Assignment9.2

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```
# Assignment 9.2
# 1. calculate the p-value for the test in problem no 2

dfUCB = as.data.frame(UCBAdmissions)

#check the total frequency of admission
xtabs(Freq ~Admit, data = dfUCB)
```

```
## Admit
## Admitted Rejected
##     1755     2771
```

```
AdmitRate = 1755/(1755+2771)
TestStatistic = (AdmitRate-0.4)/sqrt(0.4*0.6/(1755+2771))
TestStatistic
```

```
## [1] -1.680919
```

```
# for this test statistics calculate the p value
  pnorm(-1.68)
```

```
## [1] 0.04647866
```

```
  # the P value is 0.04

# 2. How do you test the proportions and compare against hypothetical pros ?
#    Test Hypothesis : Porportion of automatic cars is 40%

  # Hypothesis
  # H0 : p = 0.4 and
  # H1 : p ! = 0.4.

  # P - 0.4 / sqrt(0.4(1-0.4)/n)
  #Significance Level to be used is alpha = 0.05
library(readr)
mtcarscopy <- read_csv("F:/R Notes/29Sep/mtcarscopy.csv")
```

```
## Warning: Missing column names filled in: 'X1' [1]
```

```
## Parsed with column specification:
## cols(
##   X1 = col_character(),
##   mpg = col_double(),
```

```
##   cyl = col_integer(),
##   disp = col_double(),
##   hp = col_integer(),
##   drat = col_double(),
##   wt = col_double(),
##   qsec = col_double(),
##   vs = col_integer(),
##   am = col_integer(),
##   gear = col_integer(),
##   carb = col_integer()
## )

View(mtcarscopy)

#    Car Engine Transmission (0 = automatic, 1 = manual)
dfmtcars = mtcarscopy


head(dfmtcars)

## # A tibble: 6 x 12
##   X1       mpg   cyl  disp    hp  drat    wt  qsec    vs    am  gear  carb
##   <chr>  <dbl> <int> <dbl> <int> <dbl> <dbl> <dbl> <int> <int> <int> <int>
## 1 Mazda~  21       6   160   110  3.9   2.62  16.5     0     1     4     4
## 2 Mazda~  21       6   160   110  3.9   2.88  17.0     0     1     4     4
## 3 Datsu~  22.8     4   108    93  3.85  2.32  18.6     1     1     4     1
## 4 Horne~  21.4     6   258   110  3.08  3.22  19.4     1     0     3     1
## 5 Horne~  18.7     8   360   175  3.15  3.44  17.0     0     0     3     2
## 6 Valia~  18.1     6   225   105  2.76  3.46  20.2     1     0     3     1

table(dfmtcars$am)

##
##  0  1
## 19 13

Automatic_car = 19/(19+13)
TestStatistic1 = (Automatic_car-0.4)/sqrt(0.4*0.6/(19+13))
TestStatistic1

## [1] 2.237232

#Significance Level to be used is alpha = 0.05
qnorm(0.95)

## [1] 1.644854

if(TestStatistic1 < -1*pnorm(0.95)){
  print("Reject NULL hypothesis for 95% confidence")
} else print("Accept NULL hypothesis for 95% confidence")

## [1] "Accept NULL hypothesis for 95% confidence"
```

R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

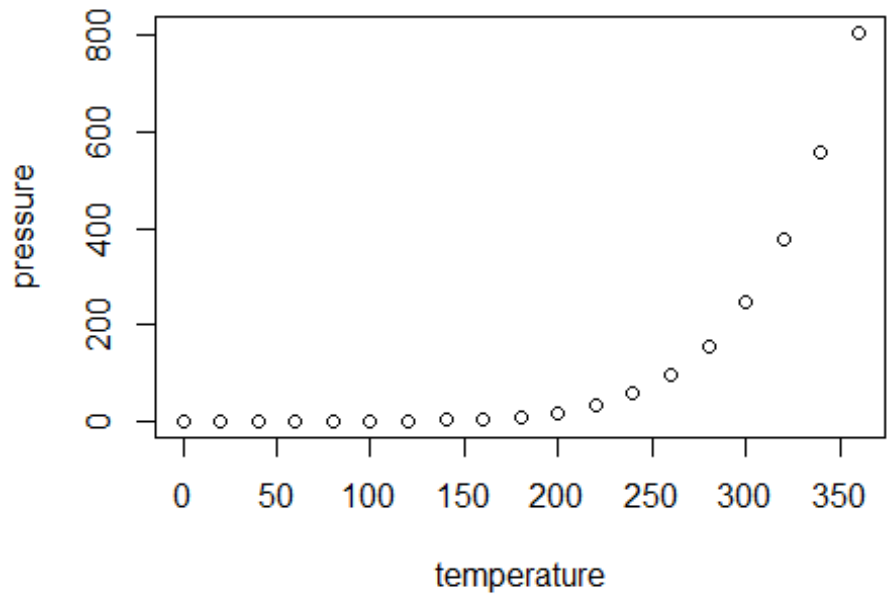
When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)
```

```
##      speed           dist       
##  Min.   : 4.0   Min.   :  2.00  
##  1st Qu.:12.0   1st Qu.: 26.00  
##  Median :15.0   Median : 36.00  
##  Mean   :15.4   Mean   : 42.98  
##  3rd Qu.:19.0   3rd Qu.: 56.00  
##  Max.   :25.0   Max.   :120.00
```

Including Plots

You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.