

Fall 2017

CSCI 0360 Introduction to Statistics with R

Assignment weight: 100 points

Extra Credit Assignment – Using ggplot2

This is an optional extra credit assignment. By completing this assignment, you can receive up to 5% extra credit that will be added to your overall grade in the class.

1. Save your R script file using the following format: **extracredit_lastnameFirstname.R**
2. Use comments to display your name and the assignment name at the top of the script file.

3. Install the **ggplot2** package using the following command:

```
install.packages("ggplot2")
```

4. Load the **ggplot2** package using the following command:

```
library(ggplot2)
```

5. Load the data from the **midwest** dataset from the **ggplot2** package:

```
data(midwest, package="ggplot2")
```

6. Use the following commands to create a scatterplot using ggplot 2:

```
ggmidwest <- ggplot(midwest, aes(x=area, y=poptotal)) +  
  geom_point(aes(col=state, size=popdensity)) +  
  geom_smooth(method="loess", se=F) +  
  xlim(c(0, 0.1)) +  
  ylim(c(0, 500000)) +  
  labs(subtitle="Area Vs Population",  
       y="Population",  
       x="Area",  
       title="Scatterplot",  
       caption = "Source: midwest")
```

```
plot(ggmidwest)
```

7. Export the scatterplot to a pdf with the size "US Letter". Your file should be called **ggmidwest_LastnameFirstname.pdf**

8. Load the data from the **mpg** dataset from the **ggplot2** package.

9. Use the following commands to create a bubble chart:

```
mpg_select <- mpg[mpg$manufacturer %in% c("audi", "ford", "honda", "hyundai"), ]
```

```
ggmpg <- ggplot(mpg_select, aes(displ, cty)) +  
  labs(subtitle="mpg: Displacement vs City Mileage",  
        title="Bubble chart")  
ggmpg + geom_jitter(aes(col=manufacturer, size=hwy)) +  
  geom_smooth(aes(col=manufacturer), method="lm", se=F)
```

10. Export the bubble chart to a pdf with the size "US Letter". Your file should be called **ggmpg_LastnameFirstname.pdf**

11. Use the following commands to create a histogram with auto binning:

```
ggmpg2 <- ggplot(mpg, aes(displ)) + scale_fill_brewer(palette = "Spectral")  
ggmpg2 + geom_histogram(aes(fill=class),  
  binwidth = .1,  
  col="black",  
  size=.1) + # change binwidth  
  labs(title="Histogram with Auto Binning",  
        subtitle="Engine Displacement across Vehicle Classes")
```

12. Export the histogram to a pdf with the size "US Letter". Your file should be called **gghist1_LastnameFirstname.pdf**

13. Use the following commands to create a histogram with fixed bins:

```
ggmpg2 + geom_histogram(aes(fill=class),  
  bins=5,  
  col="black",  
  size=.1) + # change number of bins  
  labs(title="Histogram with Fixed Bins",  
        subtitle="Engine Displacement across Vehicle Classes")
```

14. Export the histogram to a pdf with the size "US Letter". Your file should be called **gghist2_LastnameFirstname.pdf**

15. Upload the following **5 files** to Blackboard under Extra Credit Assignment:

**extracredit_lastnameFirstname.R, ggmidwest_LastnameFirstname.pdf,
ggmpg_LastnameFirstname.pdf , gghist1_LastnameFirstname.pdf,
gghist2_LastnameFirstname.pdf**