

Computational Assignment #1

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I used the Python package numpy to generate lists of random numbers that fit a normal distribution with the "numpy.random.normal()" function. I generated twenty of these lists of size N , such that the first list had ten elements, and each subsequent list was ten elements larger. While generating the lists, I also used numpy to calculate the mean and standard deviation of each. Next, I used the package matplotlib to create plots of each list's mean and standard deviation as a function of the list size, N . Finally, I used numpy to format the data for a histogram and then matplotlib to plot the histograms and the normal distribution scaled by the maximum value of the histogram bins.

N should be at least 100 for us to expect that it will reasonably follow a normal distribution. There is still some variability, and of course, when N is, that variability is reduced, but $N = 100$ appears to be quite close.

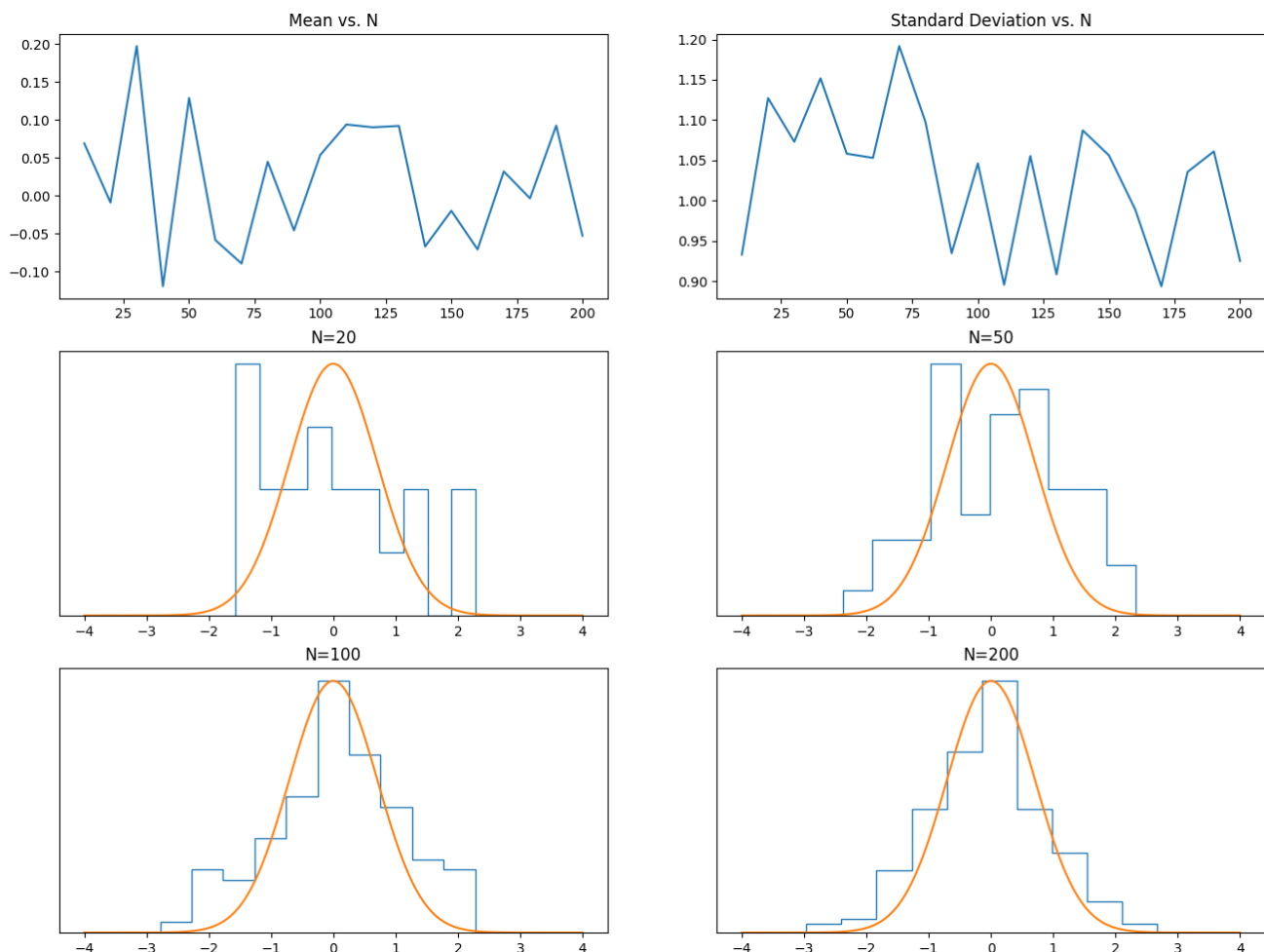


Figure 1: Plots