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**Lab 1**

The exercises in this lab are extensions of the functions that we explored in class. The goal of this lab is to make sure that you are familiar with those functions and how to use them to manipulate data, calculate summary statistics, and explore data visually.

For each question, *provide the line(s) of code that you used to find the answer to that question specifically*, in addition to your answer. However, please don’t feel the need to copy and paste your entire R document unless you are submitting a knitted Rmarkdown file. We will continue using the Palmer Penguins dataset for this lab. Each question is worth 5 points, 2 of which is code.

1. How many female Adelie penguins are there are Dream Island?

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adelie\_sp\_female\_dream <- filter(adelie\_sp, sex == "female", island == "Dream")

count(adelie\_sp\_female\_dream) #answer to question 1

1. What is the average beak depth of penguins by species?

mean(adelie\_sp$bill\_depth\_mm, na.rm = T) # answer to 2

[1] 18.34636

> mean(chinstrap\_sp$bill\_depth\_mm, na.rm = T) # answer to 2

[1] 18.42059

> mean(Gentoo\_sp$bill\_depth\_mm, na.rm = T)# answer to 2

[1] 14.98211

1. Make a basic histogram of penguin bill areas (the new variable we made in class) for all penguins measured in 2008.

penguins2008 <- filter(penguins, year == "2008")

penguins2008 %>%

ggplot( aes(x=bill\_area\_mm, fill=species)) +

geom\_histogram(color="black", alpha=0.5, position = 'identity') +

scale\_fill\_grey() +

theme\_classic2()

Chart, histogram

Description automatically generated

1. Make a publication-quality plot of mean and *standard deviation* of body mass for each species, with *two panels*, one for males and one for females. For this plot, we will exclude NA’s.

ggplot (penguins2, aes(x= species, y = mean, fill = species)) + # answer to 4

scale\_fill\_brewer(palette="Dark2") +

geom\_bar(position = "dodge", stat = "summary", fun = "mean", na.rm = T ) +

print(labs(y = "Mean Body Mass(g)", x = "Species")) +

geom\_errorbar(aes(ymin=mean-sd, ymax=mean+sd), width=.2,

position=position\_dodge(.9)) +

facet\_grid (~sex) +

theme\_minimal()

Chart, bar chart, box and whisker chart

Description automatically generated