Week 6 in-class exercise

1) Break up into four small groups of equal size.

2) Download the zebra.finch.csv data set.

3) Each group should work together to decide how to complete their assigned problem using R.

1. Make a plot that visualizes the raw data. Calculate the 95% confidence interval for the number of offspring that both males and females produce using the approach from section 11.7. Write a sentence describing whether the data meet the assumptions of this method.
2. Try transforming this dataset to make it more normal. Plot a comparison of the raw and transformed data. Write a sentence describing your interpretation of your result.
3. Determine whether males have a lower mean offspring number than females. Compare your result to a simple t-test.
4. Determine whether males and females have the significantly different variance. Compare your result to a Levine's test.

4) Present your work to the class.

Homework

5) Finish the problems at home and produce a document with your answers and graphs. Be sure to answer all of the questions. Turn this document in to me next Tuesday.

6) In addition, answer the following question:

a. Propose a study related to your research interests that involves a comparison of means.

b. Enumerate your null and alternative hypotheses.

c. Propose a sample size for each treatment or observational group (your study could be either experimental or observational).

d. Based on what you know about the system, can you guess and approximate standard deviation of the response variable?

e. Do you anticipate any problems with the analysis of this experiment? Why or why not?