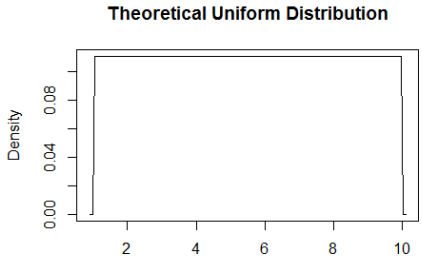
Marcel Poblet

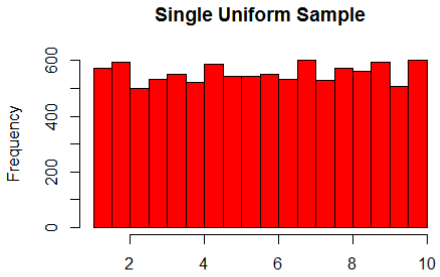
CSCI 3900C Data Science

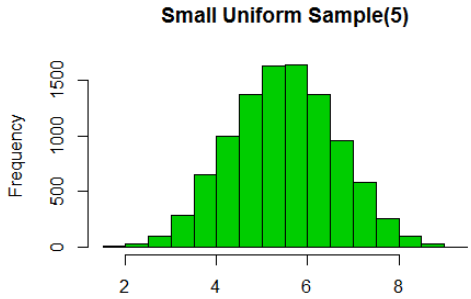
Dr. Spence

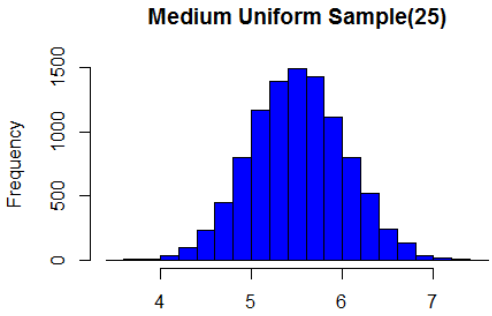
September 22, 2016

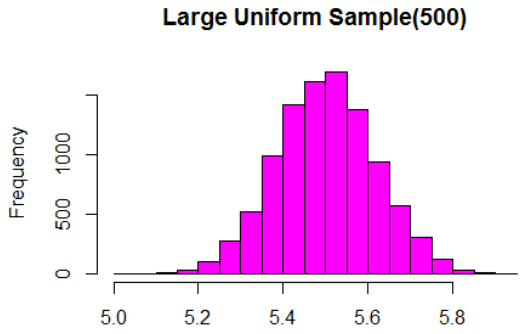
Project 2 Report



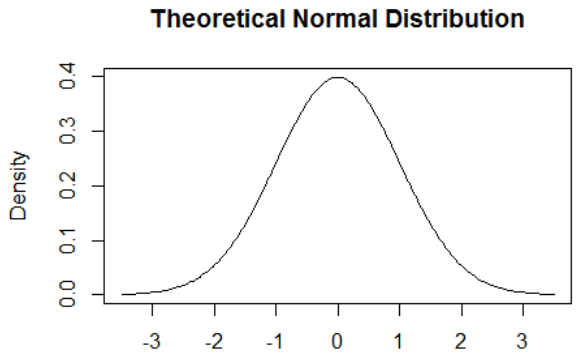


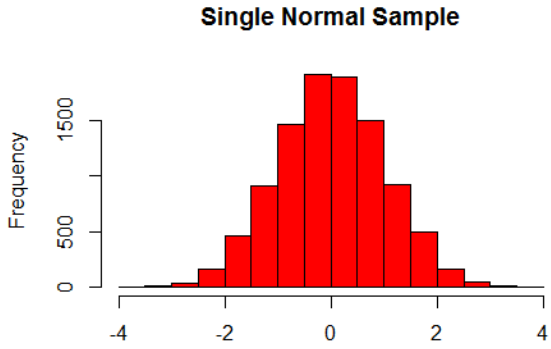


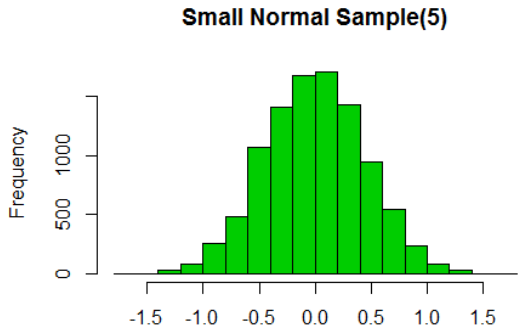


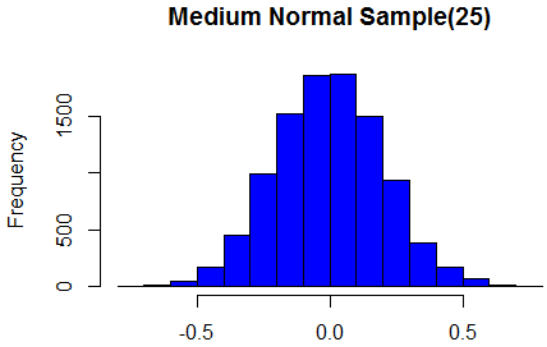


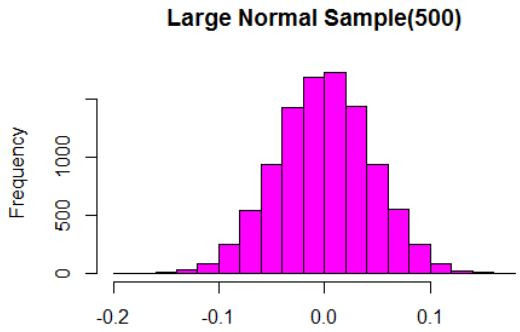
- The shape of the uniform generated samples represents a standard bell-curve shape. The mean of the distributions is ~5.50 and median is ~5.50 for every graph. As the range of values increase, the range of the histograms continue to narrow with a smaller standard deviation. The larger the values the closer to the theoretical mean the histogram will become.



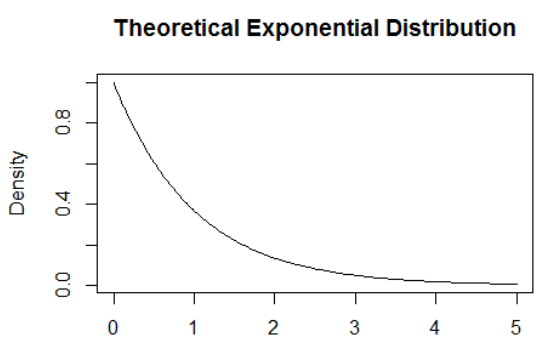


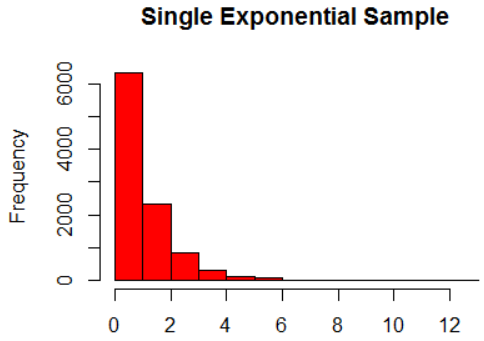


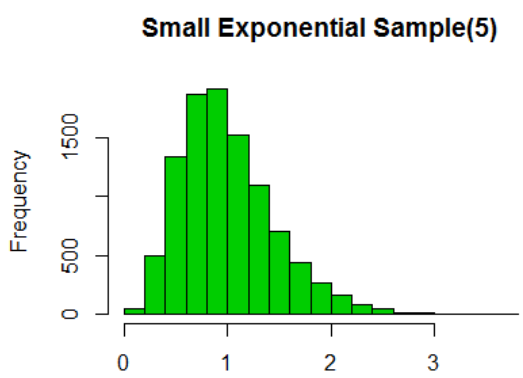


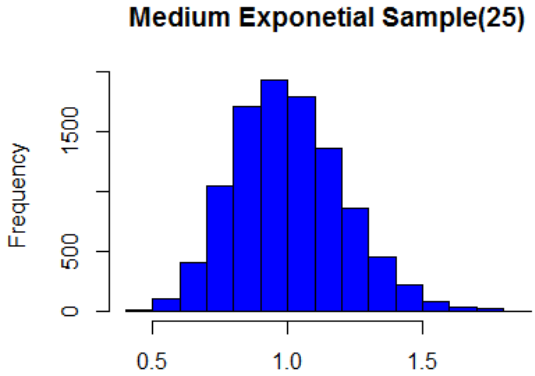


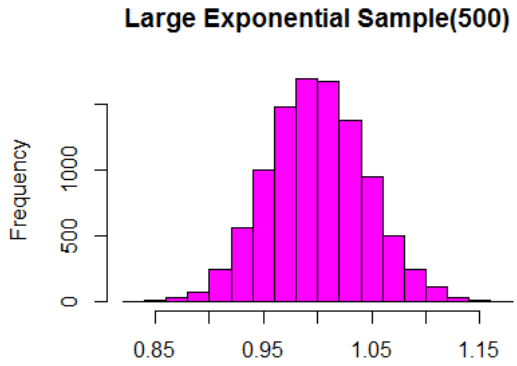
- The Shape of the normal generated samples represents a bell-curve. The means are all converging to zero, as well as their medians. The standard deviation continues to shrink with every sample size increase. The range also continues to get closer to zero, which is the mean of the theoretical distribution.











- The exponential generated samples begin to look skewed toward the right. As the value samples increase they begin to shift into a bell-curved shape. The mean and median for all graphs stay at ~1 which is the mean and median of the theoretical distribution. This illusion of the graphs shifting toward the center is just the range getting closer to the mean and a decrease in the standard deviation the larger the sample value becomes.

- The graphs displayed above portray the definition of the Central Limit Theorem. The means of several large sets of randomly iterated data should display as a normal distribution, also known as a bell-curve.