

Load the penguins dataset into R and answer the following questions. Where code is needed, you may write it down in the space given.

**Question 1**

Fit the multiple linear regression model from today's slides, but instead having "Chinstrap" as the reference level in the species variable. Interpret the coefficient corresponding to the "Adelie" indicator variable in the context of the problem.

**Question 2**

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

**Question 3**

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