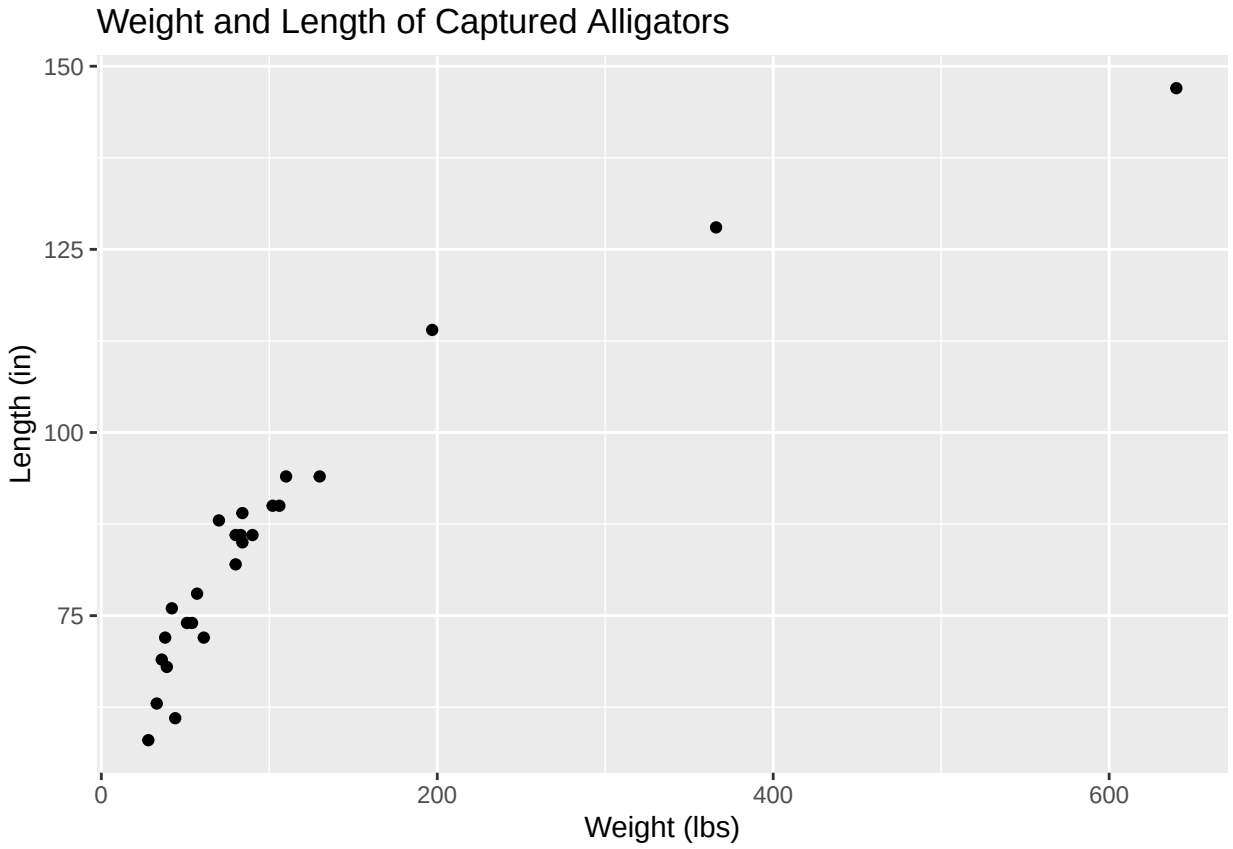
In-Class Worksheet

STAT011 with Prof Suzy

Week 3: Fitting a Linear Regression Model

Name: _____

Instructions: Wildlife researchers are monitoring a Florida alligator population by taking areal photographs and attempting to estimate the weights of the gators based on the length of the gators in the images. The data set `Gators.csv` contains the variables `Length` and `Weight` for a sample of alligators who have been captured and studied. This data is shown in the scatterplot below. Import the `Gators` data set into either Excel or RStudio and then answer the following questions.



1. Choose which variable should be the response and justify this choice in 1-2 sentences.

2. What are the slope and intercept of the line of best fit through this data? What is the interpretation of the slop within this context?

3. Does the linear model seem to be a good fit for this data? If so, describe why. If not, what could be done to make a linear model more appropriate?

4. The largest residual has a value of 165.62. Explain the meaning of this value in 1-2 sentences.

5. If you were a wildlife researcher who needed to know the different weights of alligators, would you decide to use this method? Give a statistically informed justification of your answer. (Hint: Report and interpret the R^2 value and/or the correlation coefficient.)