ST810: Big Data – Assignment 4 – Due 9/17

In this assignment, you will conduct a simulation study to determine properties of bootstrap standard errors for the LASSO. You may use the bootstrap function is given at

`http://www4.stat.ncsu.edu/~reich/BigData/assignments/lasso_boot.R`

Pick a simulation scenario (n, p, true β, etc.) and generate 1,000 data sets. For each dataset, obtain bootstrap confidence intervals for the elements of β and determine whether the true value of β is in the interval. Report the empirical coverage probability for each element of β, that is, the proportion of the 1,000 CIs that contained the true value.

Final report: Your final report should be on one piece of paper (front and back, single spaced, 11 font, 1 inch margins) and have the following section titles:

1. **Summary**: One paragraph overview of the objectives, methods, and results.
2. **Methods**: Provide a brief discussion of the methods used to simulate and analyze the datasets, and to summarize the simulation results (you do not need to include code).
3. **Results**: Create a well-labeled table or figure clearly presenting your results.
4. **Conclusions**: Summarize the results in a paragraph and give general recommendations. Is coverage different depending on the true value of β?