2448030\_MDS272\_PRACTICE\_LAB.R

Kevin

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##OBJECTIVE 1a  
  
# H0: 30% people recommend street food to their friends  
# H1: 30% people do not recommend street food to their friends  
  
# Performing a one-sample proportion test  
test\_result = prop.test(x = 80, n = 150, p = 0.3, alternative = "two.sided", conf.level = 0.95, correct = FALSE)  
  
# Output the result  
print(test\_result)

##   
## 1-sample proportions test without continuity correction  
##   
## data: 80 out of 150, null probability 0.3  
## X-squared = 38.889, df = 1, p-value = 4.486e-10  
## alternative hypothesis: true p is not equal to 0.3  
## 95 percent confidence interval:  
## 0.4536625 0.6113395  
## sample estimates:  
## p   
## 0.5333333

cat('p-value is',test\_result$p.value)

## p-value is 4.486269e-10

#since p-value < 0.05, we can reject H0 and conclude that 30% people do not recommend street food to their friends  
  
##OBJECTIVE 1b  
  
set.seed(123)  
  
# H0: Proportions of 2 groups are equal  
# H1: Proportions of 2 groups are not equal  
  
# Generating data for Group 1 where n1 is sample size, p1 is true proportion, and x1 is number of successes  
n1 <- 120   
p1 <- 0.35   
x1 <- rbinom(1, n1, p1)   
  
# Generating data for Group 2 where all the values are similar to Group 1  
n2 <- 150   
p2 <- 0.40   
x2 <- rbinom(1, n2, p2)   
  
  
cat("Group 1: Successes =", x1, ", Sample size =", n1, "\n")

## Group 1: Successes = 41 , Sample size = 120

cat("Group 2: Successes =", x2, ", Sample size =", n2, "\n")

## Group 2: Successes = 60 , Sample size = 150

# Perform a two-sample proportion test  
test\_result <- prop.test(x = c(x1, x2), n = c(n1, n2), alternative = "two.sided", conf.level = 0.95,correct = FALSE)  
  
# Output the result  
print(test\_result)

##   
## 2-sample test for equality of proportions without continuity correction  
##   
## data: c(x1, x2) out of c(n1, n2)  
## X-squared = 0.96886, df = 1, p-value = 0.325  
## alternative hypothesis: two.sided  
## 95 percent confidence interval:  
## -0.17386189 0.05719522  
## sample estimates:  
## prop 1 prop 2   
## 0.3416667 0.4000000

cat('p-value is',test\_result$p.value)

## p-value is 0.3249642

#since p-value > 0.05, we fail to reject H0 and conclude that proportions of 2 groups are equal