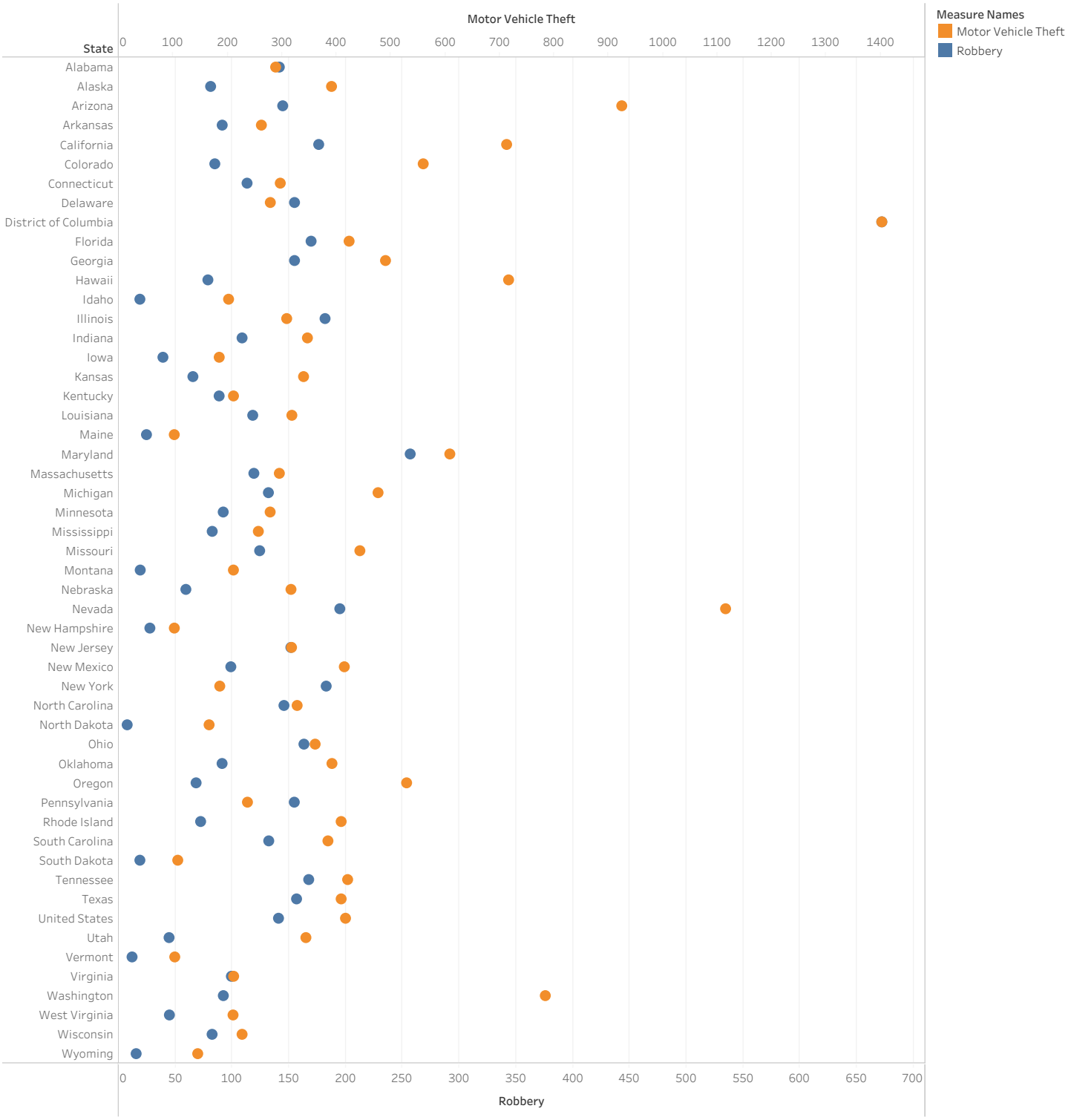
Scatter, Bubble, and Density Plots
Weeks 7 + 8

DSC 640-T301

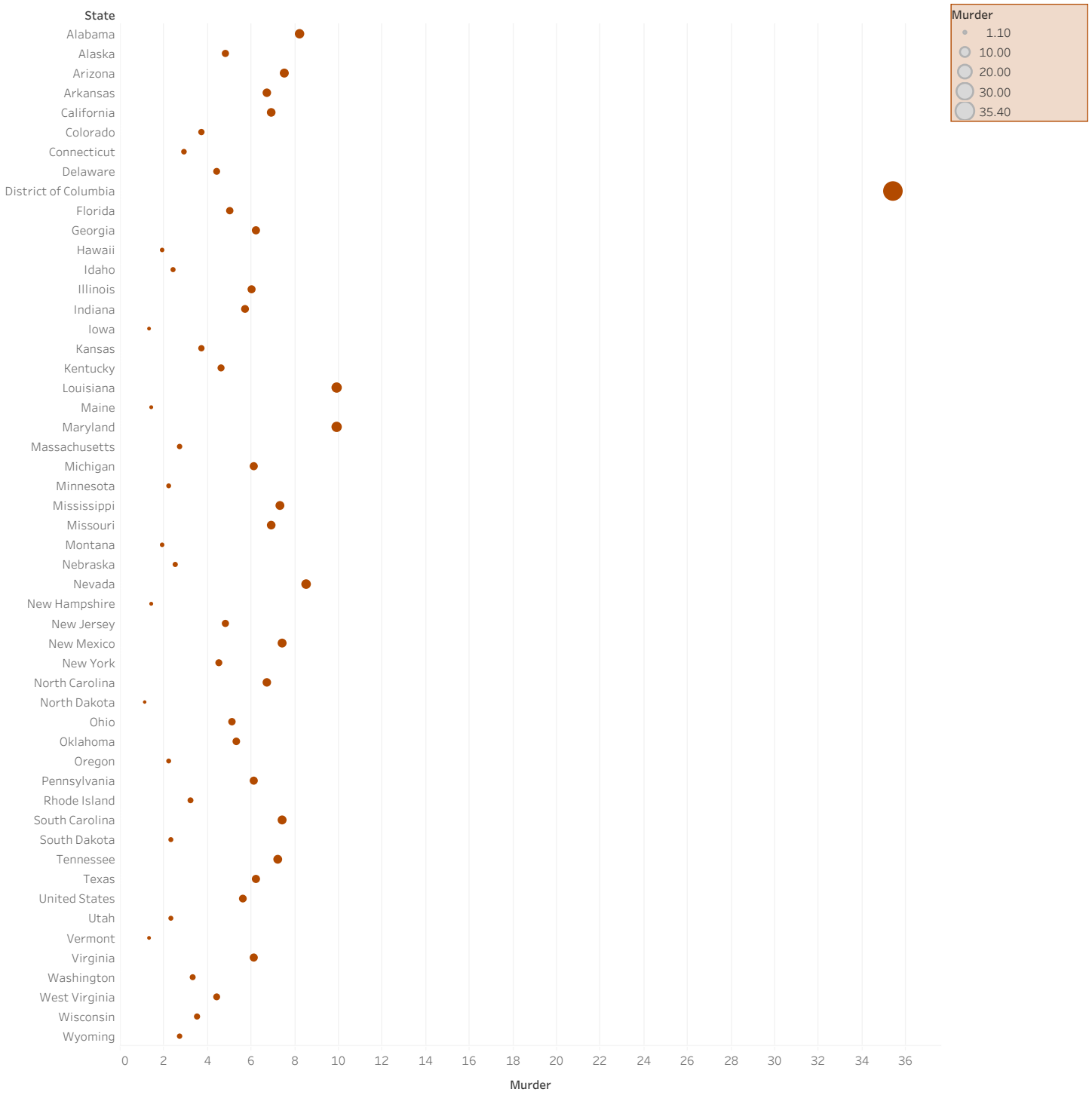
GRACIE INMAN

Tableau Scatter Plot



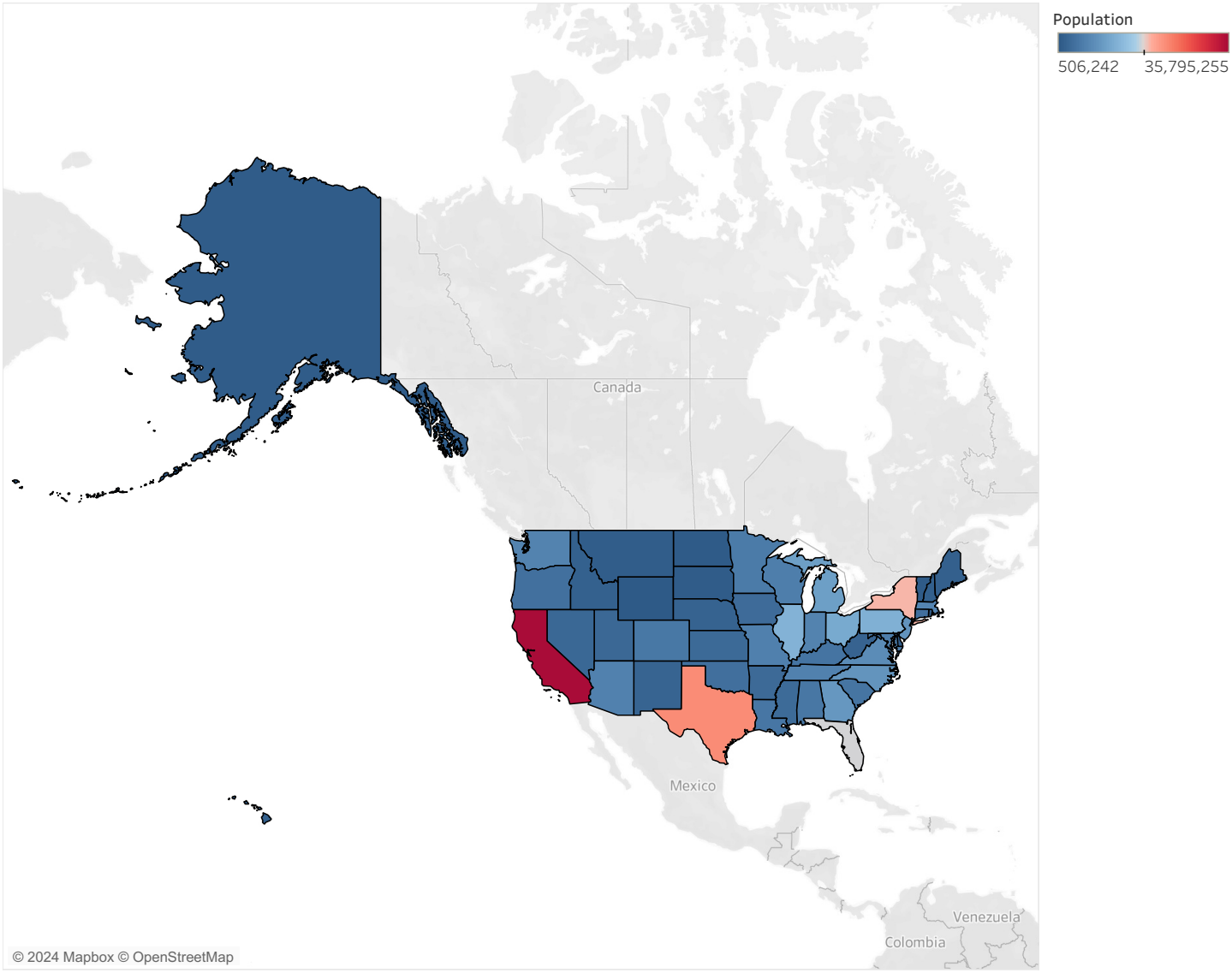
Robbery and Motor Vehicle Theft for each State. Color shows details about Robbery and Motor Vehicle Theft.

Tableau Bubble Chart



Sum of Murder for each State. Size shows sum of Murder.

Tableau Density Map



Map based on Longitude (generated) and Latitude (generated). Color shows sum of Population. Details are shown for State. The view is filtered on Longitude (generated), which keeps non-Null values only.

Tableau Bubble Chart

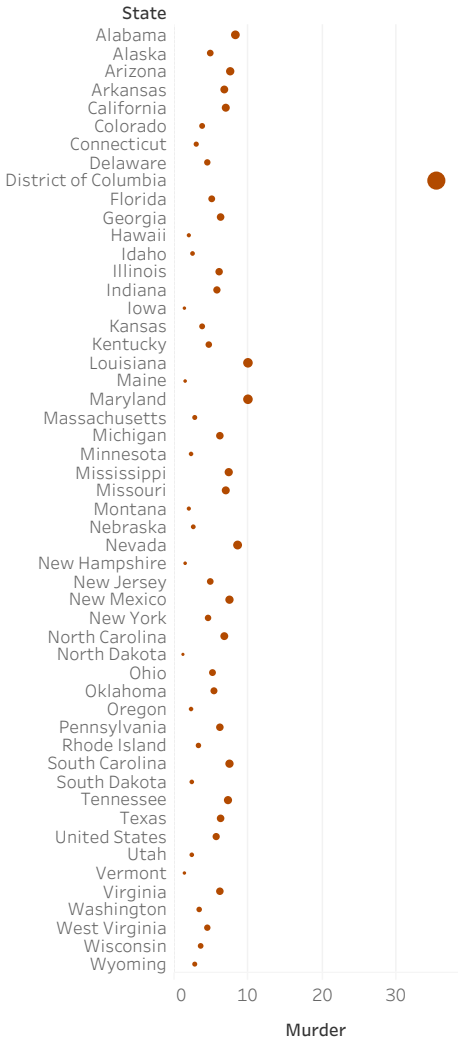
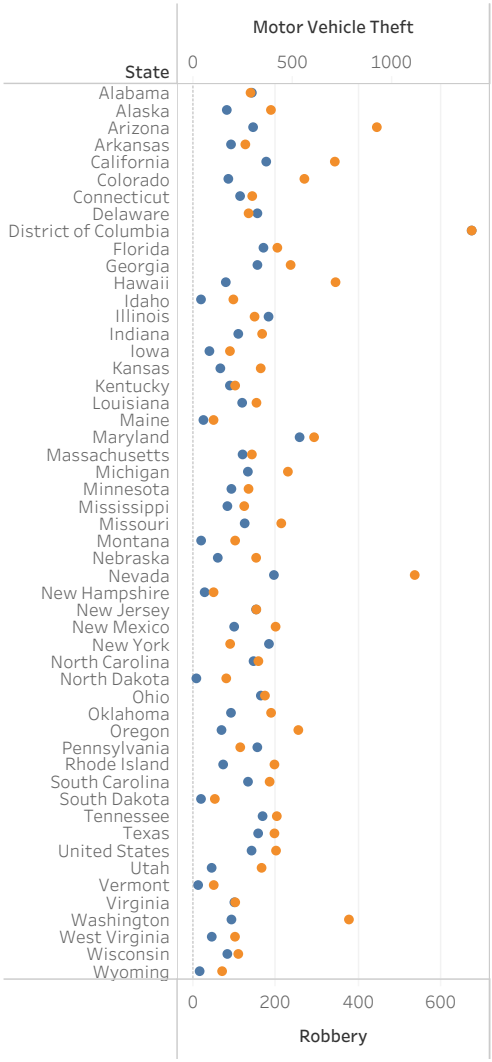
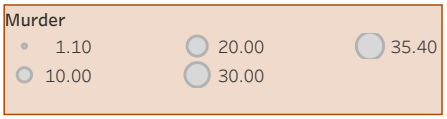


Tableau Scatter Plot





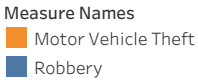
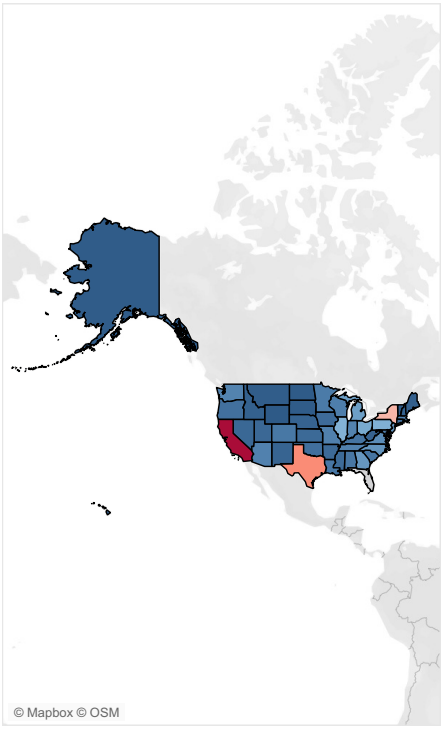
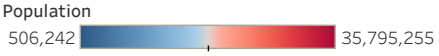


Tableau Density Map





DSC 640

Inman, Gracie

Week 7+8

02/04/24

In [1]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

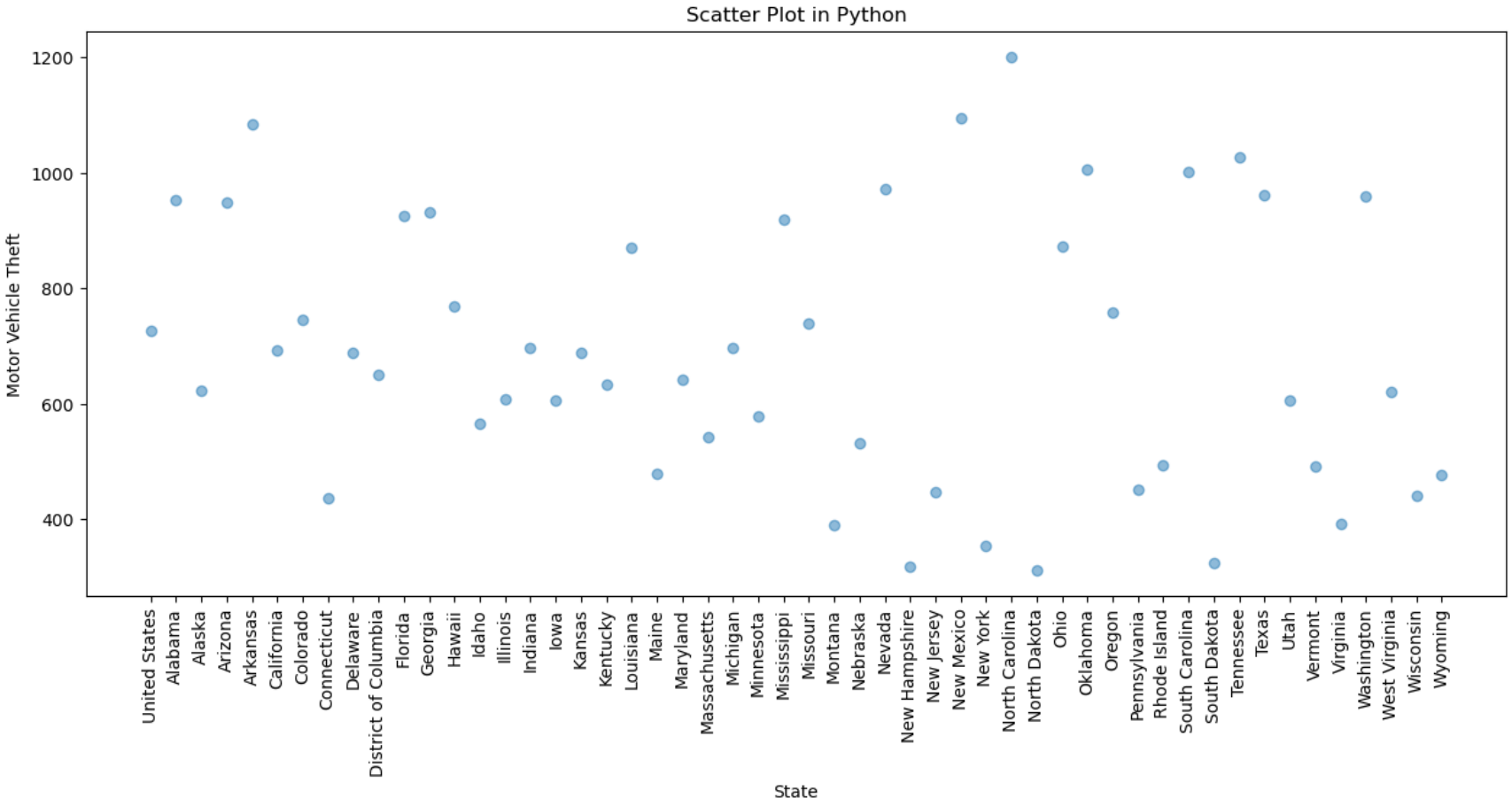
In [2]:
```
crime_data = pd.read_csv('crimerates-by-state-2005.csv')
crime_data.dropna()
crime_data.head()
```

Out[2]:

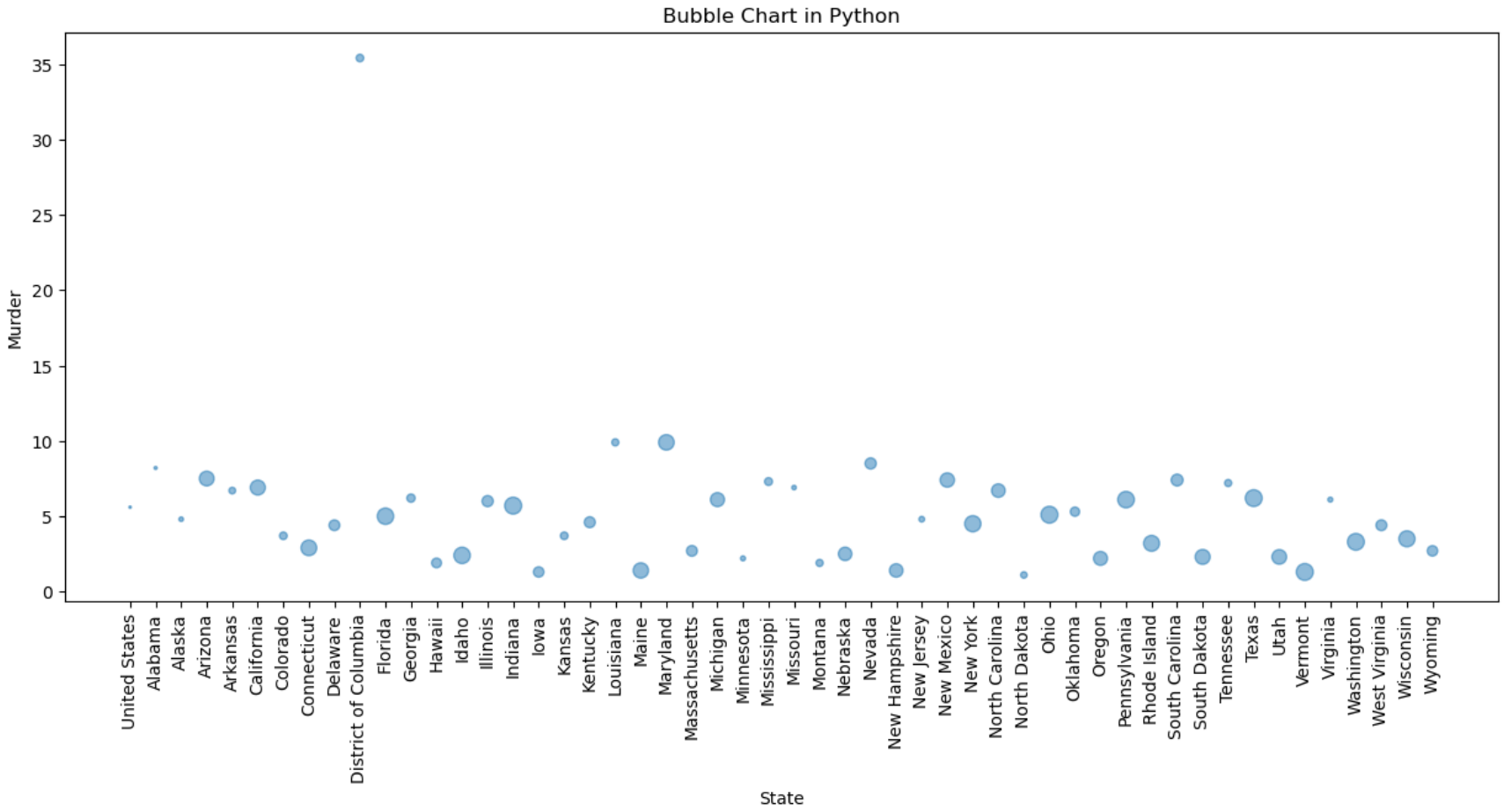
	state	murder	forcible_rape	robbery	aggravated_assault	burglary	larceny_theft	motor_vehicle_theft	population
0	United States	5.6	31.7	140.7	291.1	726.7	2286.3	416.7	295753151
1	Alabama	8.2	34.3	141.4	247.8	953.8	2650.0	288.3	4545049
2	Alaska	4.8	81.1	80.9	465.1	622.5	2599.1	391.0	669488
3	Arizona	7.5	33.8	144.4	327.4	948.4	2965.2	924.4	5974834
4	Arkansas	6.7	42.9	91.1	386.8	1084.6	2711.2	262.1	2776221

In [9]:
```
plt.figure(figsize=(15,6))
plt.scatter(crime_data['state'], crime_data['burglary'], alpha=0.5)
plt.xticks(rotation=90)
plt.title('Scatter Plot in Python')
plt.xlabel('State')
plt.ylabel('Motor Vehicle Theft')
```

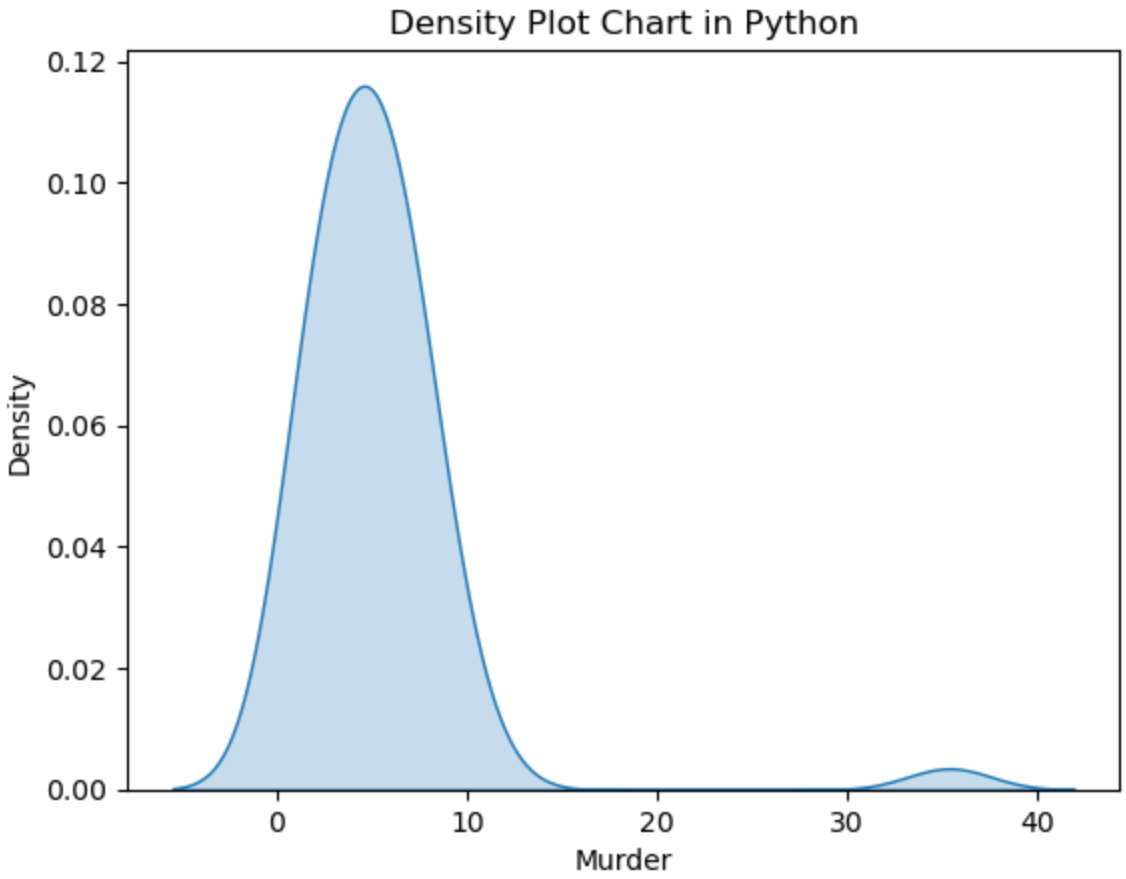
Out[9]:
```
Text(0, 0.5, 'Motor Vehicle Theft')
```



In [4]:
```
# Bubble Chart
size = np.random.rand(len(crime_data['state'])) * 100
plt.figure(figsize=(15,6))
plt.scatter(crime_data['state'], crime_data['murder'], s=size, alpha=0.5)
plt.xticks(rotation=90)
plt.title('Bubble Chart in Python')
plt.xlabel('State')
plt.ylabel('Murder')
plt.show()
```



In [5]:
```
sns.kdeplot(data=crime_data['murder'], cmap='Blues', fill=True)
plt.title('Density Plot Chart in Python')
plt.xlabel('Murder')
plt.show()
```


Density Plot Chart in Python
0.12
0.10
0.08
0.06
0.04
0.02
0.00
Density
0
10
20
30
40
Murder

In [ ]:

R 640 Week 7 +8

Gracie Inman

2024-02-04

```
library(ggplot2)
library(dplyr)
```

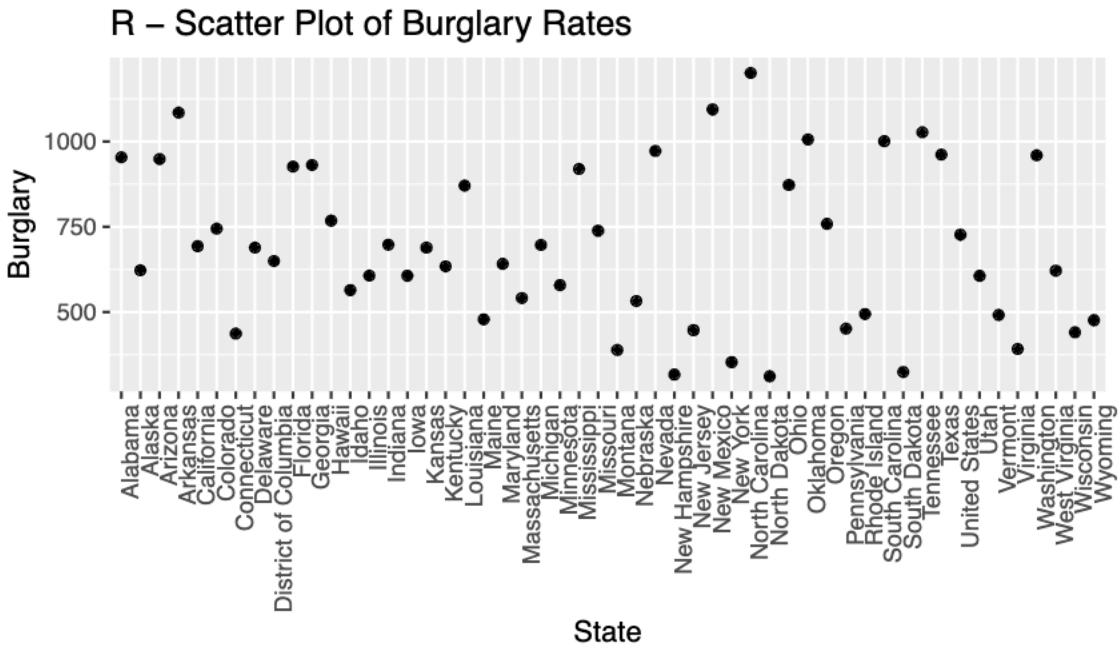
```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

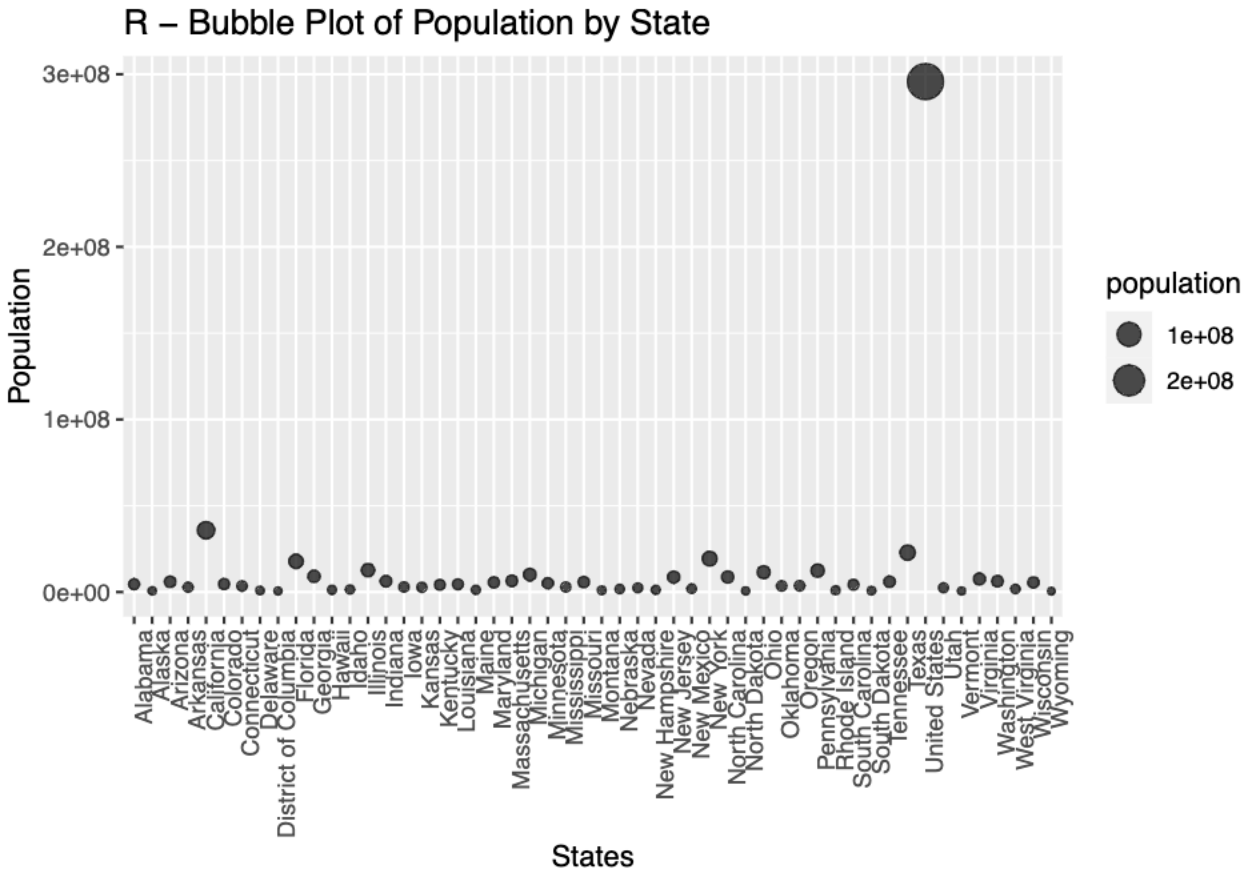
```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
# Load the dataset
data_set <- read.csv("/Users/gracieinman/Downloads/ex4-2/crimerates-by-state-2005.csv")
data_set <- na.omit(data_set)
```

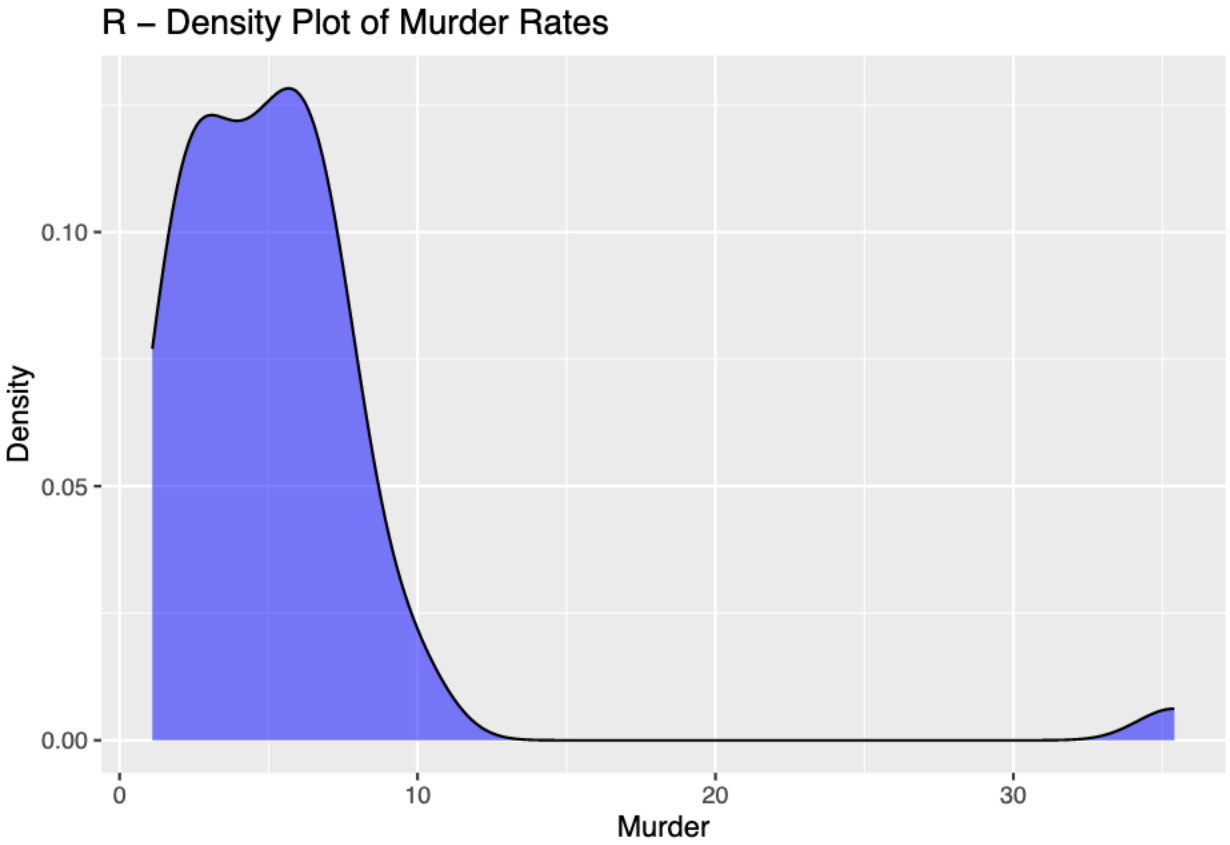
```
# Scatter Plot
scatter_plot <- ggplot(data_set, aes(x = state, y = burglary)) +
  geom_point() +
  ggtitle("R - Scatter Plot of Burglary Rates") +
  xlab("State") +
  ylab("Burglary") +
  theme(
    axis.text.x = element_text(angle = 90, hjust = 1),
    plot.margin = margin(1, 1, 2, 1, "cm")
  )
print(scatter_plot)
```




```r
# Bubble Plot
bubble_plot <- ggplot(data_set, aes(x = state, y = population, size = population)) +
  geom_point(alpha = 0.7) +
  ggtitle("R - Bubble Plot of Population by State") +
  xlab("States") +
  ylab("Population") +
  theme(
    axis.text.x = element_text(angle = 90, hjust = 1),
    plot.margin = margin(0, 0, 0, 0, "cm")
  )
print(bubble_plot)
```




```r
# Density Plot
density_plot <- ggplot(data_set, aes(x = murder)) +
  geom_density(fill = "blue", alpha = 0.5) +
  ggtitle("R - Density Plot of Murder Rates") +
  xlab("Murder") +
  ylab("Density")
print(density_plot)
```


R – Density Plot of Murder Rates
Density
0.10
0.05
0.00
0
10
20
30
Murder