1. (**Lab 2.2, Question 18**): Fit a multiple linear regression model that explains arrival delay using departure delay and the distance of the flight and print out the coefficients (the intercept and two slopes). Speculate as to why the value of the distance coefficient is what it is in 1-2 sentences.

2. (**Lab 2.2, Question 19**): On average, which carrier's flights had the smallest arrival delay given their departure delay and distance? Write the code you used to help answer below.

Load the `penguins` dataset into R and answer the following questions.

3. Fit the multiple linear regression model from today's slides, but instead having `"Chinstrap"` as the reference level in the `species` variable. Paste the code you used below.

4. Write out the mathematical equation of the line whose coefficients are given by your model output.

5. Interpret the coefficient corresponding to the `"Adelie"` indicator variable in the context of the problem in 1-2 sentences.

6. Now consider the relationship between bill length and bill depth when broken down by species. **Sketch** (*do not write code*) a plot which can be used to summarize the relationship between all three variables. Depict a shape which reflects your expectation of this relationship. **State** (*do not write code*) the aesthetic mappings and geometry involved in the plot as per the Grammar of Graphics. Finally, label your axes and give the plot a title.