SESSION 9 – ASSIGNMENT 9.1

Date: 29th Jan 2019

1. **If Z is norm (mean = 0, sd = 1);**
   find P(Z > 2.64)

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

   find P(|Z| > 1.39)

   RCODE - 1-(pnorm(1.39)-pnorm(-1.39))
   [1] 0.1645289

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 UCB Admissions 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.

   qnorm(0.99)
   #[1] -2.326348

   #Our only remaining task is to find the value of the test statistic and see where it falls relative to the critical value. We can find the number of people admitted and not admitted to the UCB graduate school with the following.

A <- as.data.frame(UCBAdmissions)
head(A)
xtabs(Freq ~ Admit, data = A)

```
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[1] 2.326348
> #[1] -2.326348
> #Our only remaining task is to find the value of the test statistic and see where it falls relative
> #to the critical value. We can find the number of people admitted and not admitted to the UCB
> #graduate school with the following.
> A <- as.data.frame(UCBAdmissions)
> head(A)
     Admit Gender Dept Freq
1 Admitted   Male    A  512
2 Rejected   Male    A  313
3 Admitted Female    A   89
4 Rejected Female    A   19
5 Admitted   Male    B  353
6 Rejected   Male    B  207
> xtabs(Freq ~ Admit, data = A)
Admit
Admitted Rejected
    1755     2771
> #Now we calculate the value of the test statistic.
> phat <- 1755/(1755 + 2771)
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> xtabs(Freq ~ Admit, data = A)
Admit
Admitted Rejected
    1755     2771
> #Now we calculate the value of the test statistic.
> phat <- 1755/(1755 + 2771)
> (phat - 0.4)/sqrt(0.4 * 0.6/(1755 + 2771))
[1] -1.680919
>
>
> #Our test statistic is not less than ???2.32, so it does not fall into the critical region. Therefore,
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> #we fail to reject the null hypothesis that the true proportion of students admitted to graduate
> #school is less than 40% and say that the observed data are consistent with the officer's claim at
>
```

#Our test statistic is not less than ???2.32, so it does not fall into the critical region. Therefore, we fail to reject the null hypothesis that the true proportion of students admitted to graduate school is less than 40% and say that the observed data are consistent with the officer's claim at the = 0.01 significance level.