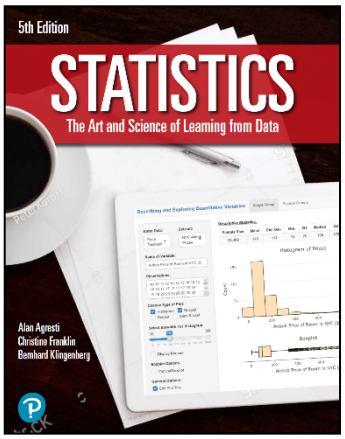

R Code for Examples in the book
"Statistics: The Art and Science of Learning from Data"
by Agresti, Franklin and Klingenberg, 5th edition

Chapter 10

Example 4: Confidence Interval for the Difference of Two Sample Proportions

Reading in data for the first proportion

```
x1 <- 347
n1 <- 11535
phat1 <- x1 / n1
```

Reading in data for the second proportion

```
x2 <- 327
n2 <- 14035
phat2 <- x2 / n2
```

To compute the mean of the difference

```
mean <- phat1 - phat2
```

To compute the standard error of the difference

```
se <- sqrt((phat1 * (1 - phat1) / n1) + (phat2 * (1 - phat2) / n2))
```

To find the zscore for a 95% confidence interval

```
zscore <- qnorm(0.975)
```

To compute a 95% confidence interval for the difference of two proportions

```
round(mean + c(-1, 1) * zscore * se, 3)

## [1] 0.003 0.011
```

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

```
prop.test(c(347, 327), c(11535, 14035), correct = FALSE)

##
##  2-sample test for equality of proportions without continuity
##  correction
##
## data:  c(347, 327) out of c(11535, 14035)
## X-squared = 11.352, df = 1, p-value = 0.0007536
## alternative hypothesis: two.sided
## 95 percent confidence interval:
##  0.002790305 0.010776620
## sample estimates:
##     prop 1     prop 2
## 0.03008236 0.02329890
```