DSC640 Week 5-6 Assignment

Assignment: 3.2

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Charts in Python

```python
# Import the necessary libraries
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt

# Ignore warnings
import warnings
warnings.filterwarnings('ignore')

# Set the style of matplotlib
%matplotlib inline
```

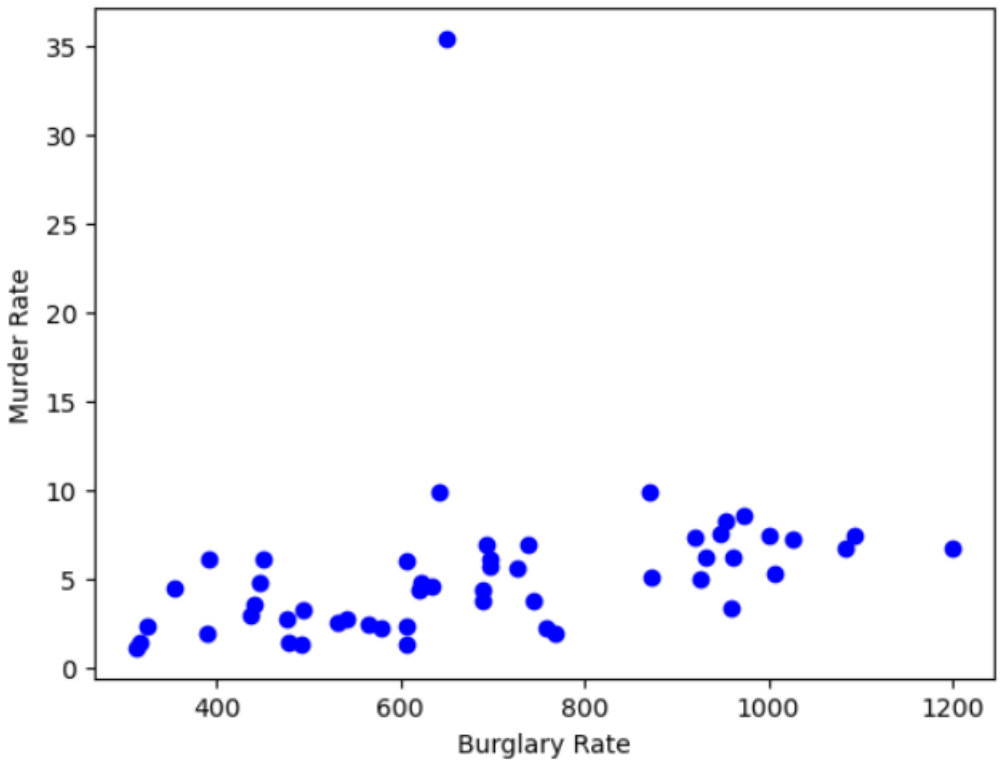
```python
# Load the Crime rates dataset into the data frame
crimeRate_df = pd.read_csv('crimerates-by-state-2005.csv')
crimeRate_df
```

```
# Load the Crime rates dataset into the data frame
crimeRate_df = pd.read_csv('crimerates-by-state-2005.csv')
crimeRate_df.head(10)
```

	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
5	California	6.9	26.0	176.1	317.3	693.3	1916.5	712.8	35795255
6	Colorado	3.7	43.4	84.6	264.7	744.8	2735.2	559.5	4660780
7	Connecticut	2.9	20.0	113.0	138.6	437.1	1824.1	296.8	3477416
8	Delaware	4.4	44.7	154.8	428.2	688.9	2144.0	278.5	839906
9	District of Columbia	35.4	30.2	672.1	721.3	649.7	2694.9	1402.3	582049

Python -Scatter Plot:

```
# Scatter Plot
plt.scatter(crimeRate_df['burglary'], crimeRate_df['murder'], c ="blue")
# To show the plot
plt.show()
```

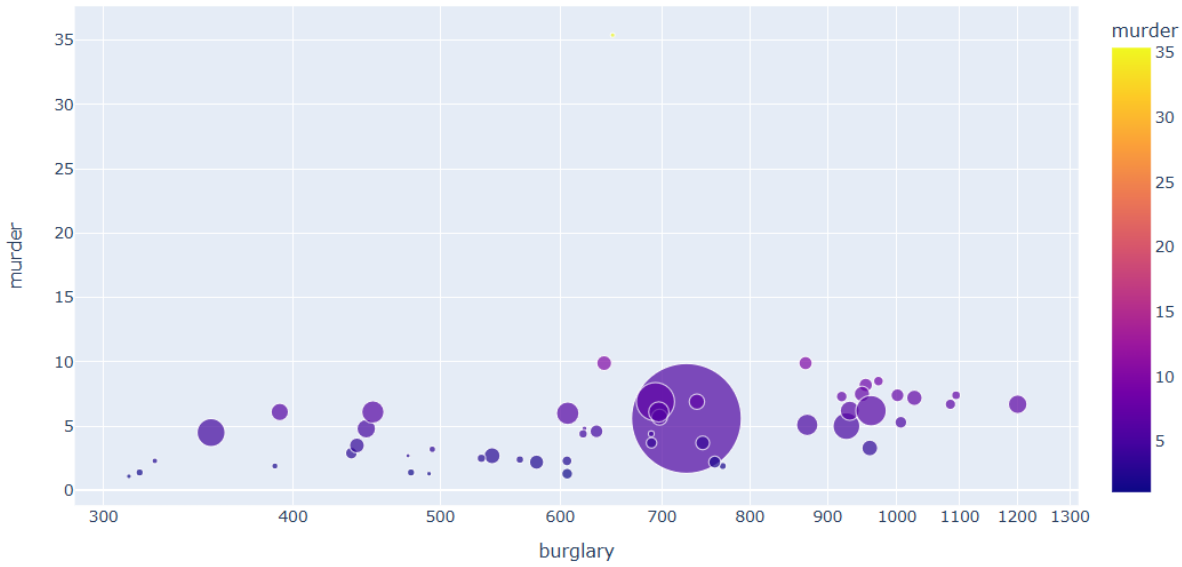


Python -Bubble chart

```
#Bubble chart

import plotly.express as px
df = px.data.gapminder()

fig = px.scatter(crimeRate_df, x="burglary", y="murder",
          size="population", color="murder",
                 log_x=True, size_max=60)
fig.show()
```



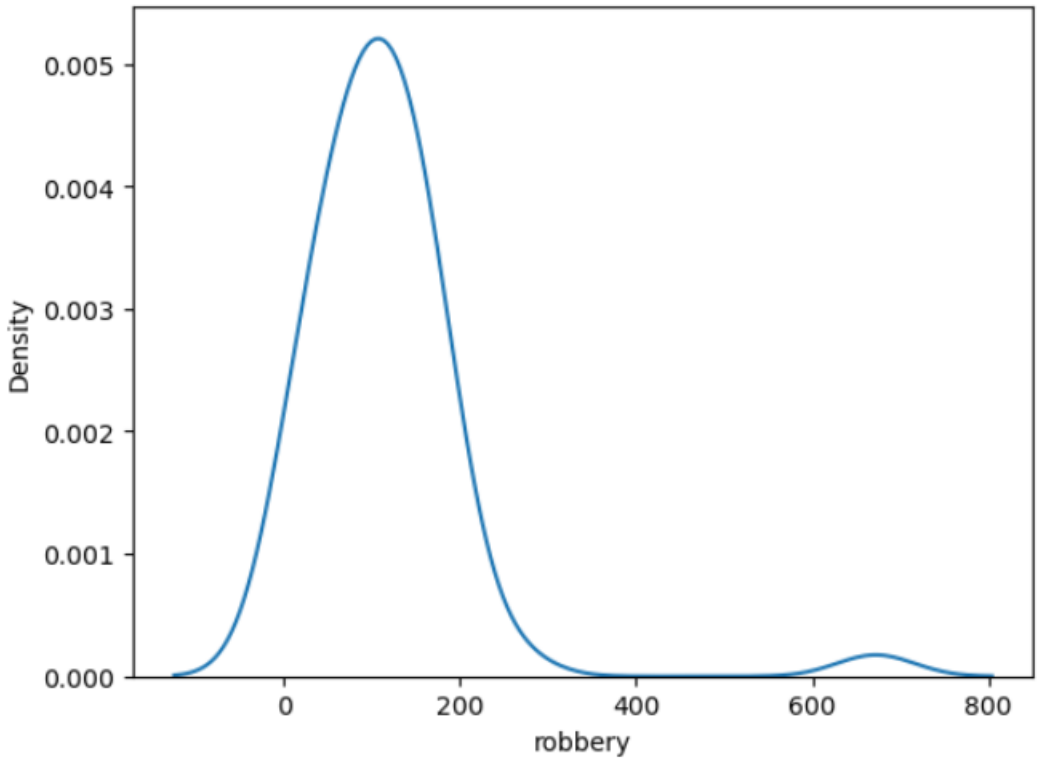
Python -Density Plot

```
# Density plot

import seaborn as sns
df = sns.load_dataset('iris')

# Make default density plot
sns.kdeplot(crimeRate_df['robbery'])
```

```
<Axes: xlabel='robbery', ylabel='Density'>
```



Charts in R

```r
library("readxl")
crimerates_df <- read.csv("crimerates-by-state-2005.csv")
crimerates_df
```

Description: df [52 × 9]

state <chr>	murder <dbl>	forcible_rape <dbl>	robbery <dbl>
United States	5.6	31.7	140.7
Alabama	8.2	34.3	141.4
Alaska	4.8	81.1	80.9
Arizona	7.5	33.8	144.4
Arkansas	6.7	42.9	91.1
California	6.9	26.0	176.1
Colorado	3.7	43.4	84.6
Connecticut	2.9	20.0	113.0
Delaware	4.4	44.7	154.8
District of Columbia	35.4	30.2	672.1

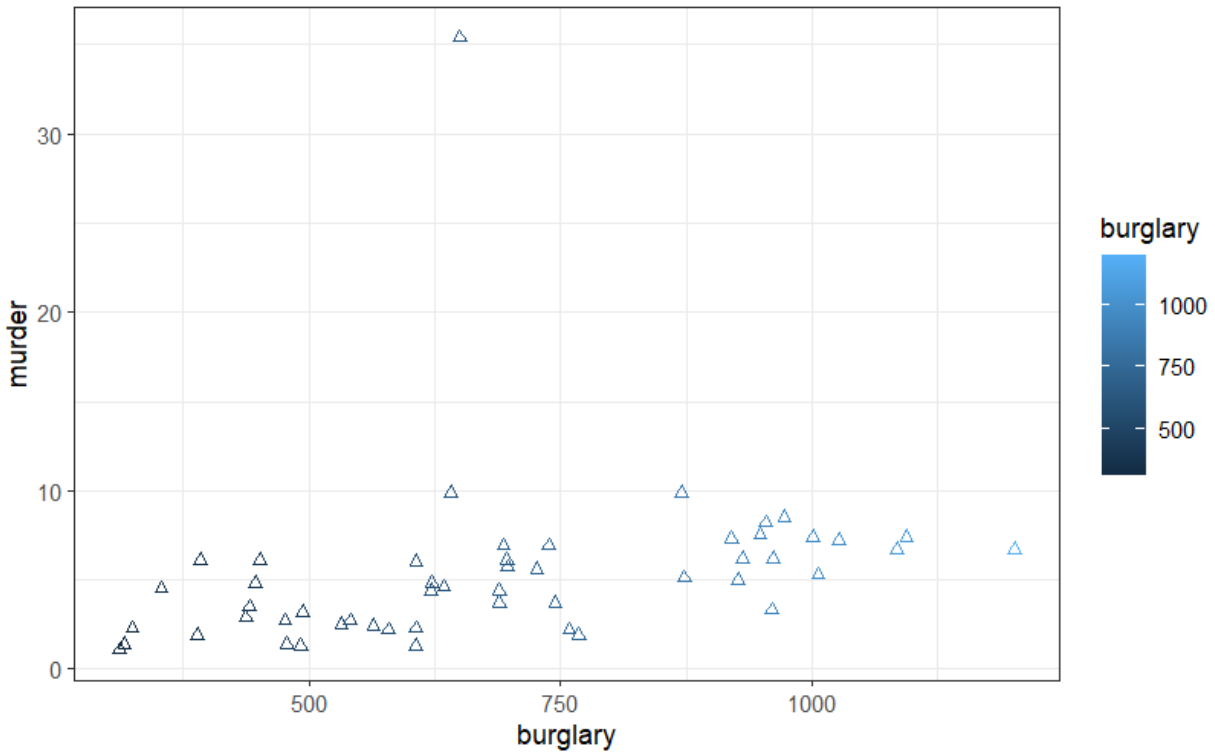
1-10 of 52 rows | 1-4 of 9 columns Previous 1 2 3 4 5 6 Next

R – Scatter Plot:

```r
# ScatterPlots

# install.packages("ggplot2")
library(ggplot2)


ggplot(crimerates_df, aes(x = burglary, y = murder,col=burglary))  +
geom_point(shape=2) +  theme_bw()
```

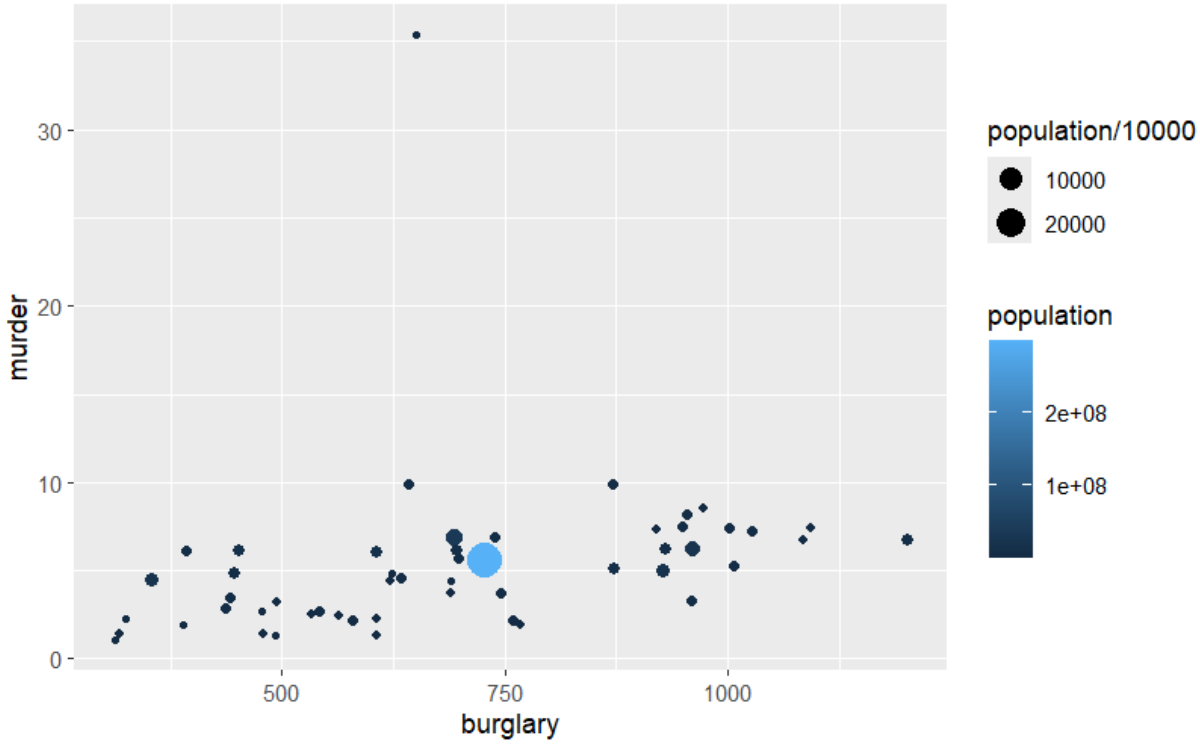


R - Bubble Chart:

```r
#Bubble chart

#create bubble chart and color circles based on value of population variable

ggplot(crimerates_df, aes(x=burglary, y=murder,
size=population/10000,col=population)) +
    geom_point()
```



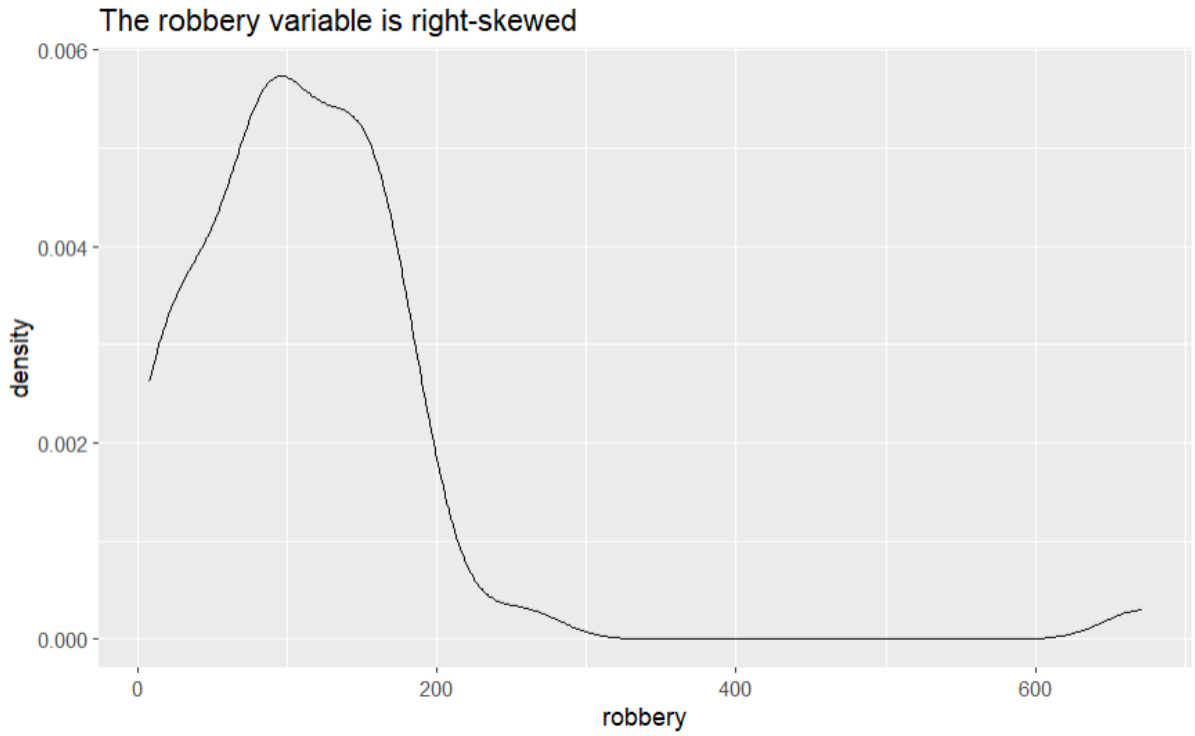
R – Density Plot:

```r
```{r}

# Density Plot

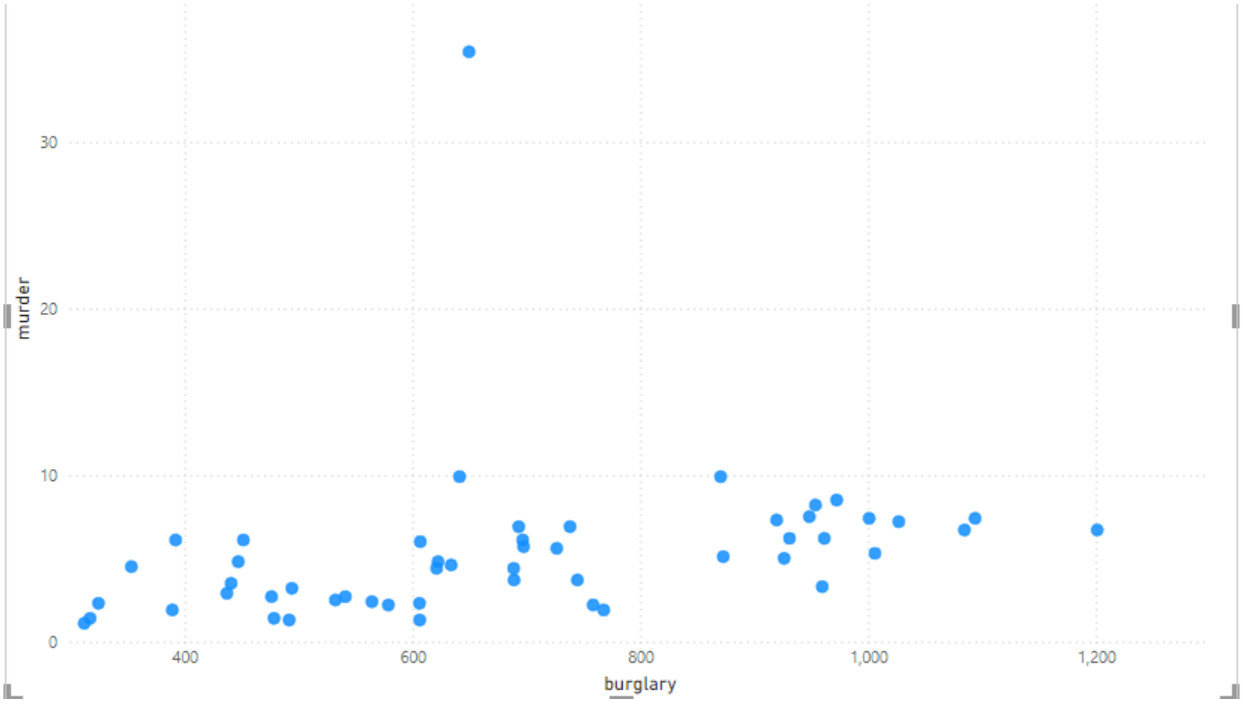
# install.packages("ggplot2")
library(ggplot2)

ggplot(data = crimerates_df, aes(x = robbery)) +
   geom_density() +
  labs(title = 'The robbery variable is right-skewed')
```
```

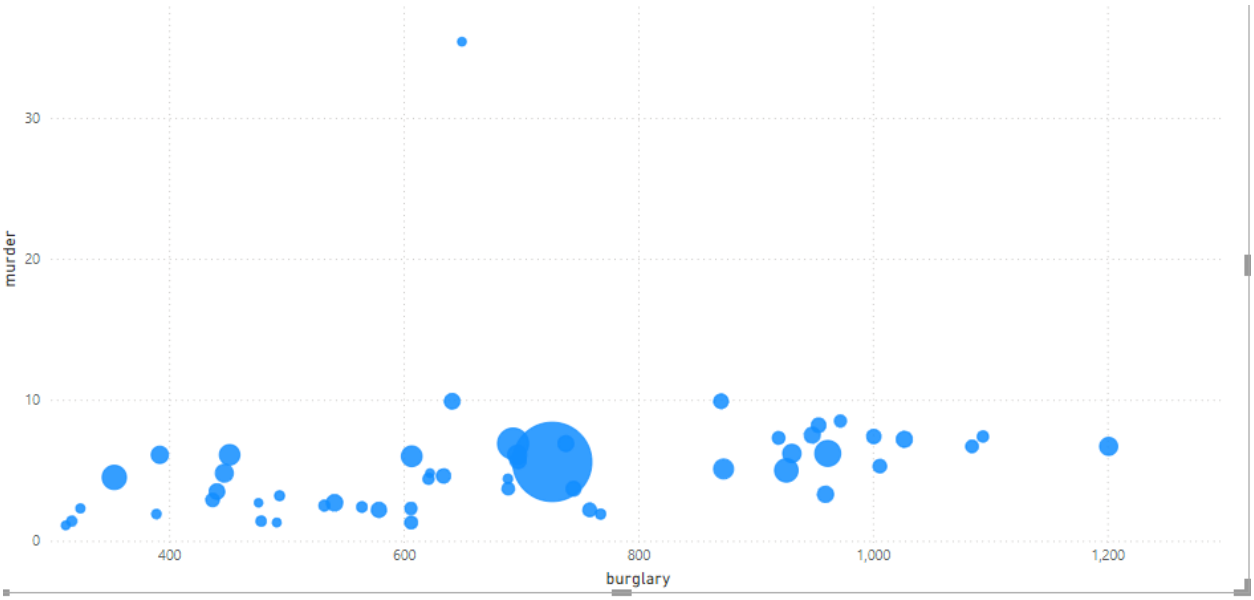

The robbery variable is right-skewed
0.006
0.004
0.002
0.000
density
0
200
400
600
robbery

Charts in POWER BI

Power BI – Scatter Plot:



Power BI – Bubble chart:



Power BI – Density Map: