

Statistical Inference Peer Assignment 1

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Overview

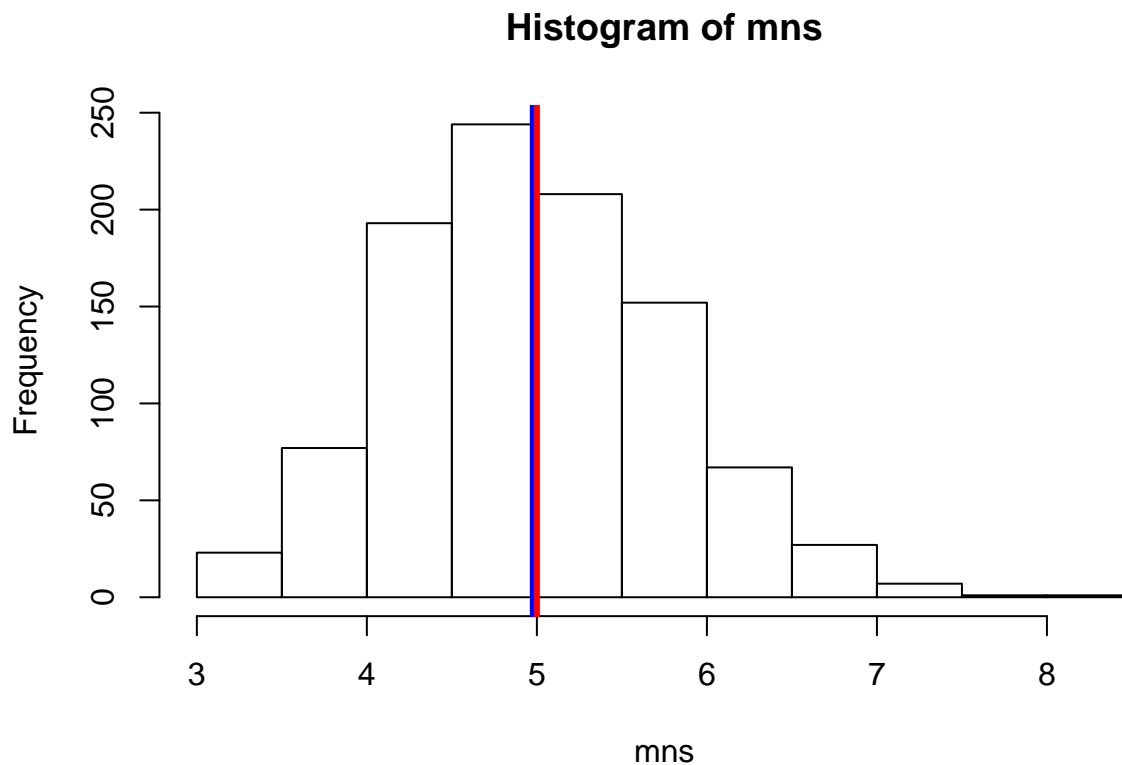
This is the report for Statistical Inference Peer Assignment 1. Also this is my first R Markdown document.

Simulation

```
#Create an empty vector
mns = NULL
#fill the vector with 1000 exmaples
for (i in 1 : 1000) mns = c(mns, mean(rexp(40, rate=0.2)))
```

Sample Mean versus Theoretical Mean

```
#hisgram to show
hist(mns)
#sample mean versus theoretical mean
sample_mean <- mean(mns)
theoretical_mean <- 1/0.2
#putm mean value in the hisgram
abline(v=sample_mean,col="blue",lwd=3)
abline(v=theoretical_mean,col="red",lwd=3)
```



You will be able to see that two line are almost vertical and overlape with each other.

Sample Variance versus Theoretical Variance

```
#now calc sample variance versus theoretical variance  
sample_variance <- var(mns)  
sample_variance
```

```
## [1] 0.6310629
```

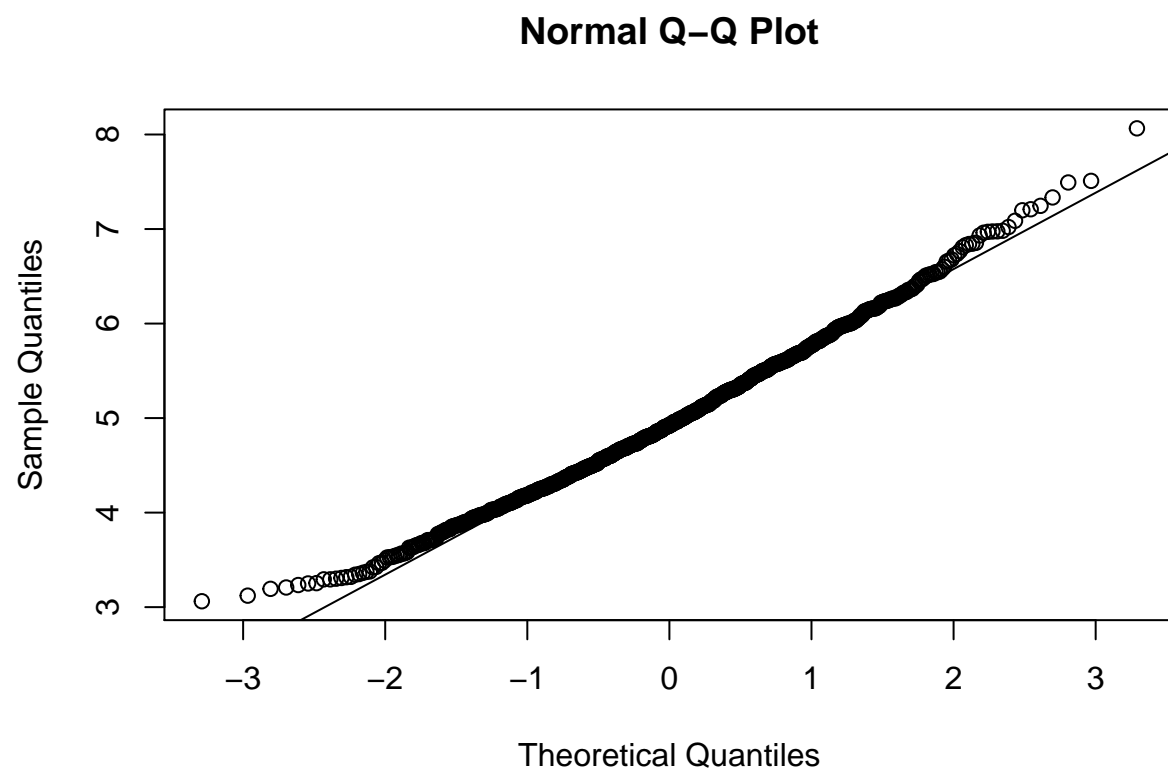
```
theoretical_variance <- (1/0.2^2)/40  
theoretical_variance
```

```
## [1] 0.625
```

Distribution

Let's see how the distribution is approximately normal

```
qqnorm(mns)  
qqline(mns)
```



You can see from the plot that the distribution is quite normal.