STA426: Exercise 1

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Excercise 1.1

A GitHub repository with the appropriate README.md file has been created and can be accessed by clicking here.

Excercise 1.2

Data sampling

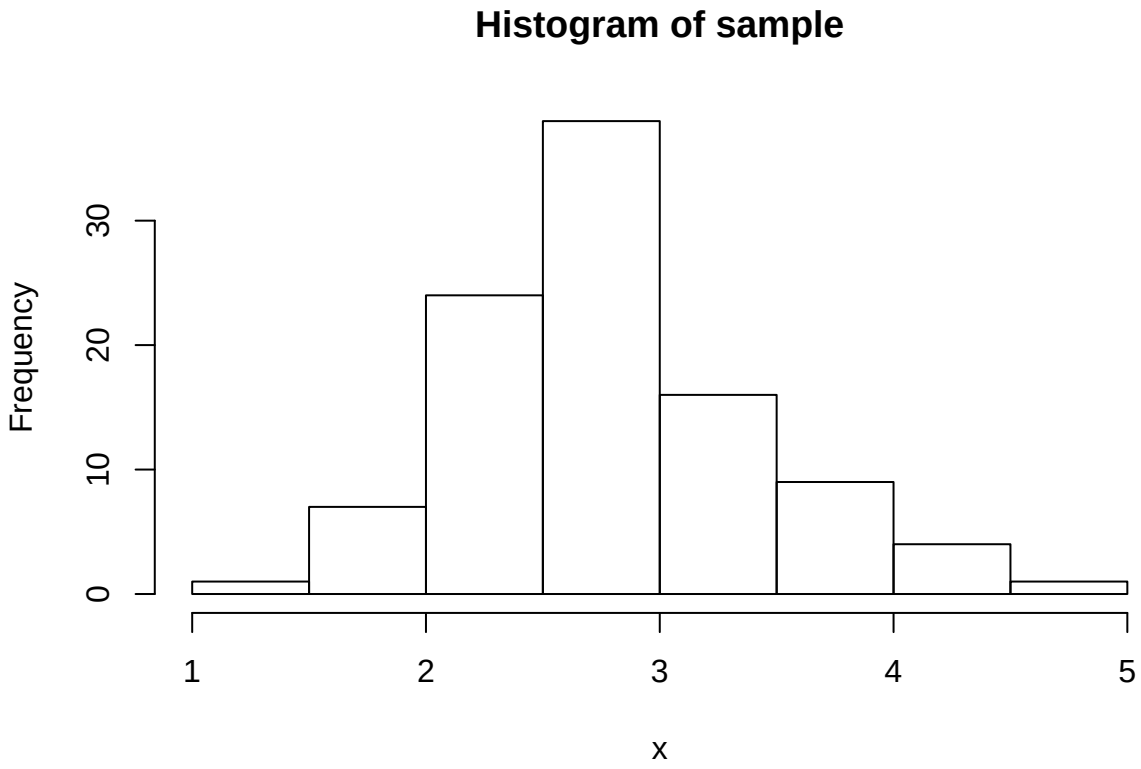
100 values are sampled from a log-normal distribution with mean $\mu = 1$ and standard deviation $\sigma = 0.25$, and stored in a vector "x".

```
x <- rlnorm(n = 100, meanlog = 1, sdlog = 0.25)
```

Histogram

To show the distribution of the sampled values, a histogram is plotted using the code below:

```
hist(x = x, main = "Histogram of sample", breaks = 10)
```

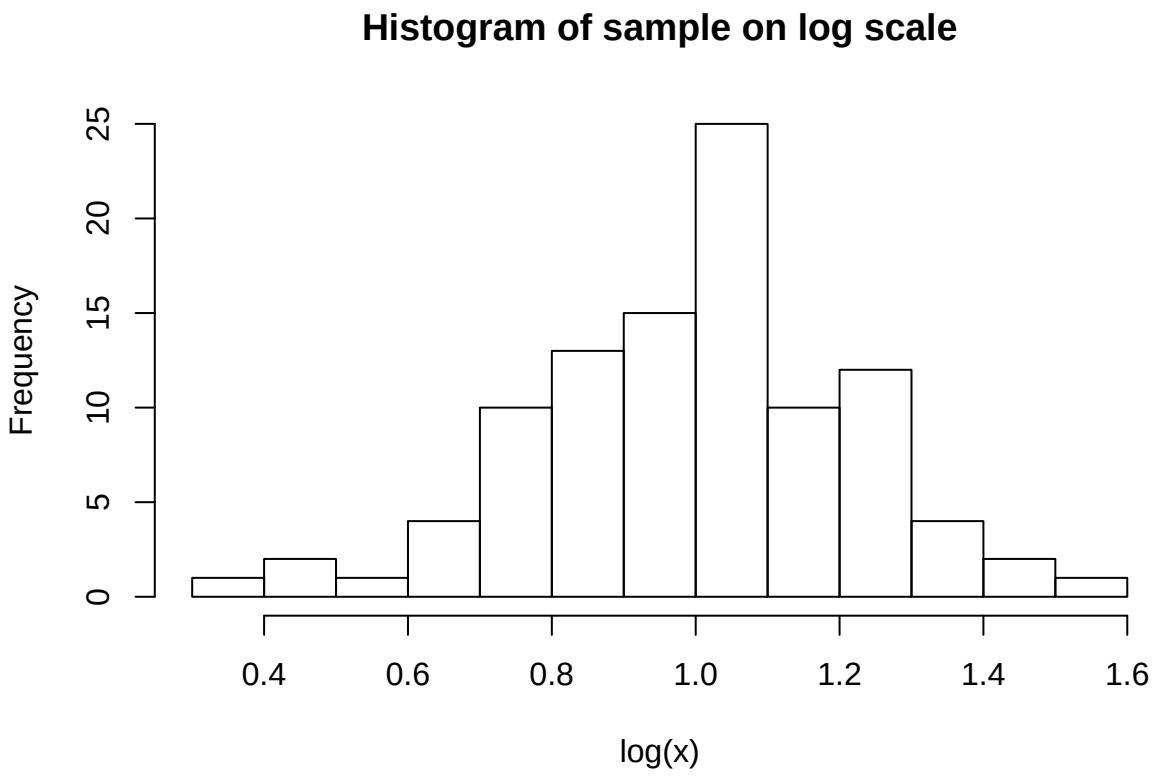


The resulting sample has a mean $\mu = 2.788$ and a variance $\sigma^2 = 0.378$.

Histogram on the log scale

To show the distribution of the sampled values on the logarithmic scale, first the *log* function must be applied to each element of the vector "x", and the resulting values are stored in a new vector called "xlog". Afterwards a histogram of "xlog" is plotted as usual.

```
xlog <- log(x)
hist(x = xlog, main = "Histogram of sample on log scale", breaks = 10, xlab = "log(x)")
```



The resulting sample on log scale has a mean $\mu = 1.001$ and a variance $\sigma^2 = 0.05$.