Graph Assignment R

April 26, 2021

1 4.2 Exercises: Scatterplots, Bubble Charts, & Density Plots - R

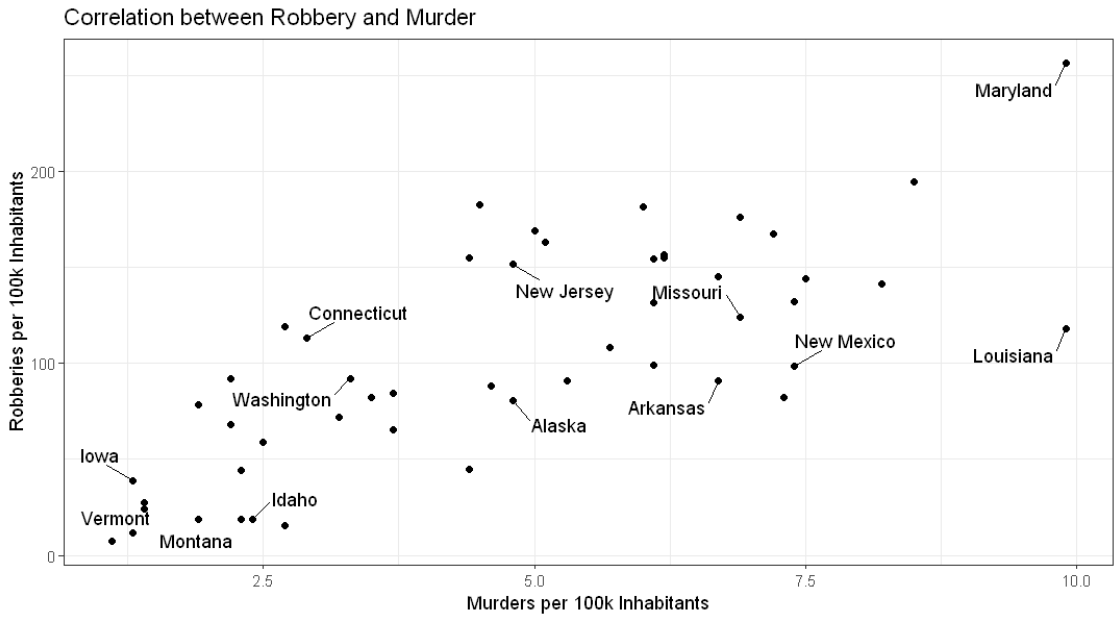
Michael Hotaling

[20]:
```
library(ggplot2)
library(dplyr)
library(ggrepel)
library(scales)
```

[21]:
```
crimerate <- read.csv("crimerates-by-state-2005.csv", stringsAsFactors = FALSE)␣
↪%>%
subset(!state %in% c("United States", "District of Columbia"))
```

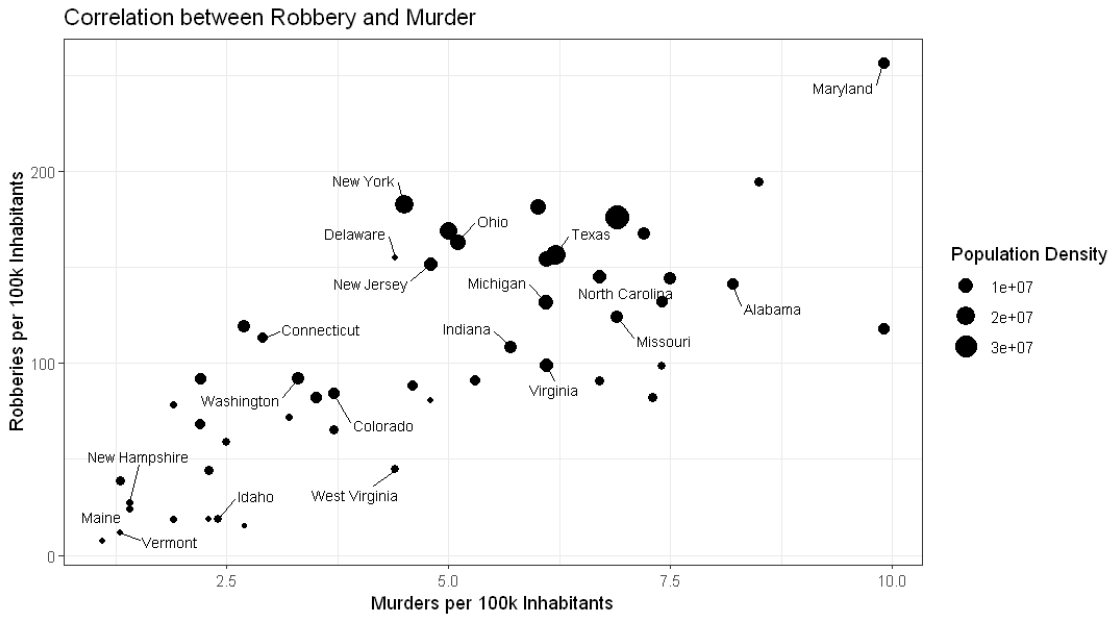
2 Scatter Plot

[24]:
```
options(repr.plot.width = 9, repr.plot.height = 5)

crimerate %>% mutate(
    state = ifelse(runif(n()) > 0.25, "", crimerate$state)) %>%
    ggplot(aes(x = murder, y = robbery)) +
    geom_point() +
    labs(title = "Correlation between Robbery and Murder",
         x = "Murders per 100k Inhabitants",
         y = "Robberies per 100k Inhabitants") +
    geom_text_repel(aes(label=state),
                    max.overlaps = Inf,
                    box.padding = 0.7, ) +
    theme_bw()
```



3 Bubble Plot

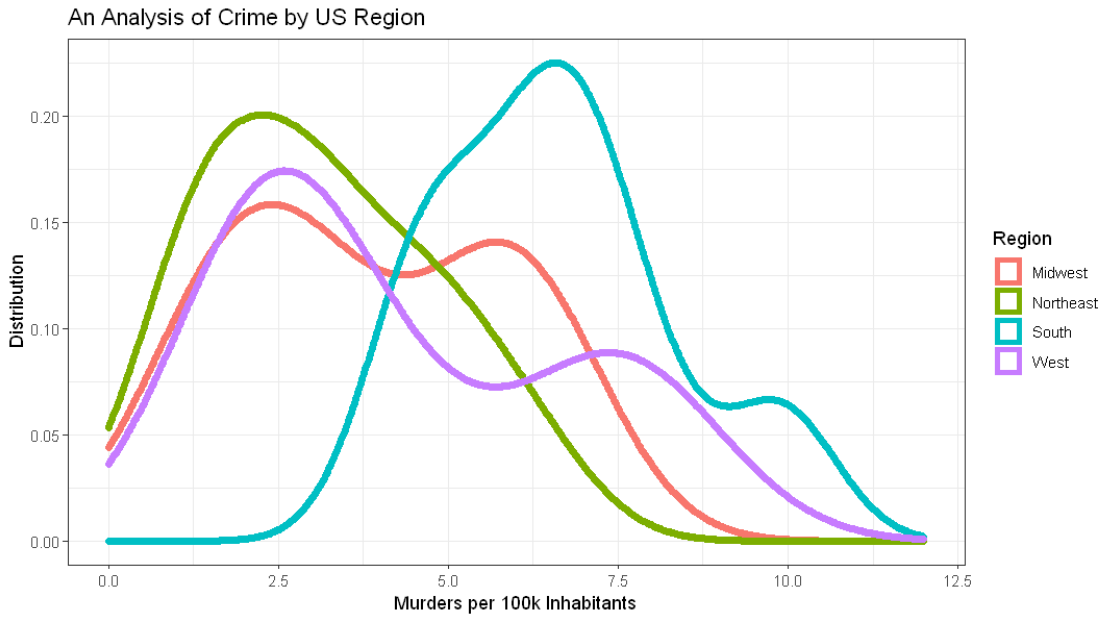
[25]:
```
options(repr.plot.width = 9, repr.plot.height = 5)

crimerate %>% mutate(
    state = ifelse(runif(n()) < 0.75, "", crimerate$state)) %>%
    ggplot(aes(x = murder, y = robbery, size = population)) +
    geom_point() +
    labs(title = "Correlation between Robbery and Murder",
         x = "Murders per 100k Inhabitants",
         y = "Robberies per 100k Inhabitants", size = "Population Density") +
    geom_text_repel(aes(label=state), size = 3,
                    max.overlaps = Inf,
                    box.padding = 0.7, ) +
    theme_bw()
```



4 Density Plot

[26]:
```
df <- read.csv("state_data.csv")
colnames(crimerate)[1] <- "State"
crimerate2 <- merge(crimerate,df,by=c("State"))
```

[28]:
```
ggplot(data = crimerate2, aes(x = murder, color = Region)) +
geom_density(size = 2) +
xlim(0,12) +
xlab("Murders per 100k Inhabitants") +
ylab("Distribution") +
ggtitle("An Analysis of Crime by US Region") +
theme_bw()
```


An Analysis of Crime by US Region
Distribution
0.20
0.15
0.10
0.05
0.00
0.0
2.5
5.0
7.5
10.0
12.5
Murders per 100k Inhabitants
Region
Midwest
Northeast
South
West

[ ]: