Muley_Tushar_Exercises_5-2_Charts_Python_Week_9_10

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Assignment: Week 9-10 Exercises 5.2

Date:November 07, 20121

[1]:
```
# import libraries

import pandas as pd
import numpy as np
import matplotlib
import matplotlib.pyplot as plt
import seaborn as sns
```

[2]:
```
# update settings

pd.set_option('display.max_columns', None)
```

[3]:
```
# load data

# first file
file1 = 'costcos-geocoded.xlsx'
costco = pd.read_excel(file1)
```

[4]:
```
costco.columns
```

[4]:
```
Index(['Address', 'City', 'State', 'Zip Code', 'Latitude', 'Longitude'],
dtype='object')
```

[4]:
```
# load data

# first file
file1 = 'ppg2008.xlsx'
bball = pd.read_excel(file1)
```

[5]:
```
#load data

df = pd.read_csv('Foreign_Exchange_Rates.csv',
                 usecols=[1,7], names=['DATE', 'CAD_USD'],
```

```
                    skiprows=1, index_col=0, parse_dates=[0])
```

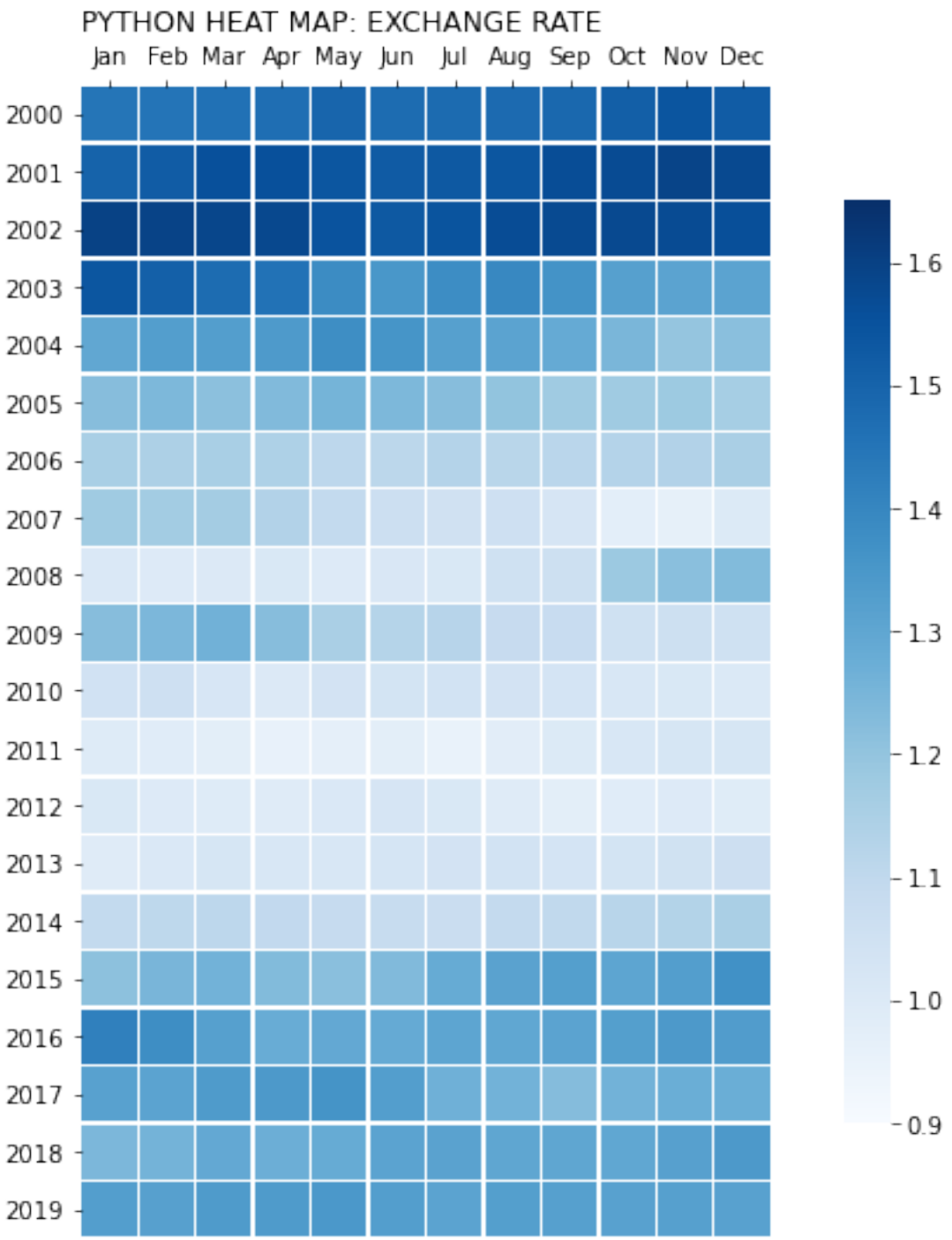
1 Heat Map

[22]:
```
df['CAD_USD'] = pd.to_numeric(df.CAD_USD, errors='coerce')
df.dropna(inplace=True)
```

[23]:
```
# create a copy of the dataframe, and add columns for month and year

df_m = df.copy()
df_m['month'] = [i.month for i in df_m.index]
df_m['year'] = [i.year for i in df_m.index]
# group by month and year, get the average
df_m = df_m.groupby(['month', 'year']).mean()
```

[24]:
```
df_m = df_m.unstack(level=0)
```

[26]:
```
# figure

fig, ax = plt.subplots(figsize=(11, 9))

# plot heatmap
sns.heatmap(df_m, cmap="Blues", vmin= 0.9, vmax=1.65, square=True,
            linewidth=0.3, cbar_kws={"shrink": .8})

# xticks
ax.xaxis.tick_top()
xticks_labels = ['Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun',
                 'Jul', 'Aug', 'Sep', 'Oct', 'Nov', 'Dec']
plt.xticks(np.arange(12) + .5, labels=xticks_labels)

# axis labels
plt.xlabel('')
plt.ylabel('')

# title
title = 'Python Heat Map: Exchange Rate'.upper()
plt.title(title, loc='left')
plt.show()
```

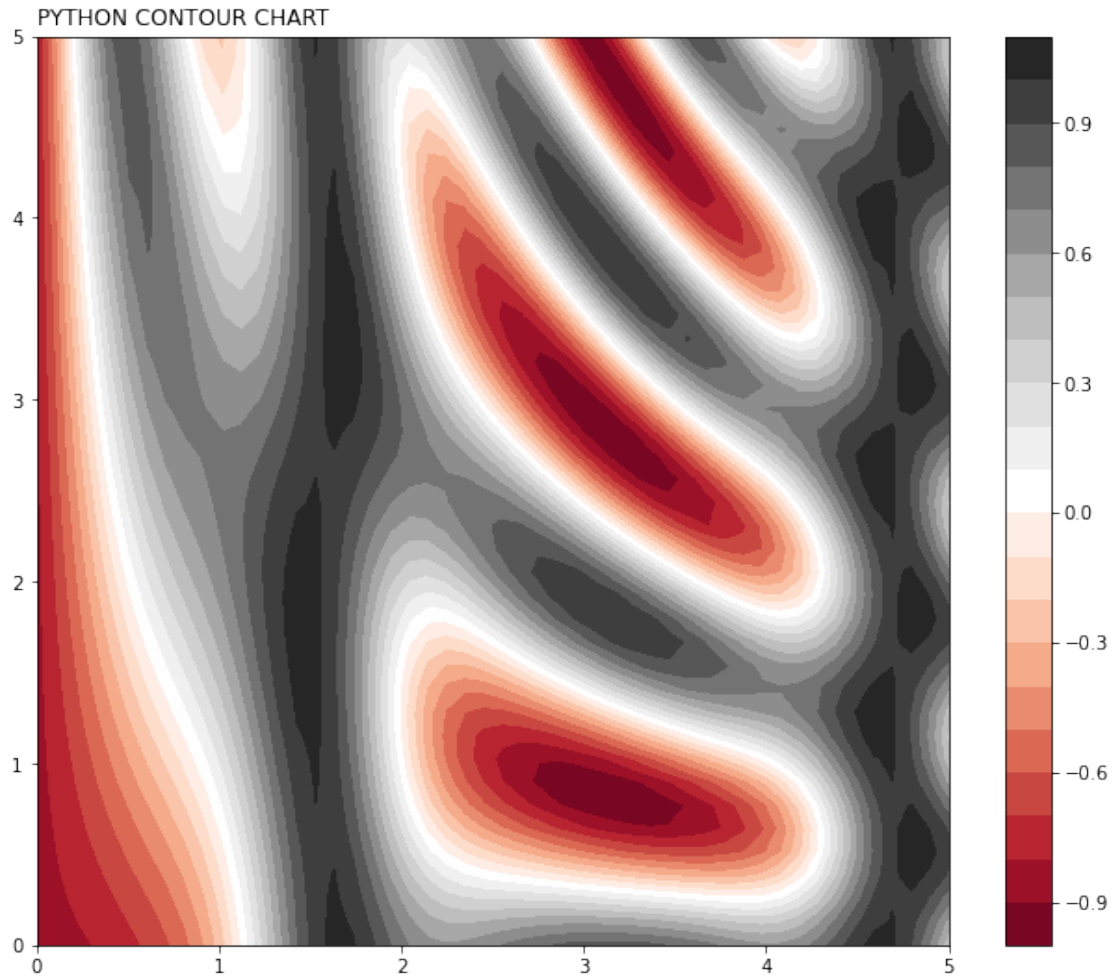

PYTHON HEAT MAP: EXCHANGE RATE
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9

2 Contour Chart

[27]:
```
# function to define the data

def f(x, y):
    return np.sin(x) ** 10 + np.cos(10 + y * x) * np.cos(x)
```

[28]:
```
# build the grid

x = np.linspace(0, 5, 50)
y = np.linspace(0, 5, 40)

X, Y = np.meshgrid(x, y)
Z = f(X, Y)
```

[31]:
```
# plot
fig, ax = plt.subplots(figsize=(11, 9))
plt.contourf(X, Y, Z, 20, cmap='RdGy')
plt.colorbar()

# title
title = 'Python Contour Chart'.upper()
plt.title(title, loc='left')
plt.show()
```



3 Spatial Chart

[5]:
```
import folium
```

[6]:
```
m=folium.Map(location=[28.644800, 77.216721])
m
```

[6]:
```
<folium.folium.Map at 0x234ac85e1f0>
```

[7]:
```
from branca.element import Figure
fig=Figure(width=550,height=350)
```

[8]:
```
m1=folium.Map(width=550,height=350,location=[28.644800, 77.
↪216721],zoom_start=11,min_zoom=8,max_zoom=14)
fig.add_child(m1)
m1
```

[8]:
```
<folium.folium.Map at 0x234ac861fd0>
```

[10]:
```
costco.head
```

[10]:
```
<bound method NDFrame.head of                          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
..                          …         …         …          …         …
412            19610 SE 1st St   Vancouver  Washington       98607  45.621299
413       10990 Harbor Hill Dr  Gig Harbor  Washington       98335  47.357748
414     27520 Covington Way SE   Covington  Washington       98042  47.354838
415            2150 Deming Way   Middleton   Wisconsin  53562-5507  43.100195
416     950 Port Washington Rd     Grafton   Wisconsin  53024-9201  43.324691

      Longitude
0    -86.600955
1    -86.812420
2    -86.150884
3   -134.483000
4   -149.884217
..          …
412 -122.459135
413 -122.603888
414 -122.121185
415  -89.522751
416  -87.921615

[417 rows x 6 columns]>
```

[25]:
```
map = folium.Map(location=[costco.Latitude.mean(), costco.Longitude.mean()],
                 zoom_start=4, control_scale=True)
```

[26]:
```
for index, location_info in costco.iterrows():
    folium.Marker([location_info["Latitude"], location_info["Longitude"]]).
 ↪add_to(map)

map
```

[26]:
```
<folium.folium.Map at 0x234ad05e9a0>
```