Week 12 Individual Assignment 5

In this exercise you will replicate an earlier group assignment that performed a single-factor ANOVA with a continuous covariate (i.e., an ANCOVA).

- Your model should have a parameter mu for each of the two levels of the factor representing the intercept at that level
- Use a normal(0,50) prior for both mu parameters
- This time we will the model to have different slopes at each level by defining two slope parameters beta, one for each level of the factor.
- Use a normal (0,20) priors for beta
- Define a parameter sigma for each of the two levels to represent the background or error standard deviation at that level.
- Use a half-cauchy (0,20) prior for each sigma parameter
- Use a normal likelihood for y, with mean equal to the mu parameter for that particular level plus beta times the x value for that observation, and standard deviation equal to the corresponding sigma parameter for that level.

Use the generated quantities block to compute the difference in both the mu parameters and the beta parameters at the two levels.

Use the 95% credible intervals for these differences to decide whether the intercepts and/or slopes are likely to be different.

The individual datasets can be found on github in the file `MTH225_Week12_IA5_data.zip`