

You need to submit 3 bar charts, 3 stacked bar charts, 3 pie charts, and 3 donut charts using Tableau or PowerBI, Python and R using the data from the link below (the link will download a zipped folder containing three data files.) You may also use your own datasets if you wish. You can also submit using D3 if you choose – but it is not required. You can choose which library to use in Python or R, documentation is provided to help you decide and as you start to play around in the libraries, you will decide which you prefer.

## Exercise in Python

```
In [1]: import pandas as pd
from pandas import ExcelWriter
from pandas import ExcelFile
import matplotlib.pyplot as plt

# Import data to be used for visualization
obama = pd.read_excel('ex1-2/obama-approval-ratings.xls')

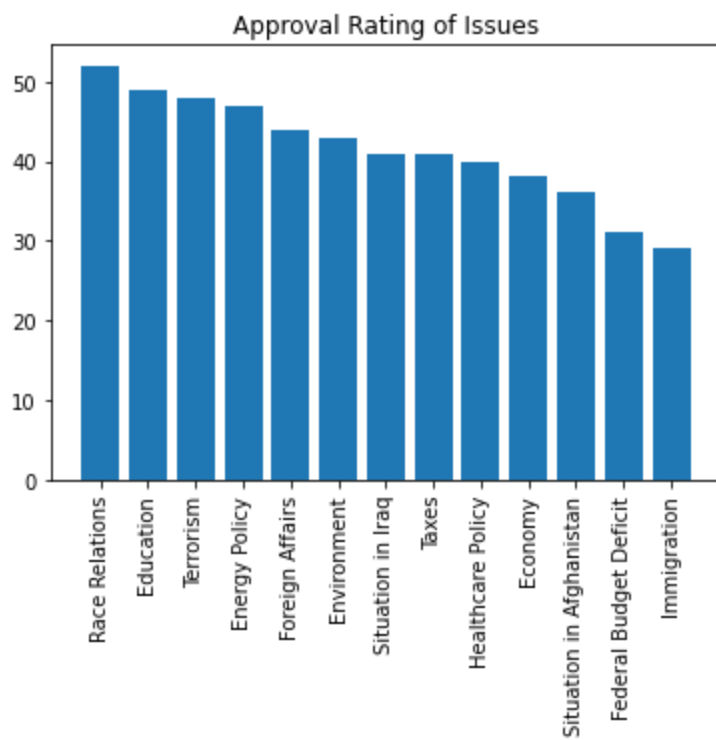
# Examine data
print(obama)
```

	Issue	Approve	Disapprove	None
0	Race Relations	52	38	10
1	Education	49	40	11
2	Terrorism	48	45	7
3	Energy Policy	47	42	11
4	Foreign Affairs	44	48	8
5	Environment	43	51	6
6	Situation in Iraq	41	53	6
7	Taxes	41	54	5
8	Healthcare Policy	40	57	3
9	Economy	38	59	3
10	Situation in Afghanistan	36	57	7
11	Federal Budget Deficit	31	64	5
12	Immigration	29	62	9

## Bar chart

Plot the issue in *x-axis* and any of the corresponding ratings in the *y-axis*. With approval ratings as the measure

```
In [2]: plt.bar(obama.Issue, obama.Approve)
plt.title('Approval Rating of Issues')
plt.xticks(rotation=90)
plt.show()
```



## Stacked Bar Chart

Plot each issue with their respective Approval, Disapproval and Neutral counts.

```
In [3]: obama.plot.bar(stacked=True)
```

```
Out[3]: <AxesSubplot:>
```



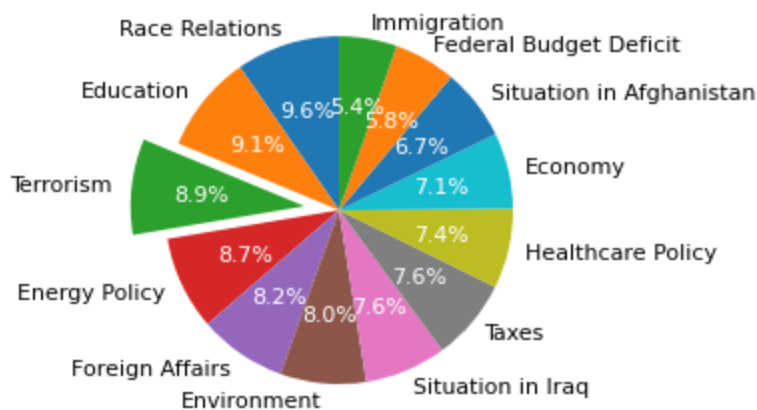
## Donut Chart

Plot the disapproval percentages for each issue and explode the Foreign Affairs and Taxes issue.

```
In [4]: # Create custom theme for graph
csfont = {'fontname': 'Century Gothic MS'}
plt.rcParams['font.size'] = 11
plt.rcParams['font.weight'] = 'normal'

# Create pie chart with custom explode
_, _ = plt.pie(obama.Approve, labels = obama.Issue,
               startangle=90, explode=(0,0,0.2,0,0,0,0,0,0,0,0,0,0),
               autopct = '%1.1f%%')

for autotext in autotexts:
    autotext.set_color('white')
```

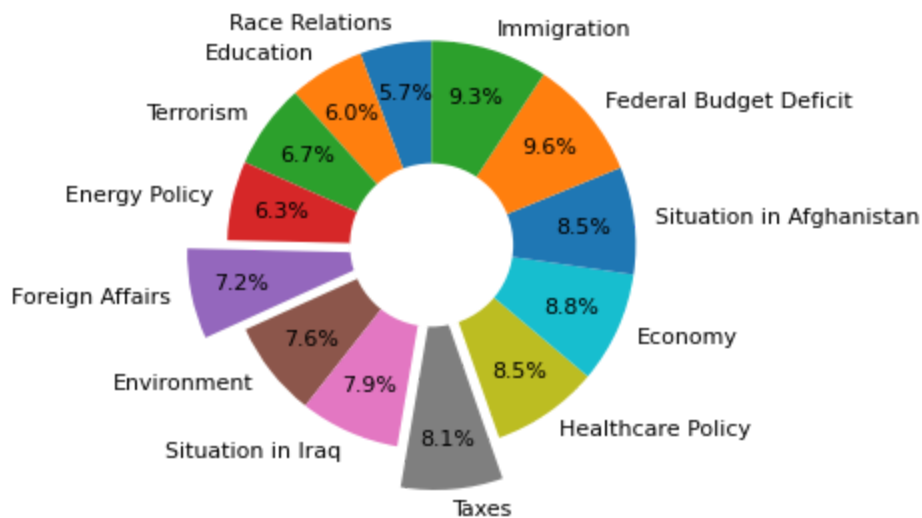


## Pie Chart

For pie chart demonstration, I would like to plot percentages for each issue of Obama dataset. I would also like to explode the third issue, i.e. Terrorism.

```
In [5]: # Create donut chart
plt.pie(obama.Disapprove, labels = obama.Issue, startangle=90,
        explode=(0,0,0,0,0.2,0,0,0.2,0,0,0,0), autopct = '%1.1f%%', pctdistance = 0.75)
centre_circle = plt.Circle((0,0), 0.40, fc = 'white')
fig = plt.gcf()
fig.gca().add_artist(centre_circle)

# Show compact plot
plt.tight_layout()
plt.show()
```



In [ ]: