

Bayes Test Practice 1

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2022/04/04

Instructions

The following distributions are easy to simulate from in Excel (using the inverse CDF functions built-in): Beta, Binomial, ChiSquare, Exponential, F, Gamma, Normal, LogNormal, t.

1. For each of these distributions, pick interesting parameters and simulate a single sample of size 50. Put these numbers on a spreadsheet in a table of size 50 by 9, with headings in the first row, and save it.
2. Import your spreadsheet into R and give a summary table. Discuss whether the average of each column seems reasonable.
3. Use Stan to fit each distribution to its sample. You will need to specify some priors of your choosing here and there (e.g. for the t df). Thus you will be doing 9 fits in total. For each fit discuss the trace plot and convergence.
4. Obtain parameter estimates from your simulations and compare them to the parameters you chose, and discuss any meaningful differences.

[100 marks for following the instructions properly, -50 for having too similar parameters and numbers to another person, -50 for handing in late.]