STAT40830 Homework 1

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Palmer Penguins Dataset

The Palmer Penguins dataset consists of data taken on 3 different species of penguins based in Antarctica. The specis are . The dataset contains measurements taken on Flipper Length, Bill length, Body Mass, sex, Island and Species.

```
# Load the required libraries
library(palmerpenguins)
library(ggplot2)
```

We can summarise the dataframe as shown:

```
# summarise the dataset
summary(penguins)
```

```
      species          island     bill_length_mm  bill_depth_mm
 Adelie   :152   Biscoe   :168   Min.   :32.10   Min.   :13.10
 Chinstrap: 68   Dream    :124   1st Qu.:39.23   1st Qu.:15.60
 Gentoo   :124   Torgersen: 52   Median :44.45   Median :17.30
                                 Mean   :43.92   Mean   :17.15
                                 3rd Qu.:48.50   3rd Qu.:18.70
                                 Max.   :59.60   Max.   :21.50
                                 NA's   :2       NA's   :2
 flipper_length_mm  body_mass_g      sex          year
 Min.   :172.0     Min.   :2700   female:165   Min.   :2007
 1st Qu.:190.0     1st Qu.:3550   male  :168   1st Qu.:2007
 Median :197.0     Median :4050   NA's  : 11   Median :2008
 Mean   :200.9     Mean   :4202                Mean   :2008
 3rd Qu.:213.0     3rd Qu.:4750                3rd Qu.:2009
 Max.   :231.0     Max.   :6300                Max.   :2009
 NA's   :2         NA's   :2
```
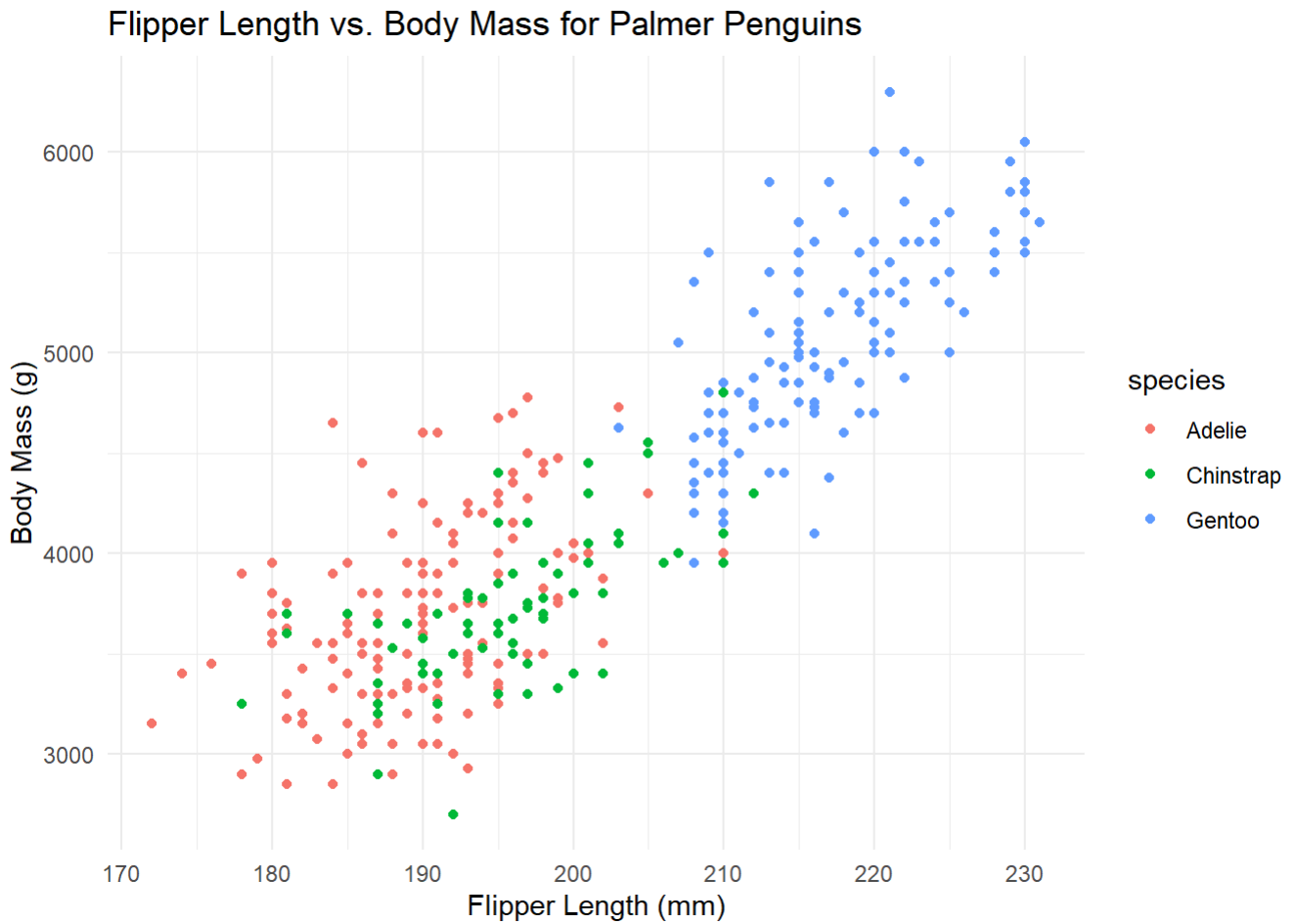
Plot of Flipper Length vs Body Mass

We can investigate the relationship between flipper length and body mass of the penguins. We also colour the plot by species.

```
# Create the plot
ggplot(penguins, aes(x = flipper_length_mm, y = body_mass_g, color = species)) +
  geom_point() +
  labs(
    title = "Flipper Length vs. Body Mass for Palmer Penguins",
    x = "Flipper Length (mm)",
    y = "Body Mass (g)"
```

```
  ) +
  theme_minimal()
```

Flipper Length vs. Body Mass for Palmer Penguins

Plot Summary

Adelie penguins make up 44% of the dataset and tend to have shorter flipper lengths and body mass. The Gentoo species are seen to be on average the largest species, with longest flipper lengtha nd greater body mass. Also, the chipstrap tend to be larger than Adelie but on average small than the chinstrap species.