MTH225 Fall2016 Final Problem 14

In this example we analyze the results of two sets of binomial trials, the first with probability of success p_1, and the second with probability of success p_2. The objective is to estimate the values of p_1 and p_2 in order to compare them.

The data is in `MTH225_Fall2016_Final_Problem14.csv`.

The variable names are:

- `successes` number of successes
- `trials` number of trials
- `class` class (1 or 2)

The model in this exercise can use the following STAN file listed on the `example_models.html` web page:

- `compare_two_proportions.stan` Model to compare two proportions

- 2 points: Write R code to read the data and convert it to an R data frame.
- 1 point: Write the data block of a STAN model file that extracts the data from the R workspace.
- 1 point: Write the parameters block of a STAN model file that declares the paramter(s) of your model.
- 2 points: Write the model block of a STAN model file that specifies the priors and likelihood for your model.
- 1 point: Write R code to apply the `extract` function to the data structure output from the `stan` function.
- 1 point: Use the `extract()` function of the RSTAN package to obtain the values for the parameters from the posterior draw.
- 1 point: Use the results of the `extract` function to compute a 95% confidence interval for the difference between the two parameters p_1 and p_2.
- 1 point: Use the posterior draw to estimate the probability that $p_1 > p_2$.

(10 points possible)