DSC640_Exercise4_2_Asumbaraju

July 25, 2021

[3]:
```
# import libraries
import pandas as pd
import matplotlib.pyplot as plt
import os
import conda

conda_file_dir = conda.__file__
conda_dir = conda_file_dir.split('lib')[0]
proj_lib = os.path.join(os.path.join(conda_dir, 'share'), 'proj')
os.environ["PROJ_LIB"] = proj_lib
from mpl_toolkits.basemap import Basemap
import numpy as np
import seaborn as sns
```

[5]:
```
#Load csv files
costco_df = pd.read_csv("C:\BU\DSC640\wk7-8\data/costcos-geocoded.csv")
ppg_df = pd.read_csv("C:\BU\DSC640\wk7-8\data/ppg2008.csv")
```

[6]:
```
costco_df.head()
```

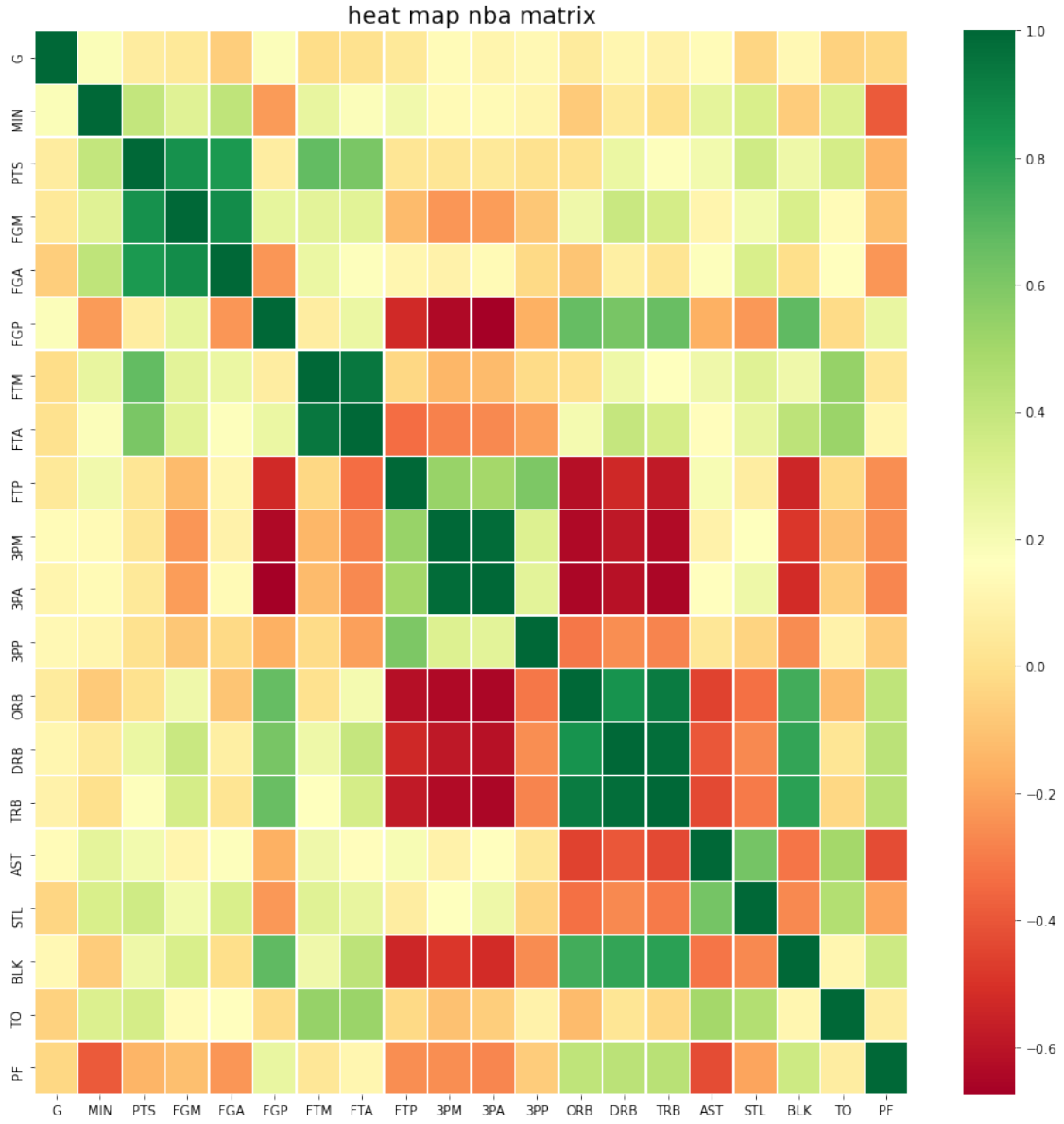
[6]:
```
                    Address        City    State    Zip Code   Latitude  \
0   1205 N. Memorial Parkway  Huntsville  Alabama  35801-5930  34.743095
1       3650 Galleria Circle      Hoover  Alabama  35244-2346  33.377649
2     8251 Eastchase Parkway  Montgomery  Alabama       36117  32.363889
3  5225 Commercial Boulevard      Juneau   Alaska  99801-7210  58.359200
4       330 West Dimond Blvd   Anchorage   Alaska  99515-1950  61.143266

    Longitude
0  -86.600955
1  -86.812420
2  -86.150884
3 -134.483000
4 -149.884217
```

[7]:
```
ppg_df.head()
```

[7]:
```
           Name     G   MIN   PTS   FGM   FGA    FGP  FTM  FTA    FTP  … \
0    Dwyane Wade   79  38.6  30.2  10.8  22.0  0.491  7.5  9.8  0.765  …
```

```
1   LeBron James   81  37.7  28.4   9.7  19.9  0.489  7.3  9.4  0.780  …
2    Kobe Bryant   82  36.2  26.8   9.8  20.9  0.467  5.9  6.9  0.856  …
3  Dirk Nowitzki   81  37.7  25.9   9.6  20.0  0.479  6.0  6.7  0.890  …
4  Danny Granger   67  36.2  25.8   8.5  19.1  0.447  6.0  6.9  0.878  …

   3PA    3PP  ORB  DRB  TRB  AST  STL  BLK   TO   PF
0  3.5  0.317  1.1  3.9  5.0  7.5  2.2  1.3  3.4  2.3
1  4.7  0.344  1.3  6.3  7.6  7.2  1.7  1.1  3.0  1.7
2  4.1  0.351  1.1  4.1  5.2  4.9  1.5  0.5  2.6  2.3
3  2.1  0.359  1.1  7.3  8.4  2.4  0.8  0.8  1.9  2.2
4  6.7  0.404  0.7  4.4  5.1  2.7  1.0  1.4  2.5  3.1

[5 rows x 21 columns]
```

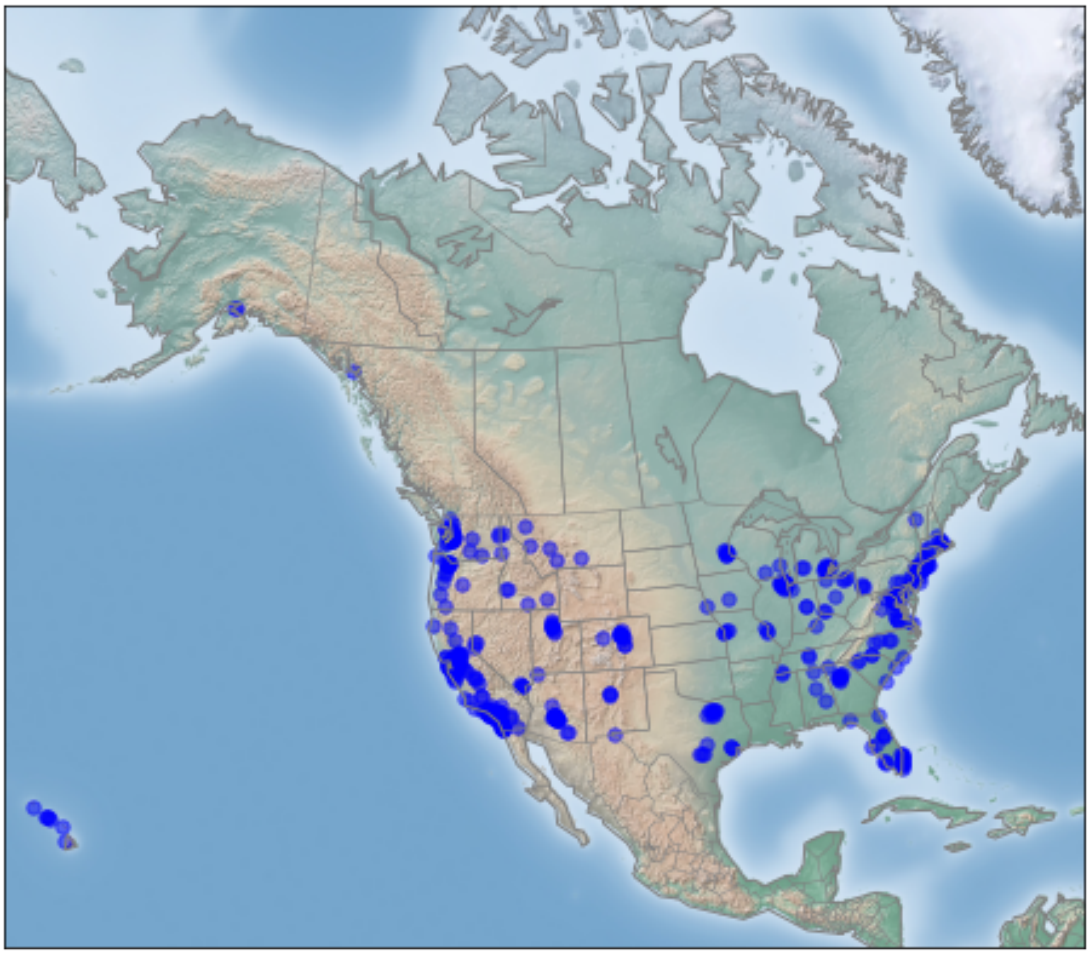
[8]:
```
# heat map
# reference: https://seaborn.pydata.org/generated/seaborn.heatmap.html
fig, ax = plt.subplots(figsize=(15,15))
title = "heat map nba matrix"
plt.title(title,fontsize=18)
ttl=ax.title
ttl.set_position([0.5,1.05])

sns.heatmap(ppg_df.corr(), annot=False,fmt="",cmap='RdYlGn',linewidths=0.
↪30,ax=ax)
plt.show()
```



[41]:
```
# spatial chart
fig = plt.figure(figsize=(8, 8))
lat = costco_df['Latitude'].values
lon = costco_df['Longitude'].values
m = Basemap(projection='lcc', resolution='c',
            llcrnrlat=10, urcrnrlat=70, llcrnrlon=-159,urcrnrlon=-30,lat_0=20,␣
 ↪lon_0=-119)
m.shadedrelief()
m.drawcoastlines(color='gray')
m.drawcountries(color='gray')
m.drawstates(color='gray')
```

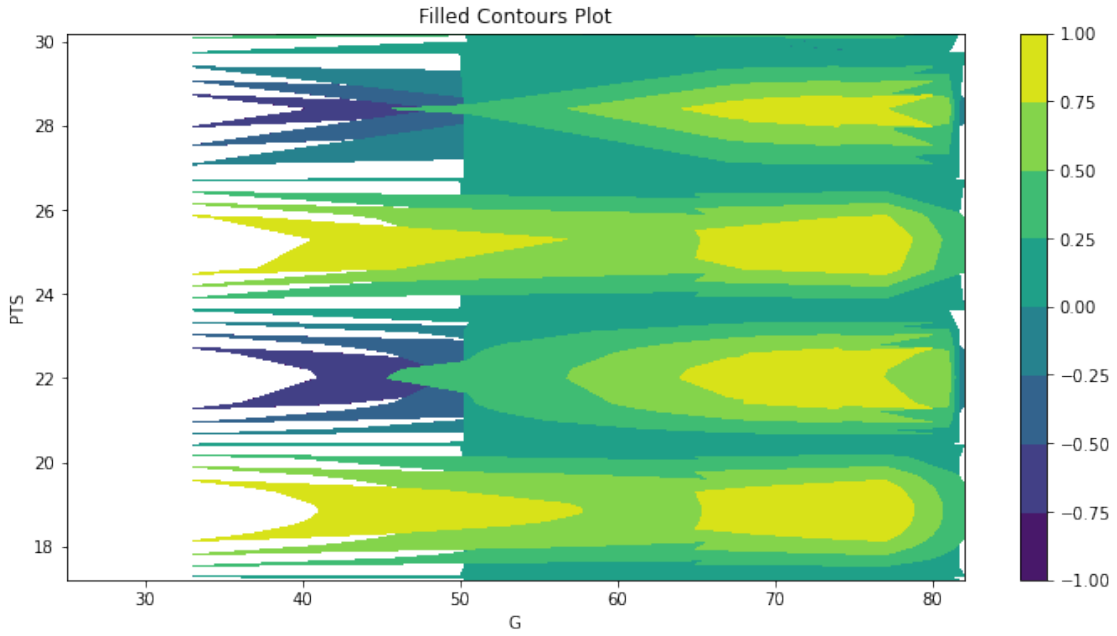
```
# scatter to plot Costco cities
m.scatter(lon, lat, latlon=True, c='b'
          , s=30,
          cmap='Reds', alpha=0.5)

plt.show()

# reference: https://jakevdp.github.io/PythonDataScienceHandbook/04.
 ↪13-geographic-data-with-basemap.html
```

```
Clipping input data to the valid range for imshow with RGB data ([0..1] for
floats or [0..255] for integers).
```



[65]:
```
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
```

```
[X,Y] = np.meshgrid(ppg_df['G'],ppg_df['PTS'])
Z = np.sin(X)*np.cos(Y)
fig,ax=plt.subplots(figsize=(12,6))
cp = ax.contourf(X, Y, Z)
fig.colorbar(cp) # Add a colorbar to a plot
ax.set_title('Filled Contours Plot')
ax.set_xlabel('G')
ax.set_ylabel('PTS')
plt.show()
# reference: https://problemsolvingwithpython.com/06-Plotting-with-Matplotlib/
 ↪06.14-Contour-Plots/
```



[ ]: