# Problem Statement

1. Calculate the P Value for the test in Problem 2.

#Now to find out our test statistic

newucb\_data <- as.data.frame(UCBAdmissions)

View(newucb\_data)

dim(newucb\_data)

summary(newucb\_data$Admit)

phat <- 12/(24)

t <- (phat-0.4)/sqrt(0.4\*0.6/(24))

t

# [1] 1

#to calculate p value for the test

#we use pnorm function

#to find probability

#as we get 1 by the test in previous answers of this

#thus

pnorm(1)

# [1] 0.8413447

1. How do you test the proportions and compare against hypothetical props? Test Hypothesis: proportion of automatic cars is 40%.

#as we have to test the proportions lets do "one sample proportions test"

#and assume we have taken a sample of 210 cars and found 65 cars automatic of all

#so defining the null hypothesis to

#Ho: p equal to 0.40

#Ha: p not equal to 0.40

#one sample prop test

prop.test(65,210, p=0.40,alternative = "two.sided",conf.level = 0.99,correct = F)

|  |
| --- |
| > #one sample prop test  > prop.test(65,210, p=0.40,alternative = "two.sided",conf.level = 0.99,correct = F)  1-sample proportions test without continuity correction  data: 65 out of 210, null probability 0.4  X-squared = 7.1627, df = 1, p-value = 0.007444  alternative hypothesis: true p is not equal to 0.4  99 percent confidence interval:  0.2342427 0.3964724  sample estimates:  p  0.3095238 |
|  |
| |  | | --- | | > | |

#now since our test p value 0.007444 is less than 0.05 we will reject the null hypo

#and accept the alternative hypo that says that p is not equal to 0.40

#thus in this way we can test the proportions

#With mtcars data

#Ho: p equal to 0.40

#Ha: p not equal to 0.40

prop.test(table(mtcars$am)[2], nrow(mtcars), p = 0.4, alternative = "less",

conf.level = 0.99, correct = FALSE)

> prop.test(table(mtcars$am)[2], nrow(mtcars), p = 0.4, alternative = "less",

+ conf.level = 0.99, correct = FALSE)

1-sample proportions test without continuity correction

data: table(mtcars$am)[2] out of nrow(mtcars), null probability 0.4

X-squared = 0.0052083, df = 1, p-value = 0.5288

alternative hypothesis: true p is less than 0.4

99 percent confidence interval:

0.0000000 0.6070996

sample estimates:

p

0.40625

#now since our test p value 0.5288 is more than 0.05 we do not reject the null hypo

#that says that p is equal to 0.40

#thus in this way we can test the proportions