PROBABILITY & STATISTICS

ASSIGNMENT 8:

#step 1

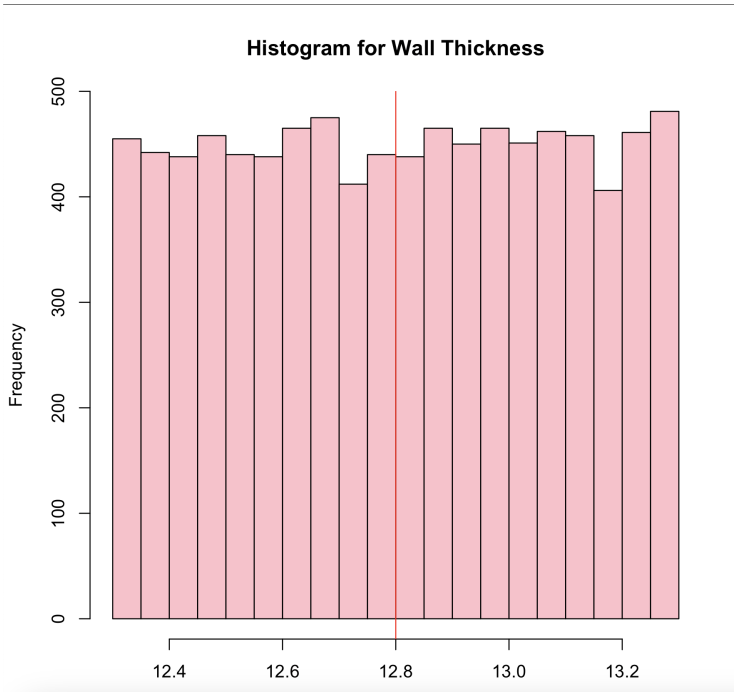
```
> data<-read.csv(file.choose())
```

#Step 2 - Validate data for correctness

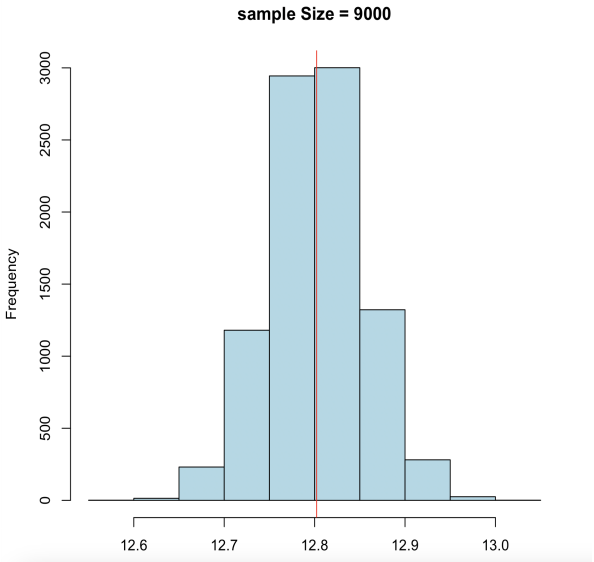
```
> #____________________
>
> #Count of Rows and columns
> dim(data)
[1] 9000    1
> #View top 10 rows of the dataset
> head(data,10)
   Wall.Thickness
1        12.35487
2        12.61742
3        12.36972
4        13.22335
5        13.15919
6        12.67549
7        12.36131
8        12.44468
9        12.62977
10       12.90381
```

#Step 3 - Calculate the population mean and plot the observations

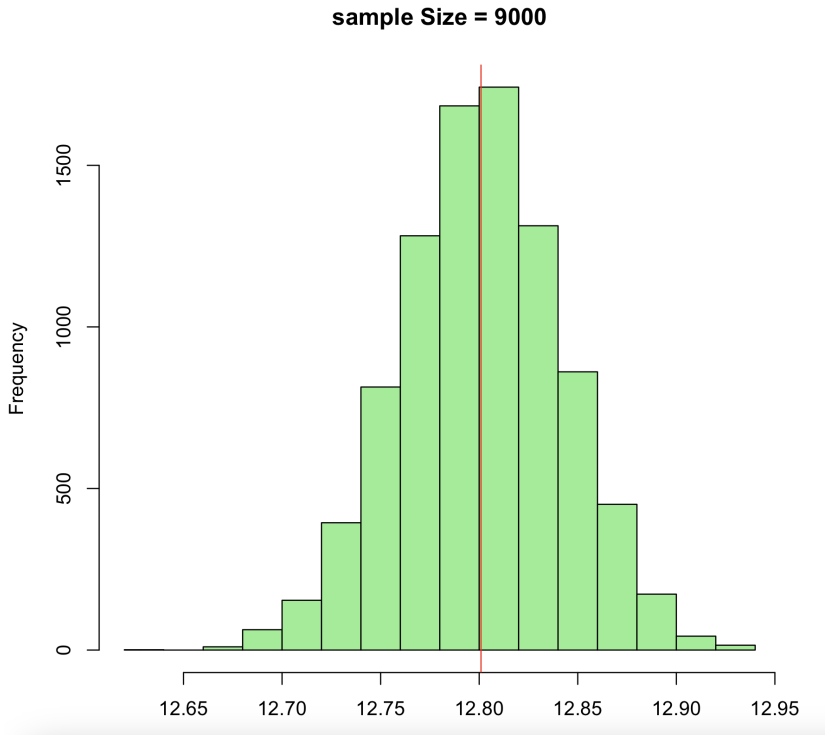
```
> #_____________________
>
> #Calculate the population mean
> mean(data$Wall.Thickness)
[1] 12.80205
> #Calculate the population mean
> mean(data$Wall.Thickness)
[1] 12.80205
> #Plot all the observations in the data
> hist(data$Wall.Thickness,col = "pink",main = "Histogram for Wall Thickness",xlab
= "wall thickness")
> abline(v=12.8,col="red",lty=1)
```




```
> s30<-c()
> s50<-c()
> s500<-c()
> n=9000
> for(i in 1:n){
+   s30[i]=mean(sample(data$Wall.Thickness,30, replace=TRUE))
+   s50[i]=mean(sample(data$Wall.Thickness,50, replace=TRUE))
+   s500[i]=mean(sample(data$Wall.Thickness,500, replace=TRUE))}
> hist(s30,col="lightblue", main="sample Size = 9000",xlab="wall THickness")
> abline(v=mean(s30),col="red")
```



```
> hist(s50,col="lightgreen", main="sample Size = 9000",xlab="wall THickness")
> abline(v=mean(s50),col="red")
```




```
> hist(s500,col="orange", main="sample Size = 9000",xlab="wall THickness")
> abline(v=mean(s500),col="red")
```