Mth256/656 Project: Simulations of Confidence Intervals (CI) and tests of hypotheses (TH) in small samples from normal populations.

1. First, examine the excel file which performs simulations of CI and TH for the population ***mean*** based on LARGE sample.
2. Then modify this process to perform simulations of CI and TH on a NORMAL population’s ***mean*** based on SMALL sample.

In excel: data -> data analysis -> random number generation ->

You will need to specify the small sample size [number of variables (cols)] and how many samples [number of random numbers (rows); you’ll want at least 1000] are generated from the NORMAL population; you should specify a mean and a standard deviation, as well as a new Worksheet name. After generating the samples, one needs to specify several different levels of confidence / alpha levels with their respective “t” critical multipliers. Finally compute summary statistics (e.g. fractions of samples which have their confidence intervals containing the population mean.)

1. Next use the above generated samples (of part 2, above) to conduct CI and TH for the population ***variance*** . Also choose several confidence / alpha levels and determine chi-square based critical levels as well as summary stats on the simulations.
2. Your project report should consist of: a short introduction describing what you will do in the paper, cut/pasted (e.g. into WORD) small sections of the simulations as well as full information about the simulations summaries; discussion of the results and their meaning; a short conclusion which ties the paper together and emphasizes the major results.