Simulation Exercise

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Overview:

This paper explores simulations on an Exponential Distribution.

```
# Set parameters for distribution
n <- 40
lambda <- 0.2

set.seed(0)

# Generate random deviates for a sample exponential distribution
sampleDist <- rexp(n, lambda)


# An exploratory plot
```

Simulations:

Sample Mean versus Theoretical Mean

This distribution is centered at ... The theoretical center, or mean of the distribution is centered at ...

```
# Calculate mean of the sample distribution
sampleDistMean <- mean(sampleDist)

# Calculate hypothetical mean for the exponential distribution
hypoDistMean <- 1/lambda
```

Sample Variance versus Theoretical Variance

This distribution's variance is ... The theoretical variance of this distribution would be ...

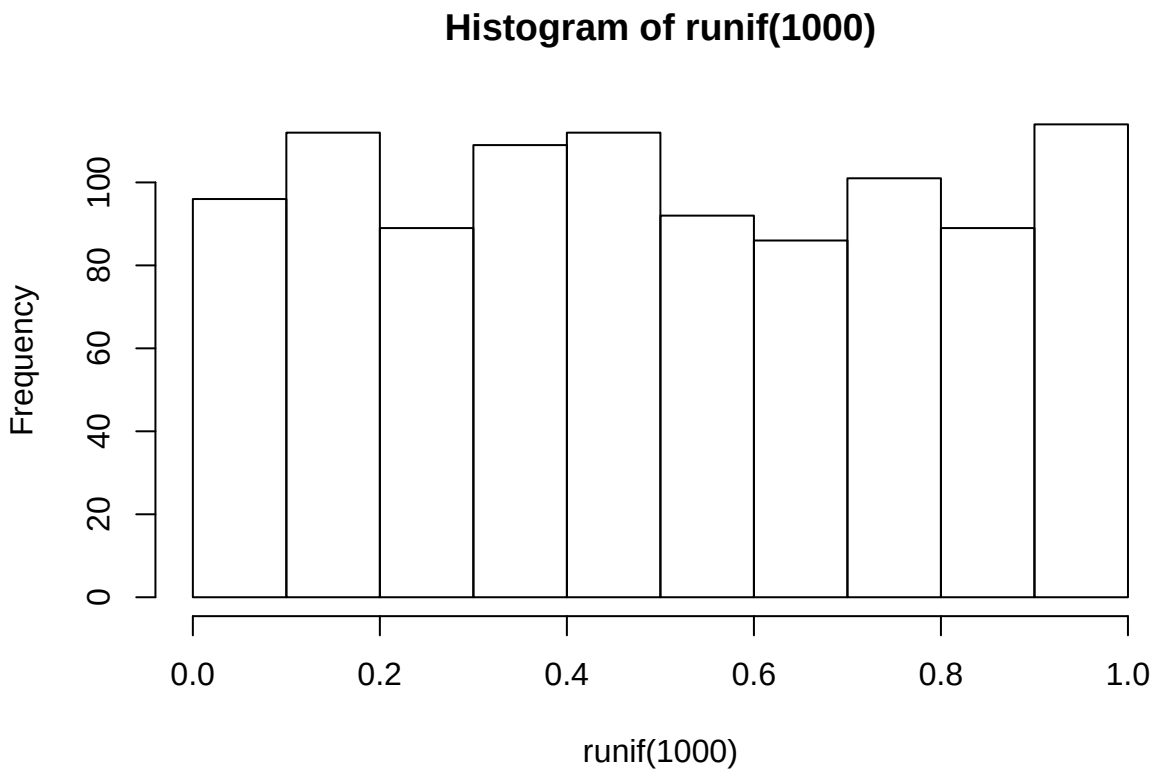
```
# Calculate variance of the sample distribution
sampleDistVariance <- var(sampleDist)

# Calculate hypothetical variance for the exponential distribution
hypoDistVariance <- (1/lambda)^2
```

Distribution

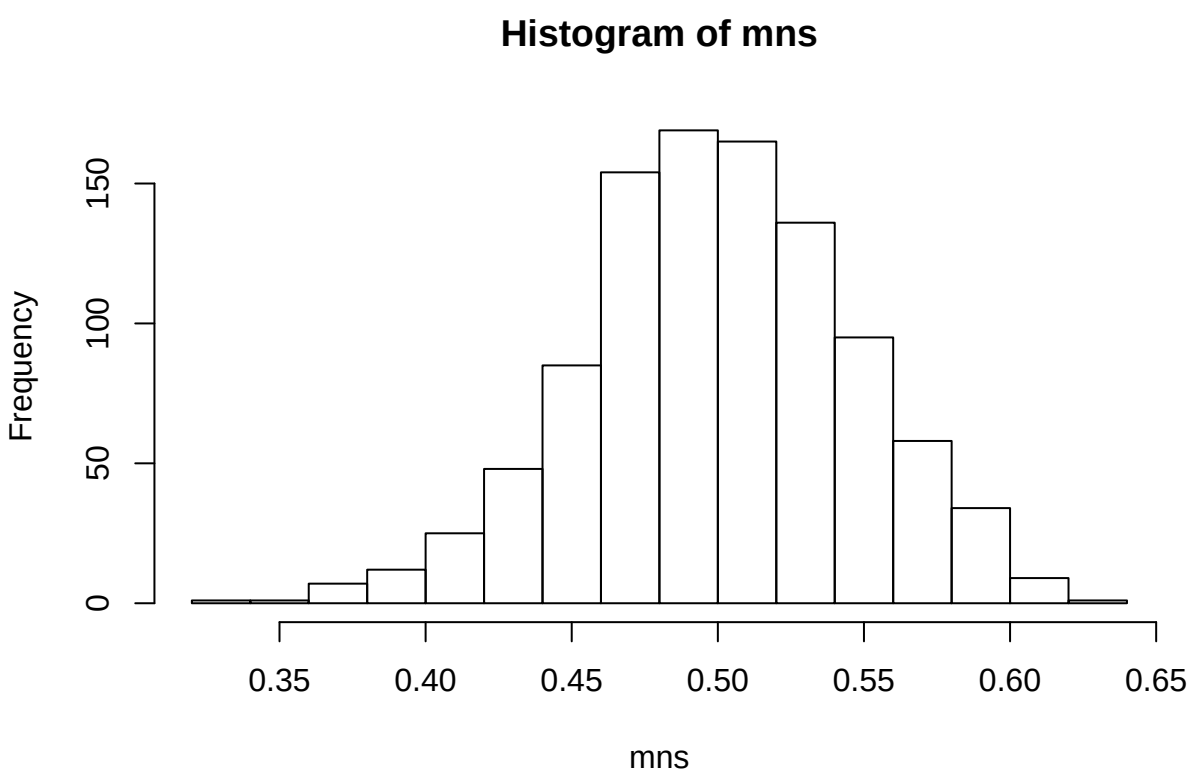
We know this distribuion is normal because ...

Our conclusions and assumptions ...

```
hist(runif(1000))
```




```
#---

mns = NULL
for (i in 1:1000) mns = c(mns, mean(runif(40)))
hist(mns)
```


Histogram of mns
Frequency
0
50
100
150
0.35
0.40
0.45
0.50
0.55
0.60
0.65
mns