**Carry out your analysis using Stan(in Rstudio)**

1. As an analyst that relies primarily on fundamental analysis for choosing stocks, you’ve kept records on your performance over the past year (see file, “**Prob 9-1**.csv”). The values in the y column of the spreadsheet indicate whether you picked a profitable stock (indicated by “1”) or you picked a loser (indicated by “0”). The x column indicates the hours you spent analyzing the firm that issued the stock. You may assume that a useful candidate data generating process that could explain your data is a Bernoulli process, and the likelihood of your data could be modeled as follows: y ~ bern(pi).

1. Perform a qualitative exploratory analysis of your data.
2. Perform Bayesian data analysis using a logistic regression model to predict your probability of success in selecting a profitable stock for analysis times ranging from zero to 20 hours. Display a summary of your output; include the values of the parameters of your model. This summary can be a typical rstan output summary. Include a “stan plot” display.
3. Perform diagnostic checks. Include, as a minimum, a trace plot of your parameters, an autocorrelation plot, and a pairs plot.
4. Perform Bayesian predictive checks to assess validity of your model.
5. Plot your results with analysis time of the horizontal axis and probability of success on the vertical axis.
6. Place a 95% credible interval around your plot.

2. You’re now a senior manager at your investment bank, and you want to assess whether there’s a relationship between the number of profitable stock-picks your analysts made this past year and their experience. You have 20 analysts reporting for you. Their performance (number of profitable stocks chosen last year) and their years of experience are presented in **Prob 9-2.csv**. The “y” column contains the number of profitable stocks chosen, and the “x” contains the years of experience for each analyst. You may assume that the data in the y column follows a Poisson distribution.

Perform a Bayesian data analysis to make your assessment. At a minimum,

1. Perform a qualitative exploratory analysis.
2. Perform a Bayesian data analysis using a Poisson regression to predict the number of profitable stocks chosen as a function of years of experience. Display a summary of your output; include the values of the parameters of your model. This summary can be a typical rstan output summary. Include a “stan plot” display.
3. Perform diagnostic checks. Include, as a minimum, a trace plot of your parameters, an autocorrelation plot, and a pairs plot.
4. Perform Bayesian predictive checks to assess validity of your model.
5. Once your satisfied with your model, graph your output, i.e., predicted counts as a function of years with the bank.