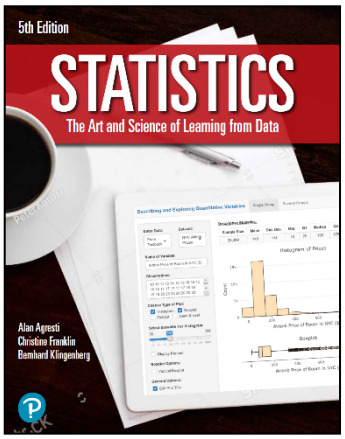

R Code for Examples in the book
"Statistics: The Art and Science of Learning from Data"
by Agresti, Franklin and Klingenberg, 5th edition

Chapter 8

Example 9: Using t-Distribution for Confidence Interval for the Mean

Reading in data

```
x <- c(540, 565, 570, 570, 580, 590, 590, 590, 595, 610, 620)
n <- length(x)
xbar <- mean(x)
s <- sd(x)
se <- s / sqrt(n)
```

To compute the t-score for a confidence level of 95% and n-1 degrees of freedom

```
tscore <- qt(0.975, df = n-1)
```

To compute a 95% confidence interval for the population mean

```
me <- tscore * se
xbar + c(-1, 1) * me

## [1] 568.7583 598.5144
```

Alternatively, you can also use the `t.test()` function

```
t.test(x, conf.level = 0.95)

##
##  One Sample t-test
##
## data:  x
## t = 87.406, df = 10, p-value = 9.399e-16
## alternative hypothesis: true mean is not equal to 0
## 95 percent confidence interval:
##  568.7583 598.5144
## sample estimates:
## mean of x
##  583.6364
```