**R bootcamp basic stats and plotting worksheet:**

1. Take a look at the ‘penguin’ data set

**Hint**: you can use functions such as head(), summary(), unique()

1. Create variables:
   1. Assign data for the Adelie species to a variable named ‘adelie’ and assign the subset of the data for the Gentoo species to another variable named ‘gentoo’.
2. Plot some data and compare means of two variables:
   1. Plot the flipper lengths of the two species as two histograms.
   2. Now plot the flipper lengths of the two species so that you can compare them more easily (**Hint**: what is a good plot for summarizing means or medians?)
   3. Is there a statistically significant difference between the flipper lengths of the two species?
   4. Plot and compare two other measures of your choosing.
3. Compare the means of more than two variables:
   1. Plot the flipper length of all three species (**Hint**: you can do this in one figure)
   2. Add a legend with species names.
   3. Is there a statistically significant difference in flipper length among the three species? (**Hint**: use an ANOVA)
   4. Which species are significantly different? (**Hint:** run a post-hoc test)
   5. Add the information from the post-hoc test to your figure (**Hint:** text() is a useful ‘low-level’ plotting tool)
4. Compare continuous variables:
   1. Plot flipper length against body mass
   2. Are body mass and flipper length correlated? (**Hint:** use a Pearson’s correlation)
   3. Color code your plot by species, include a legend on the plot.
   4. Do species differ in the relationship between body mass and flipper length?
5. Examine (plot and stats) the relationship between ***bill*** length and ***flipper*** length. Is the relationship between these two variables the same across the three species?