Assignment 5\_1

1. If Z is norm (mean = 0, sd = 1)

a) Find P(Z > 2.64)

b) Find P(|Z| > 1.39)

Answer:

a) z<-pnorm(2.64, 0, 1)

z<-z-1

z

b) z<-pnorm(-1.39, 0, 1)

z<-z\*2

z

2. Suppose p = the proportion of students who are admitted to the graduate school of the University of

California at Berkeley, and suppose that a public relation officer boasts that UCB has historically had a

40% acceptance rate for its graduate school. Consider the data stored in the table UCBAdmissions from

1973. Assuming these observations constituted a simple random sample, are they consistent with the

officerâ..s claim, or do they provide evidence that the acceptance rate was significantly less than 40%?

Use an Î± = 0.01 significance level.

Answer)

X <- data.frame(UCBAdmissions)

Admitted <- X$Admit

Freq <- X$Freq

# From the question, the value of p0 is 0.4.

# Sample proportion = (# of admitted)/Total

p0 = 0.4

Adm <- grep("Admitted", Admitted)

Adm

Adm1 = NULL

for(i in Adm)

{

X <- Freq[i]

Adm1 = rbind(Adm1, X)

}

no.adm <- sum(Adm1) # number of students admitted

Total <- sum(Freq) # total students

p\_hat = no.adm / Total # Sample proportion

# Test statistic

z = (p\_hat - p0) / round(sqrt((p0\*(1-p0))/Total),8)

z

prob = pnorm(z, 0, 1)

prob

# The probability value obtained is 0.04638927, which is greater than 0.01. Therefore

# we can conclude that the acceptance range is consistent with the officer's claim.