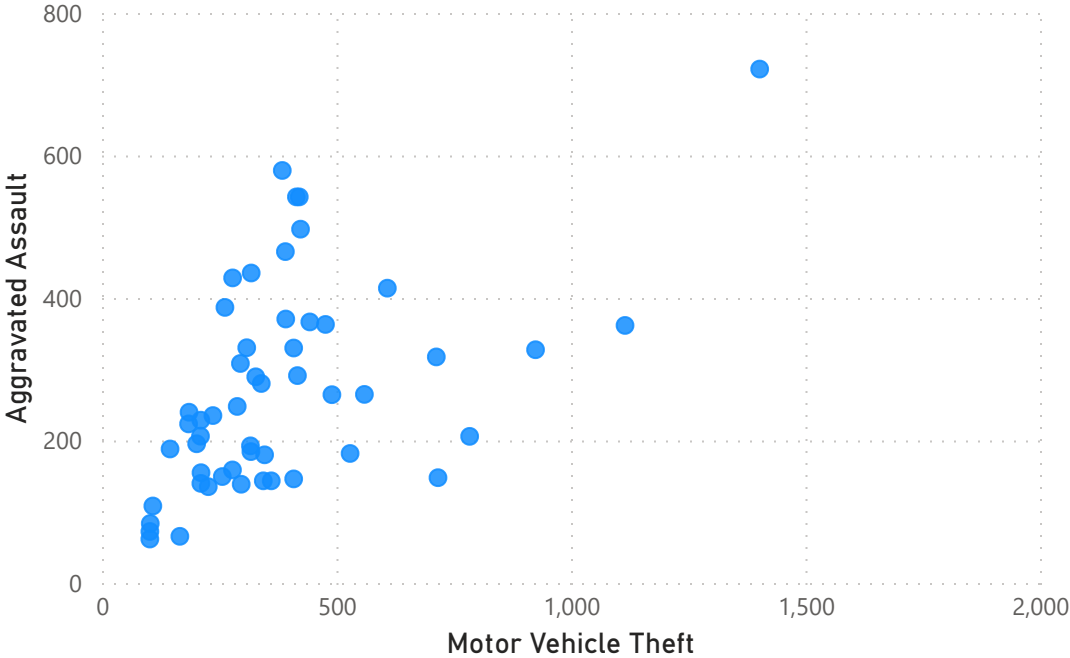


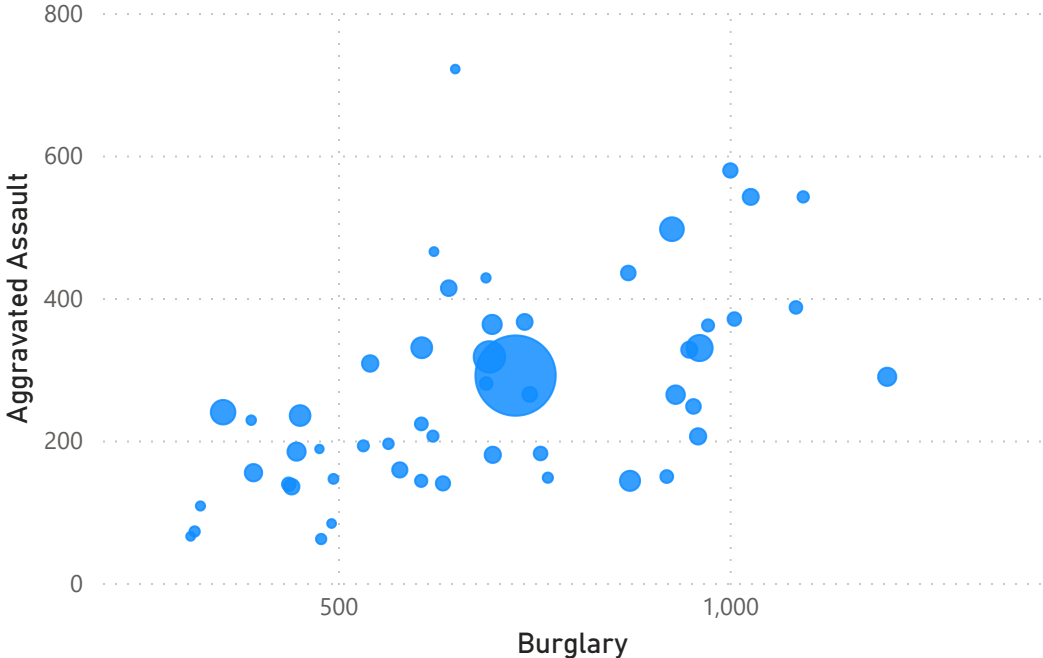
Power BI - Scatterplots

Motor Vehicle Theft vs. Aggravated Assault



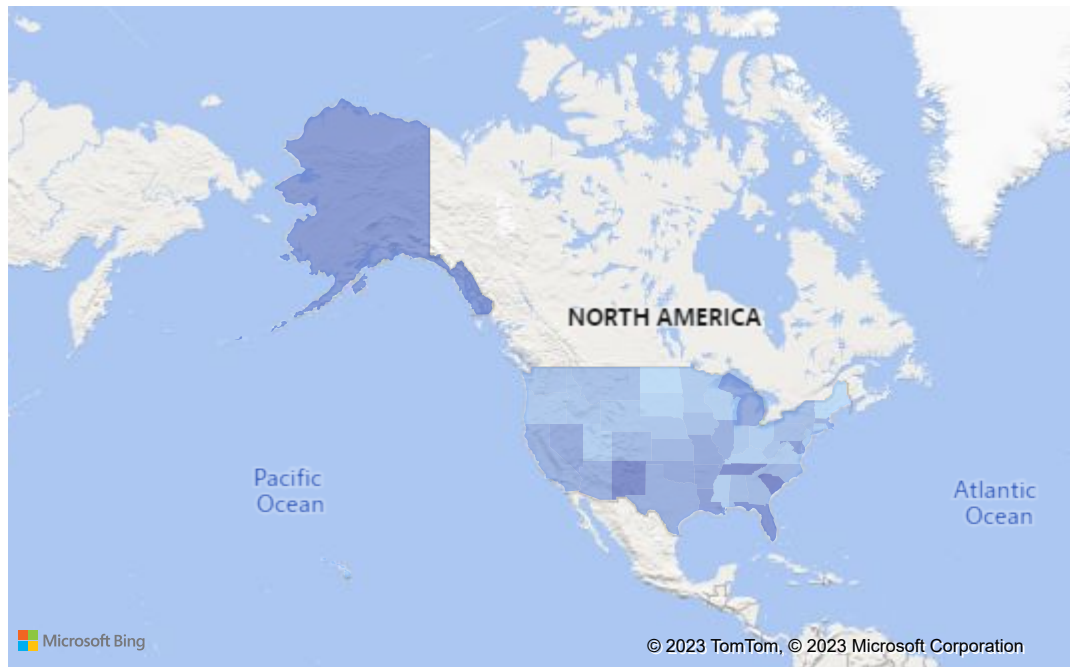
Power BI - Bubble Charts

Aggravated Assault, Burglary, and Population



Power BI - Density Map

Aggravated Assault by State



Campbell640Week7-8

October 10, 2023

```
[1]: # Load libraries
import pandas as pd
import numpy as np
# import data visualization libraries
import seaborn as sns
import matplotlib.pyplot as plt
```

```
[3]: crime_rates = pd.read_csv('data sources/ex4-2/crimerates-by-state-2005.csv')
```

```
[4]: crime_rates.shape
```

```
[4]: (52, 9)
```

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

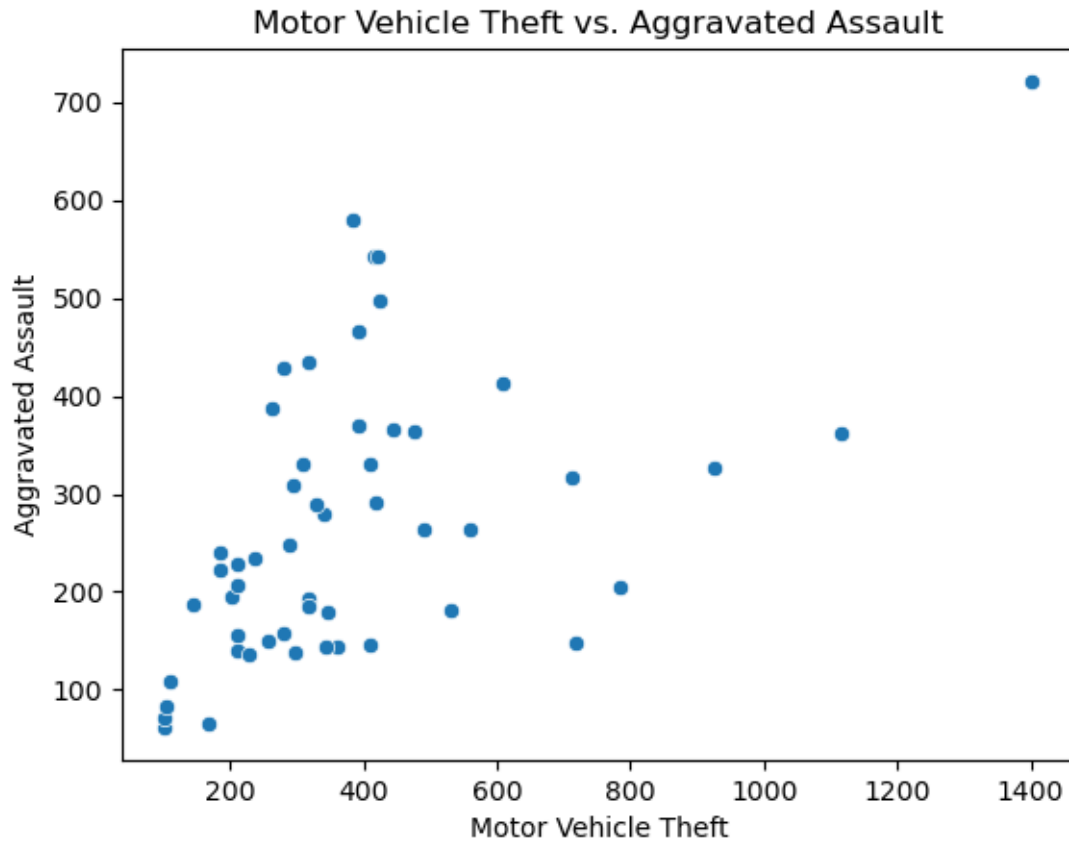
```
[7]:
```

	state	murder	forcible_rape	robbery	aggravated_assault	\
0	United States	5.6	31.7	140.7	291.1	
1	Alabama	8.2	34.3	141.4	247.8	
2	Alaska	4.8	81.1	80.9	465.1	
3	Arizona	7.5	33.8	144.4	327.4	
4	Arkansas	6.7	42.9	91.1	386.8	

	burglary	larceny_theft	motor_vehicle_theft	population
0	726.7	2286.3	416.7	295753151
1	953.8	2650.0	288.3	4545049
2	622.5	2599.1	391.0	669488
3	948.4	2965.2	924.4	5974834
4	1084.6	2711.2	262.1	2776221

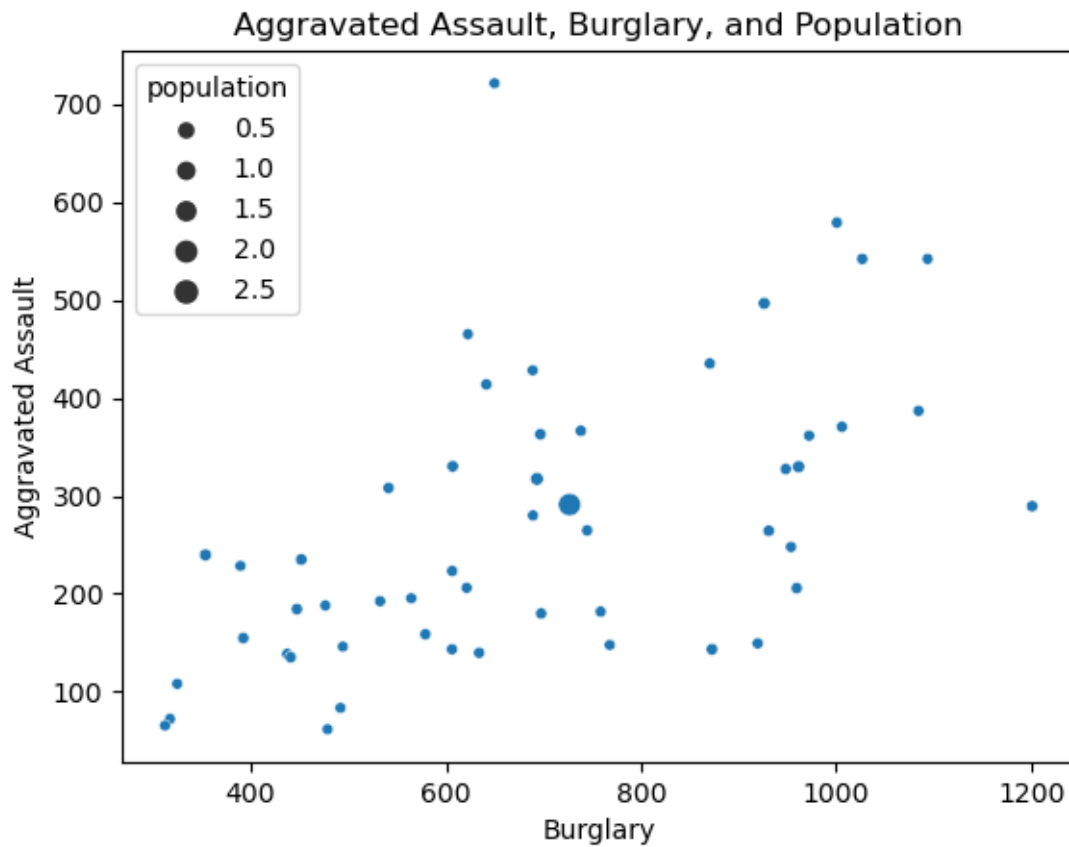
1 Python - Scatterplot

```
[8]: sns.scatterplot(data=crime_rates, x="motor_vehicle_theft", y="aggravated_assault")
plt.title("Motor Vehicle Theft vs. Aggravated Assault")
plt.xlabel("Motor Vehicle Theft")
plt.ylabel("Aggravated Assault")
plt.show()
```



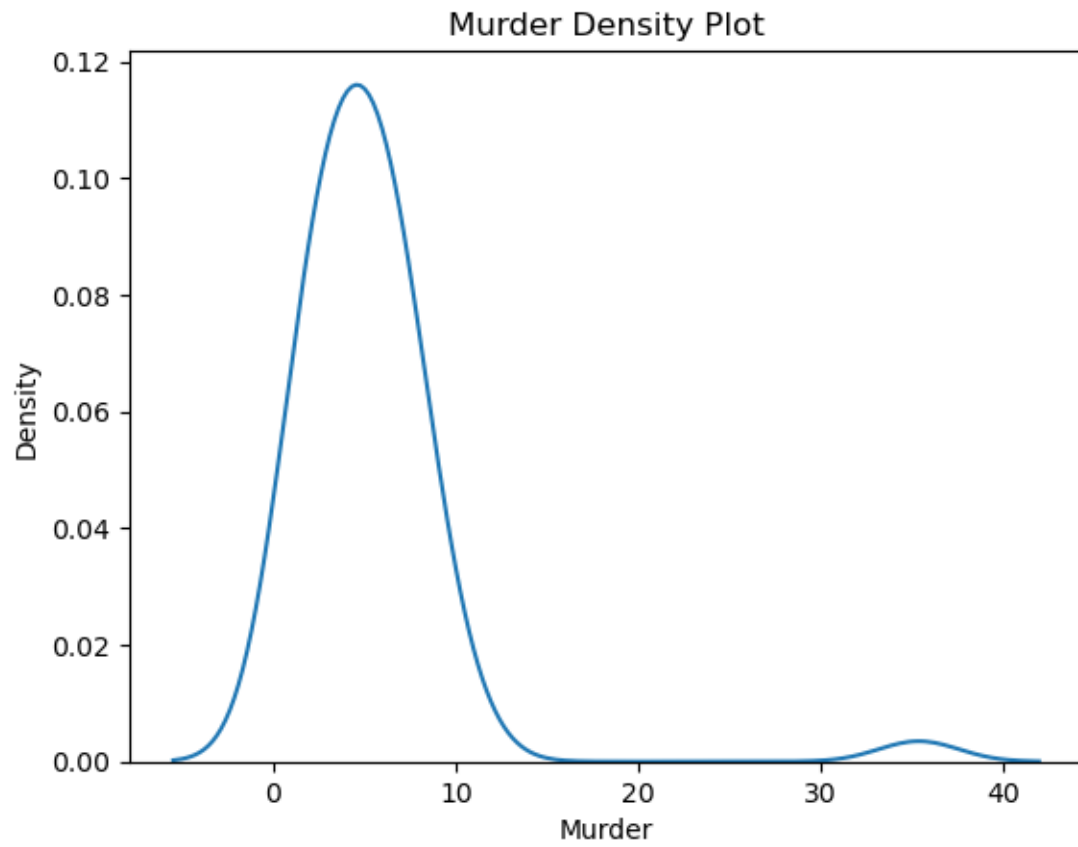
2 Python - Bubble Charts

```
[13]: sns.scatterplot(data=crime_rates, x="burglary", y="aggravated_assault",  
    ↪size="population")  
plt.title("Aggravated Assault, Burglary, and Population")  
plt.xlabel("Burglary")  
plt.ylabel("Aggravated Assault")  
plt.show()
```



3 Python - Density Plot

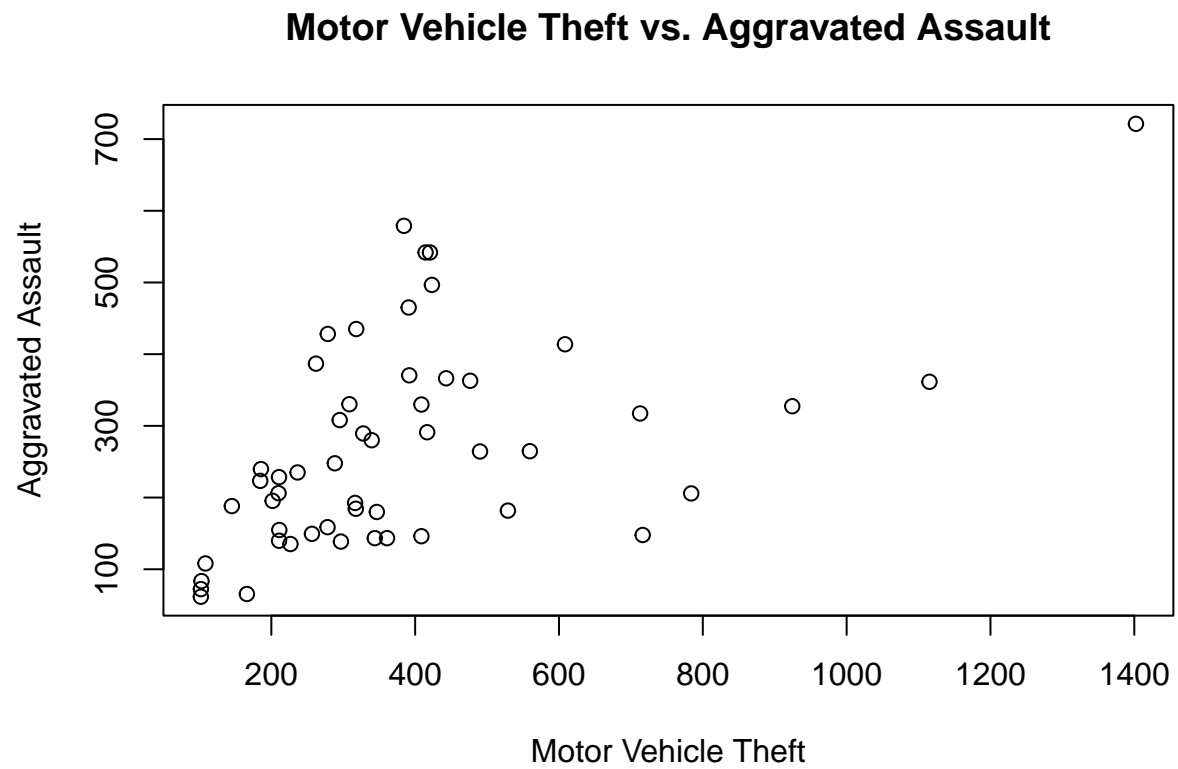
```
[17]: sns.kdeplot(data=crime_rates, x="murder")  
plt.title("Murder Density Plot")  
plt.xlabel("Murder")  
plt.show()
```



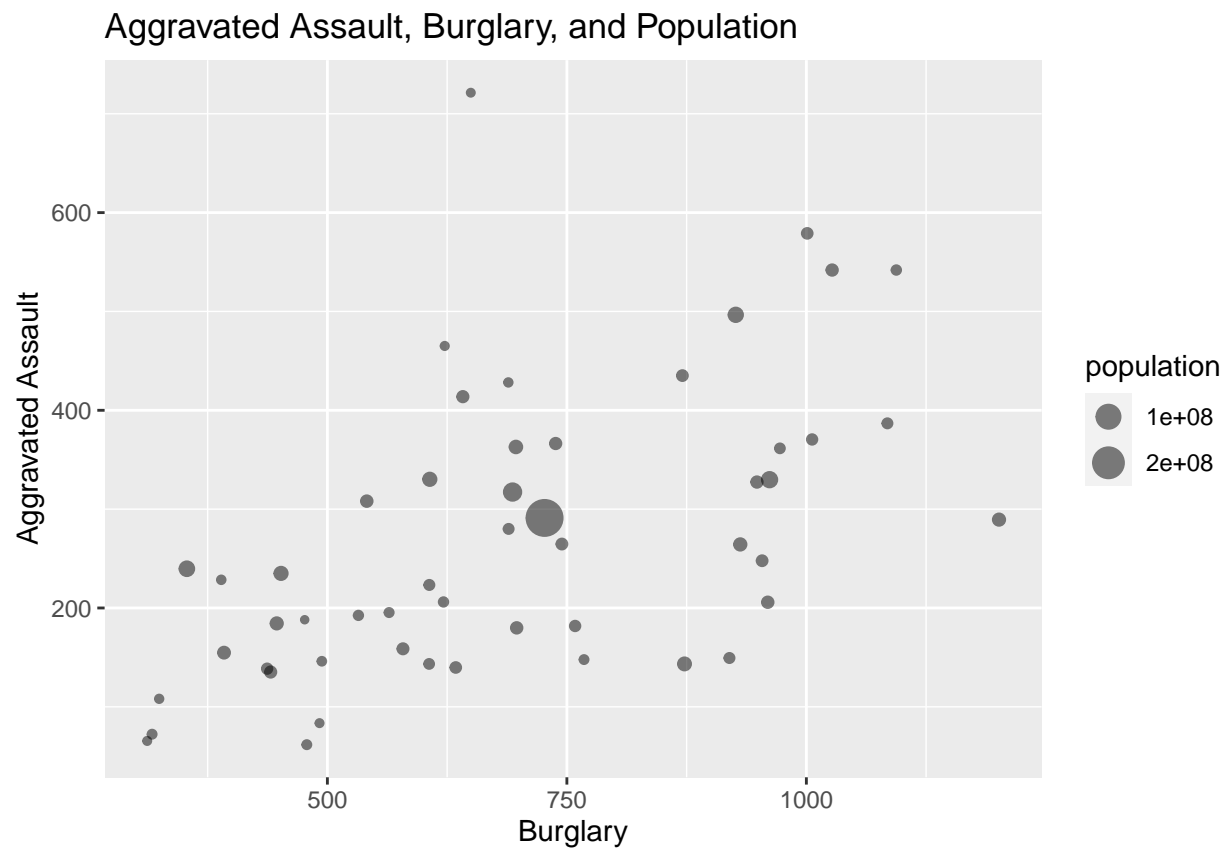
Campbell640Week7-8

2023-10-10

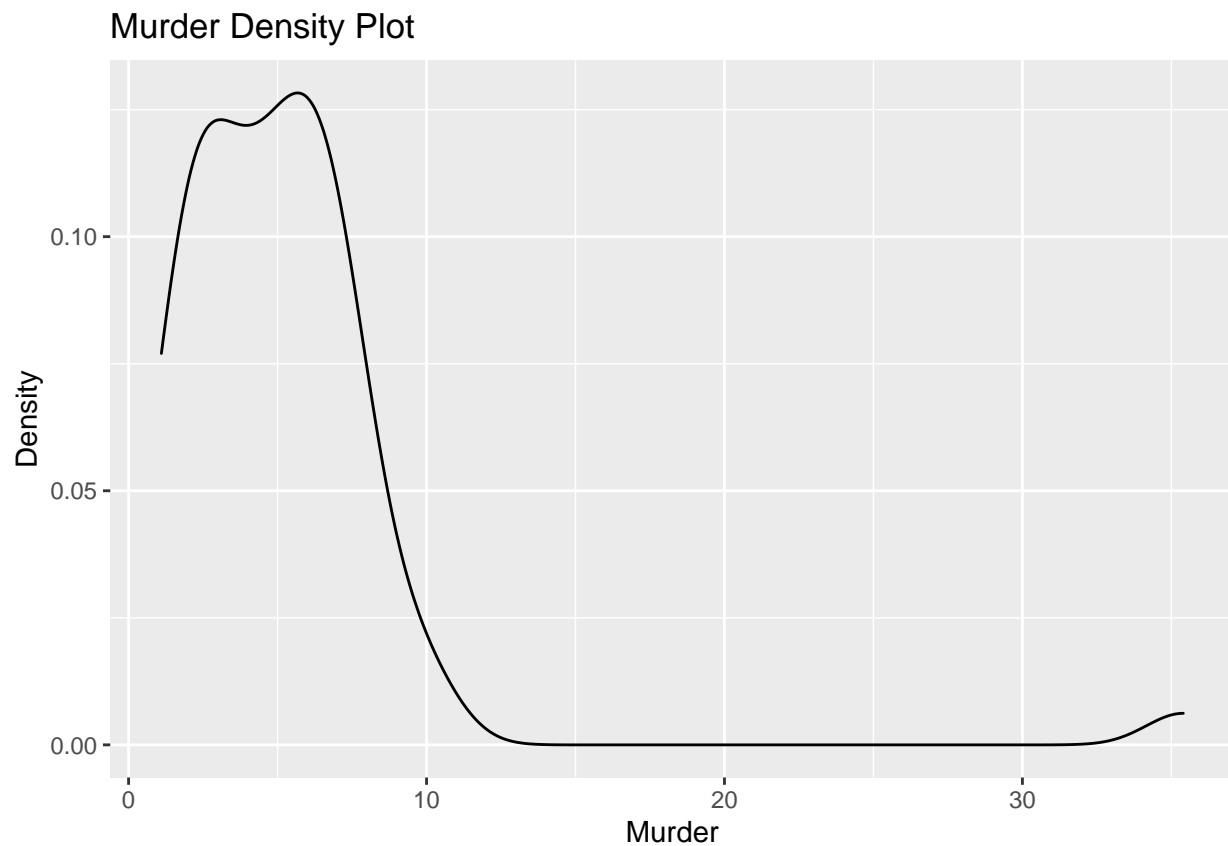
R - Scatterplot



R - Bubblechart



R - Density Plot



Code Repository

```
## Set the working directory to the root of your DSC 640 directory
setwd("C:/Users/jcamp/Documents/DSC640/Assignments/data sources/ex4-2")

# Load libraries
library(ggplot2)

# Load file
crimerates_df <- read.csv("crimerates-by-state-2005.csv")
# Scatterplot
plot(x=crimerates_df$motor_vehicle_theft, y=crimerates_df$aggravated_assault,
     xlab = "Motor Vehicle Theft",
     ylab = "Aggravated Assault",
     main = "Motor Vehicle Theft vs. Aggravated Assault")
# Bubblechart
ggplot(crimerates_df, aes(x=burglary, y=aggravated_assault, size=population)) +
  geom_point(alpha=0.5) +
  ggtitle("Aggravated Assault, Burglary, and Population") +
  xlab("Burglary") +
  ylab("Aggravated Assault")
# Density Plot
ggplot(crimerates_df, aes(x=murder)) +
  geom_density() +
```

```
ggtitle("Murder Density Plot") +  
xlab("Murder") +  
ylab("Density")
```