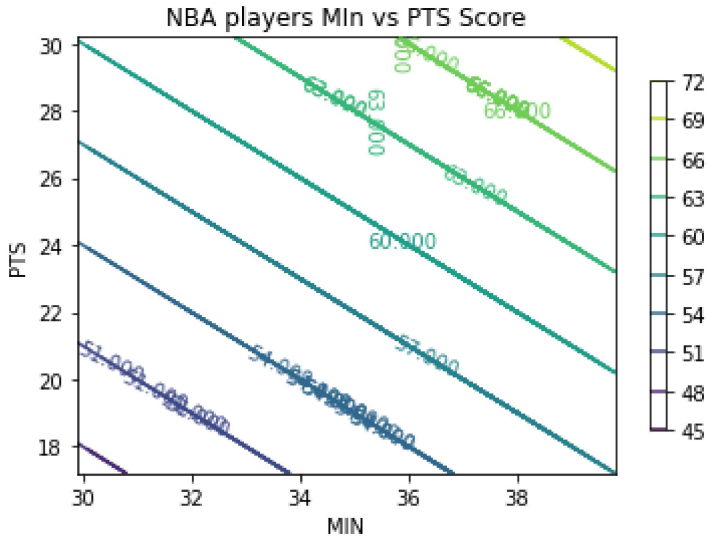
In [116…
```
X, Y = np.meshgrid(basketball_player_data['MIN'], basketball_player_data['PTS'])
```

In [142…
```
Z = X + Y
```

In [143…
```
CS = plt.contour(basketball_player_data['MIN'], basketball_player_data['PTS'], Z)

plt.title('NBA players MIn vs PTS Score')
plt.xlabel('MIN')
plt.ylabel('PTS')



plt.clabel(CS, inline=1, fontsize=10)
plt.colorbar(CS, shrink=0.8, extend='both')
```

```
<ipython-input-143-f984ee834bbb>:10: MatplotlibDeprecationWarning: The 'extend' parameter to Colorbar has no effect because it is overridden by the mappable; it is deprecated since 3.3 and will be removed two minor releases later.
  plt.colorbar(CS, shrink=0.8, extend='both')
```

Out[143…
```
<matplotlib.colorbar.Colorbar at 0x1c41a9a1940>
```



In [ ]:

In [ ]: