Statistical Inference Course - Project 2: Part 1

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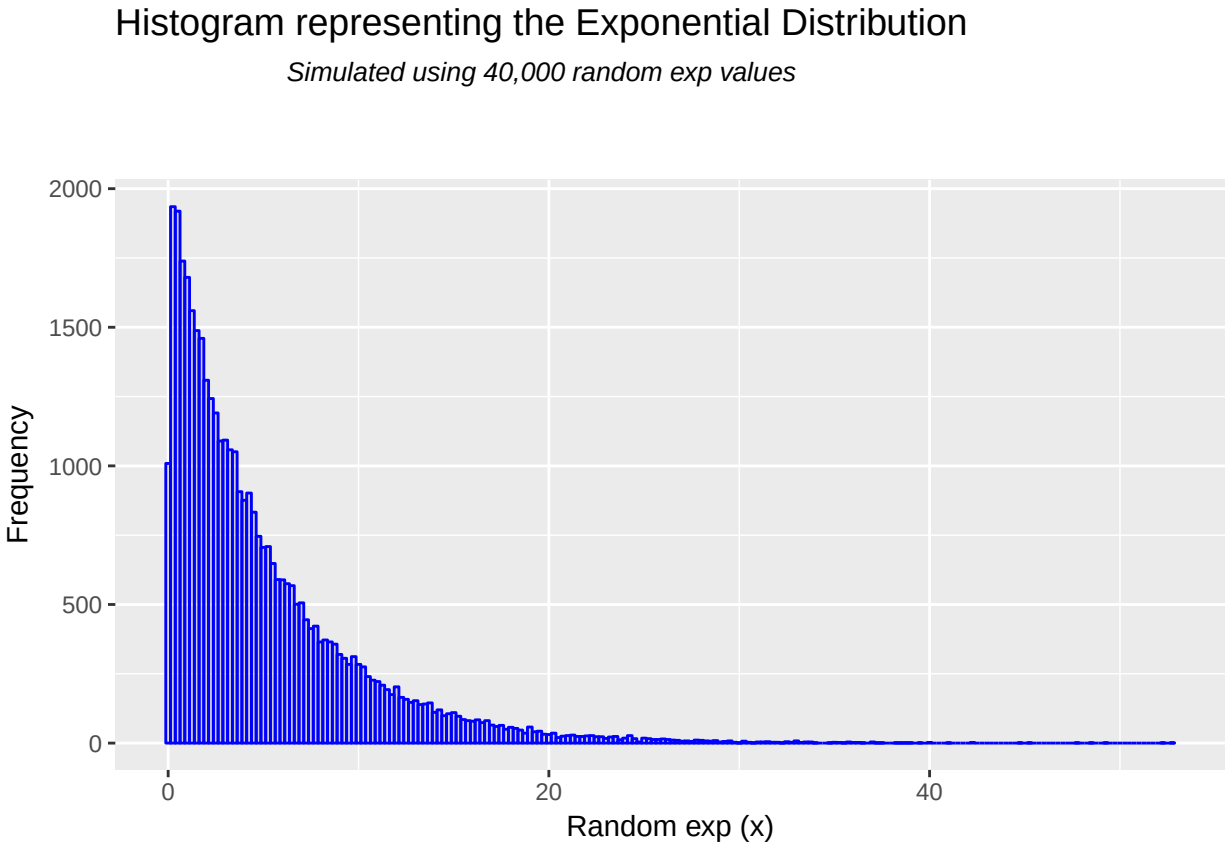
Project Overview

The goal of this project is to investigate the exponential distribution in R, comparing the exponential distribution to the normal distribution and the Central Limit Theorem. The source code for this project can be found on Github: https://github.com/dproksch/Stat-Inf-projet2

Create and Graph the Expoential Distribution

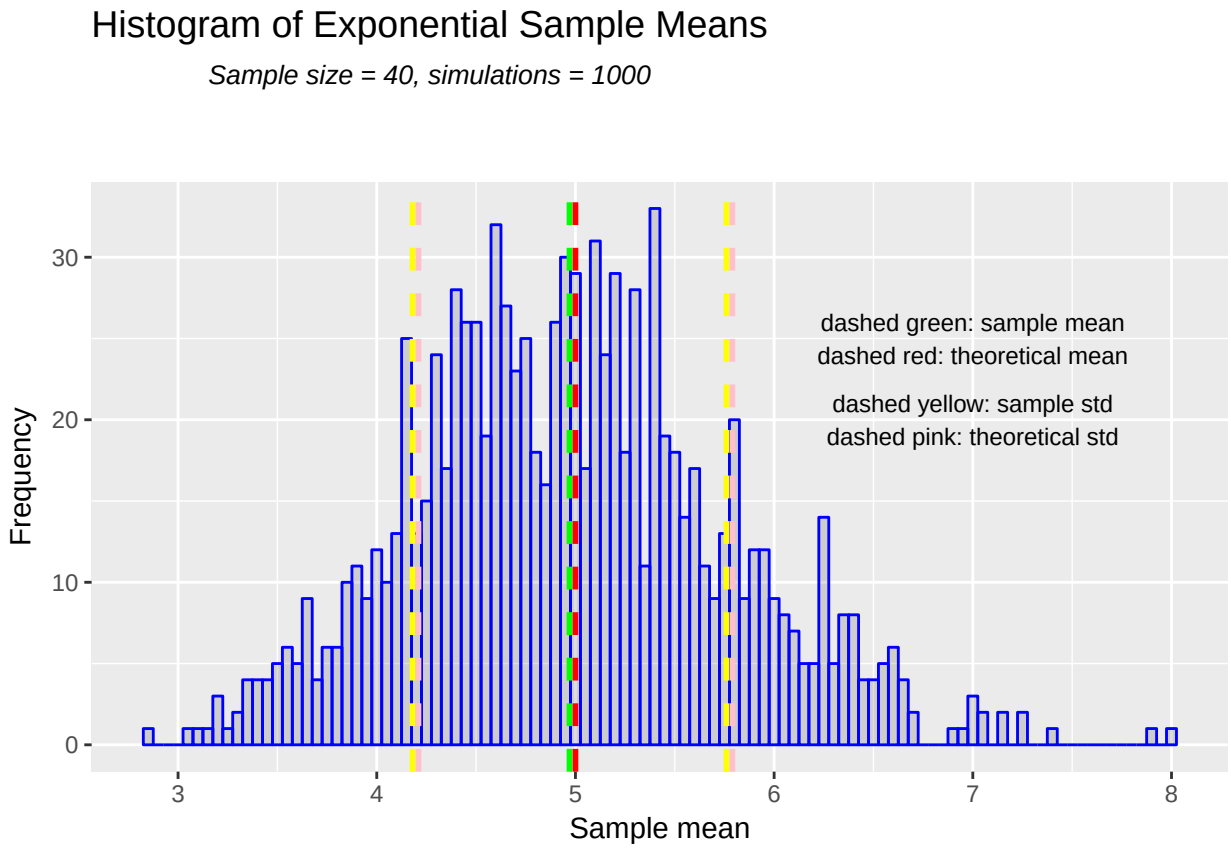
The exponential distribution is created using the R function, rexp(n,lambda). For this simulation, lamba will be set at a constant 0.2, and n will be set to 40,000. 40,000 is derived by using a sample size of 40, and the number of simulations being set to 1,000. The R package, ggplot, will then be used to graph the generated rexp distribution.



Compare Sample and Theoretical Means of the Distribution

The exponential distribution, with the same seed, will now be used to calculate the mean of 40 values which are created by running the rexp(n,lamba) function 1,000 times. Once the means have been calculated, a

histogram of the results will be created. After the histogram is created, the Sample and Theoretical Means will be calculated and plotted on the histogram.



Compare the Standard Normal Distribution of Exponential Distribution Sample Means