1. Introduction

This assignment will help you understand the concepts learnt in the session.

2. Objective

This assignment will test your skills on **theorems and tests** in R.

3. Prerequisites

Not applicable.

4. Associated Data Files

Not applicable.

5. Problem Statement

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

   P(Z > 2.64)

ANS: pnorm(-2.64, mean= 0, sd = 1)

```
> pnorm(-2.64, mean= 0, sd = 1)
[1] 0.004145301
>
```

find P(|Z| > 1.39)

ANS:

```
#we can find by pnorm function too
pnorm(1.39)
#0.9177356
pnorm(-1.39)
#0.08226444
#1-(pnorm(1.39)-pnorm(-1.39))
#1-(0.9177356-0.08226444)
#1-0.8354712
#0.1645288 -ANSWER
```

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.

ANS:

#to check for wheather there is consistency with the officers claim or do they provide evidence
#that the acceptance rate was significantly less than 40%
#thus defining the null hypo as Ho:p is equal to 0.40
#and Ha:p less than 0.40

#Ho : p = 0.4
#Ha : p < 0.4
#alpha = 0.01
#Thus to find we use qnorm() function

```
-qnorm(0.99)
```

#-2.326348

#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
```

#by calculations it is clear that our test statistic is not less than -2.326348
#So we accept our null hypothesis Ho
#hence we say that the observed data are consistent with the officer's claim at alpha = 0.01(Level of Significance)