# DSC640 - Week 1 & 2

# Anuj Tanwar

## Assignment 1.2

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.

In [1]:
```python
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', 0)

# Examine data
print(obama)
```
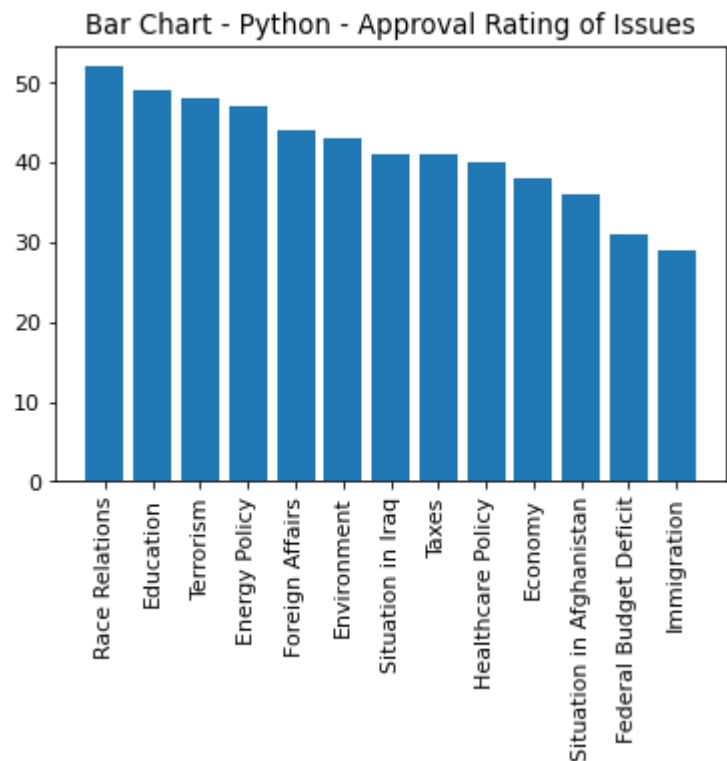
|    | Issue | Approve | Disapprove | None |
|----|-------|---------|------------|------|
| 0  | Race Relations | 52 | 38 | 10 |
| 1  | Education | 49 | 40 | 11 |
| 2  | Terrorism | 48 | 45 | 7 |
| 3  | Energy Policy | 47 | 42 | 11 |
| 4  | Foreign Affairs | 44 | 48 | 8 |
| 5  | Environment | 43 | 51 | 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**

Looks like we can plot the issue in *x-axis* and any of the corresponding ratings in the *y-axis*. I am chosing the approval ratings as the measure

In [8]:
```python
plt.bar(obama.Issue, obama.Approve)
plt.title('Bar Chart - Python - Approval Rating of Issues')
plt.xticks(rotation=90)
plt.show()
```
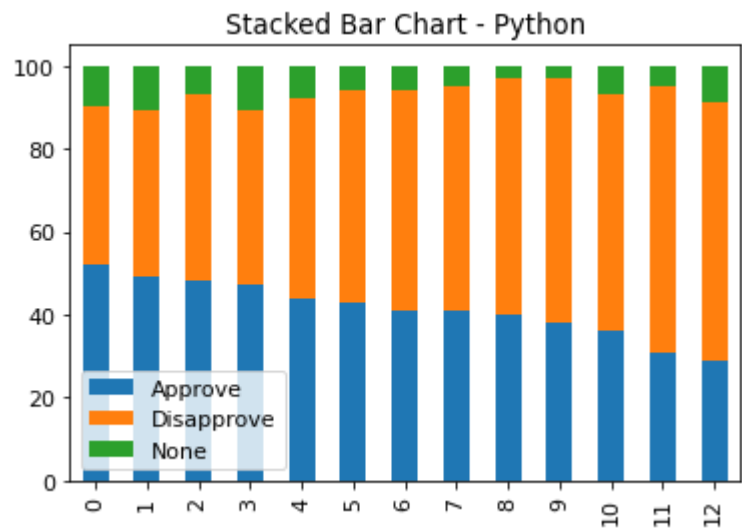
## Stacked Bar Chart

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 [13]:
```python
obama.plot.bar(stacked=True,title='Stacked Bar Chart - Python')
```

Out[13]:  `<AxesSubplot:title={'center':'Stacked Bar Chart - Python'}>`



## 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.
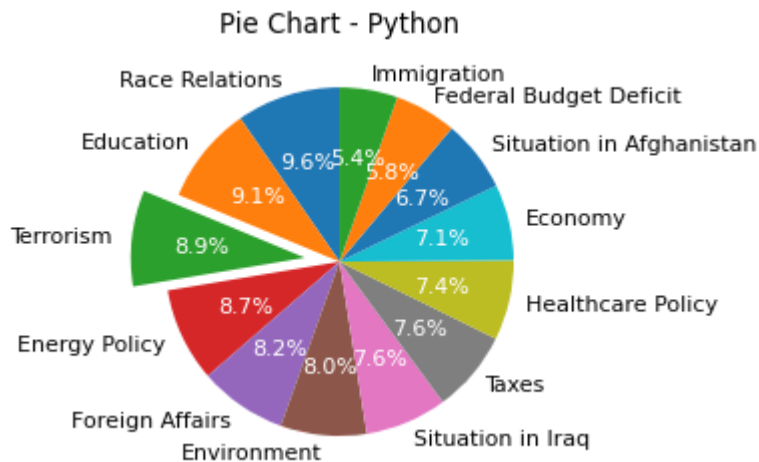
In [14]:
```python
# Create custom theme for graph
```

```python
csfont = {'fontname':'Century Gothic MS'}
plt.rcParams['font.size'] = 11
plt.rcParams['font.weight'] = 'normal'
plt.title("Pie Chart - Python")

# Create pie chart with custom explode
_, _, autotexts = 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 - Python

## 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 [15]:
```python
# Create donut chart
plt.pie(obama.Disapprove  , labels = obama.Issue, startangle=90,
        explode=(0,0,0,0,0.2,0,0,0.2,0,0,0,0,0), autopct = '%1.1f%%', pctdistance = 0.7
centre_circle = plt.Circle((0,0), 0.40, fc = 'white')
plt.title("Donut Chart - Python")
fig = plt.gcf()
fig.gca().add_artist(centre_circle)

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

## Donut Chart - Python