DSC640_1.2Python

Kausik Chattapadhyay

Date: 06/11/2023

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.

Excercise in Python

In [57]:
```
# Importing the libraries
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('obama-approval-ratings.xls', sheet_name=0)

obama = obama.set_index('Issue')
# Examine data
obama.head(13)
```

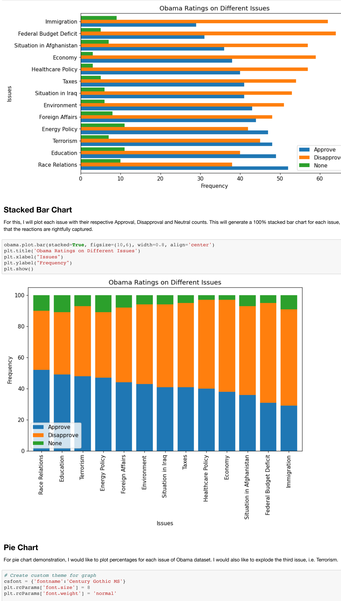
Out[57]:

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

Bar chart

Looks like we can plot the issue in y-axis and any of the corresponding ratings in the x-axis. I am chosing the approval/Disapproval/None ratings as the measure

In [58]:
```
obama.plot.barh(figsize=(10,5), width=0.9, align='center')
plt.title('Obama Ratings on Different Issues')
plt.ylabel('Issues')
plt.xlabel('Frequency')
plt.show()
```



Stacked Bar Chart

For this, I will plot each issue with their respective Approval, Disapproval and Neutral counts. This will generate a 100% stacked bar chart for each issue, so that the reactions are rightfully captured.

In [59]:
```
obama.plot.bar(stacked=True, figsize=(10,5), width=0.9, align='center')
plt.title('Obama Ratings on Different Issues')
plt.xlabel('Issue')
plt.ylabel('Frequency')
plt.show()
```

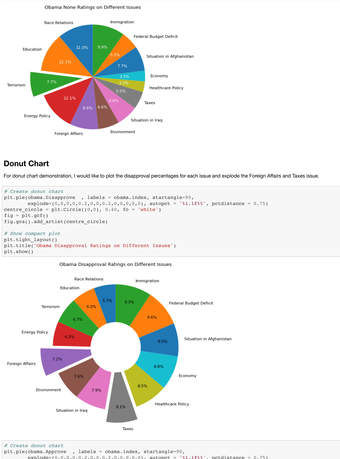

Pie Chart

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 [60]:
```
# Create custom theme for graph
csfont = {'fontname':'Century Gothic MS'}
plt.rcParams['font.size'] = 9
plt.rcParams['font.weight'] = 'normal'

# Create pie chart with custom explode
_, _, autotexts = plt.pie(obama.Approve, labels = obama.index,
                          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')

plt.title('Obama Approval Ratings on Different Issues')
plt.show()
```


In [69]:
```
# Create custom theme for graph
csfont = {'fontname':'Century Gothic MS'}
plt.rcParams['font.size'] = 9
plt.rcParams['font.weight'] = 'normal'

# Create pie chart with custom explode
_, _, autotexts = plt.pie(obama.Disapprove, labels = obama.index,
                          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')

plt.title('Obama Disapproval Ratings on Different Issues')
plt.show()
```

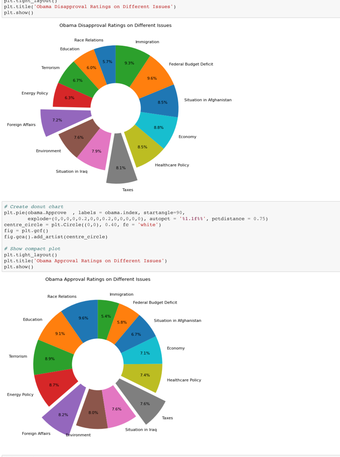

In [70]:
```
# Create custom theme for graph
csfont = {'fontname':'Century Gothic MS'}
plt.rcParams['font.size'] = 9
plt.rcParams['font.weight'] = 'normal'

# Create pie chart with custom explode
_, _, autotexts = plt.pie(obama['None'], labels = obama.index,
                          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')

plt.title('Obama None Ratings on Different Issues')
plt.show()
```



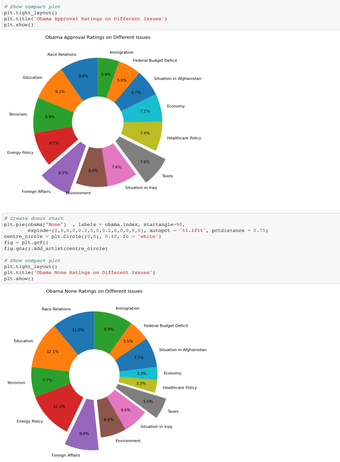
Donut Chart

For donut chart demonstration, I would like to plot the disapproval percentages for each issue and explode the Foreign Affairs and Taxes issue.

In [74]:
```
# Create donut chart
plt.pie(obama.Disapprove , labels = obama.index, startangle=90,
        explode=(0,0,0,0,0.2,0,0.2,0,0,0,0,0,0), autopct = '%1.1f%%', pctdistance = 0.75)
centre_circle = plt.Circle((0,0), 0.60, fc = 'white')
fig = plt.gcf()
fig.gca().add_artist(centre_circle)

# Show compact plot
plt.tight_layout()
plt.title('Obama Disapproval Ratings on Different Issues')
plt.show()
```



In [75]:
```
# Create donut chart
plt.pie(obama.Approve , labels = obama.index, startangle=90,
        explode=(0,0,0,0,0.2,0,0.2,0,0,0,0,0,0), autopct = '%1.1f%%', pctdistance = 0.75)
centre_circle = plt.Circle((0,0), 0.60, fc = 'white')
fig = plt.gcf()
fig.gca().add_artist(centre_circle)

# Show compact plot
plt.tight_layout()
plt.title('Obama Approval Ratings on Different Issues')
plt.show()
```



In [76]:
```
# Create donut chart
plt.pie(obama['None'] , labels = obama.index, startangle=90,
        explode=(0,0,0,0,0.2,0,0.2,0,0,0,0,0,0), autopct = '%1.1f%%', pctdistance = 0.75)
centre_circle = plt.Circle((0,0), 0.60, fc = 'white')
fig = plt.gcf()
fig.gca().add_artist(centre_circle)

# Show compact plot
plt.tight_layout()
plt.title('Obama None Ratings on Different Issues')
plt.show()
```


In [ ]:
```

```