Exercise X

Student Name

2023-08-15

```
#install packages
#install.packages(c("knitr", "stargazer"))
```

If your intention is to generate PDF documents from R Markdown, you must have a LaTeX distribution installed. While there are several conventional choices available, such as MiKTeX, MacTeX, and TeX Live, we can also install TinyTeX using the following code:

```
#tinytex::install_tinytex()
```

```
#load in libraries
library(knitr)
library(stargazer)
```

In this illustration, I will use the mtcars dataset. The mtcars dataset is a built-in dataset in R that contains measurements on 11 different attributes for 32 different cars.

```
data(mtcars)  #importing the mtcars dataset
```

Part 1

Here is one way to create descriptive statistics table:

```
descriptivestats <- data.frame(
    variablename = c("Miles/US Gallon", "Number of Cylinders", "Gross Horsepower"),
  mean   = c(mean(mtcars$mpg), mean(mtcars$cyl), mean(mtcars$hp)),
  sd = c(sd(mtcars$mpg), sd(mtcars$cyl), sd(mtcars$hp)),
  min  = c(min(mtcars$mpg), min(mtcars$cyl), min(mtcars$hp)),
  max = c(max(mtcars$mpg), max(mtcars$cyl), max(mtcars$hp))
)
kable(
  descriptivestats,
  col.names = c("Variable Name", "Mean", "St. Deviation", "Min", "Max"),
  digits = 2,
  caption = "Descriptive Statistics"
  )
```

Table 1: Descriptive Statistics

Variable Name	Mean	St. Deviation	Min	Max
Miles/US Gallon	20.09	6.03	10.4	33.9
Number of Cylinders	6.19	1.79	4.0	8.0
Gross Horsepower	146.69	68.56	52.0	335.0

This is the typical appearance of descriptive statistics tables in general.

Part 2

Let's create the histogram of Miles/US Gallon variable!

```
hist(mtcars$mpg,
     col='steelblue',
     main='',
     xlab='Miles/US Gallon',
     ylab='Frequency')
```

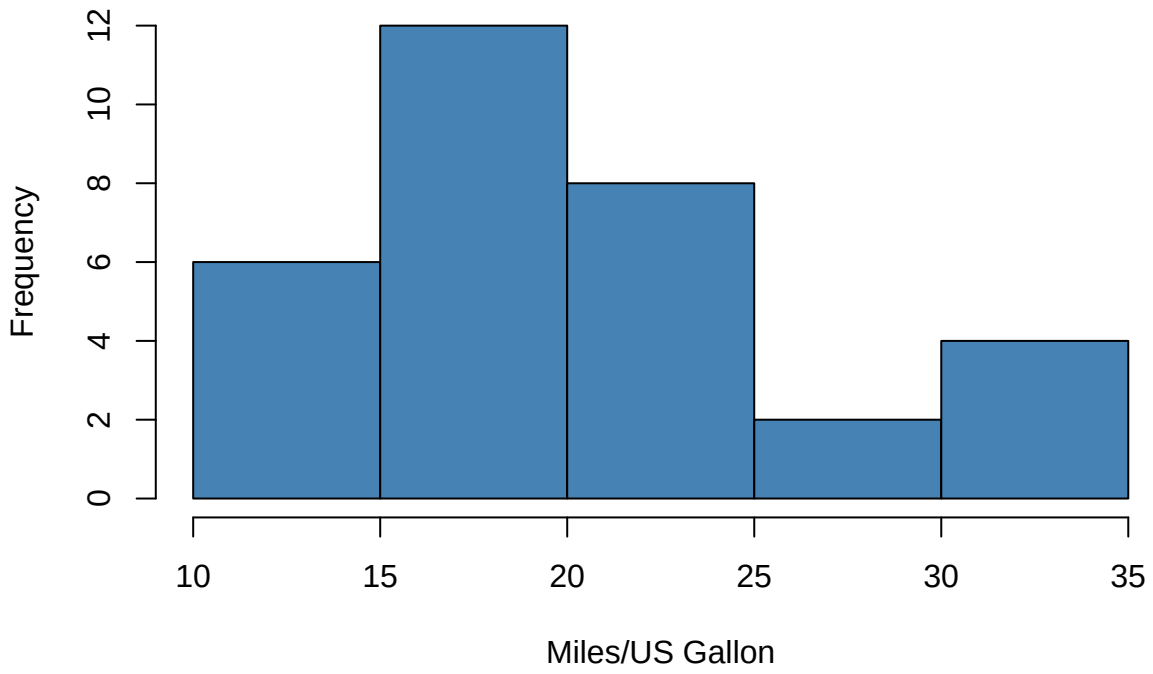

Figure 1: Distribution of Miles/US Gallon

Part 3

Finally, let's run some regressions and create a professional-looking regression results table!

```
#linear regression using lm() function
model1<-lm(mpg ~ gear, data = mtcars)
model2<-lm(mpg ~ carb, data = mtcars)
model3<-lm(mpg ~ carb + gear, data = mtcars)

#creating the regression table using stargazer() function
stargazer(model1, model2, model3,
title = "Regression Table with Stargazer",
dep.var.labels=c("Miles/US Gallon"),
covariate.labels=c("Number of Forward Gears","Number of Carburetors"),
label="tab-2",
column.labels = c("Model 1", "Model 2", "Model 3"),
model.numbers = FALSE,
header=FALSE)
```

Table 2: Regression Table with Stargazer

	Dependent variable:		
	Miles/US Gallon		
	Model 1	Model 2	Model 3
Number of Forward Gears	3.923***		5.576***
	(1.308)		(0.813)
Number of Carburetors		−2.056***	−2.754***
		(0.569)	(0.371)
Constant	5.623	25.872***	7.276**
	(4.916)	(1.837)	(2.947)
Observations	32	32	32
R^2	0.231	0.304	0.734
Adjusted R^2	0.205	0.280	0.716
Residual Std. Error	5.374 (df = 30)	5.113 (df = 30)	3.211 (df = 29)
F Statistic	8.995*** (df = 1; 30)	13.074*** (df = 1; 30)	40.093*** (df = 2; 29)
Note:			*p<0.1; **p<0.05; ***p<0.01