

https://classroom.github.com/a/GfxTqd_W

The dataset `carnivora` is a sample of 112 species from the Order Canivora. You can find the CSV of the dataset at the following link:

<https://raw.githubusercontent.com/roualdes/data/master/carnivora.csv>

You can find the help file for this dataset at the following link:

<https://github.com/roualdes/data/blob/master/carnivora.txt>

1. Read in the dataset using the function `read.csv`. Use `dplyr` to create a new dataset that consists of no-missing data (no NAs) and only the variables `Family`, `LS`, `BW`, and `SW`. Further, filter your dataset down to only the families `Canidae`, `Felidae`, and `Mustelidae`.
2. Using `ggplot2`, make a scatter plot with body weight `SW` as the response variable and litter size `LS` as the explanatory variable and with points colored by `Family`. Title your plot. Edit the axis labels to include the proper units. Put the units in parentheses, (units). Hint:

```
?ggplot2::labs
```

3. Using `ggplot2`, make a scatter plot with body weight `SW` as the response variable and birth weight `BW` as the explanatory variable and with points colored by `Family`. Title your plot. Edit the axis labels to include the proper units. Put the units in parentheses, (units).
4. Use the likelihood method together with `optim` to predict `SW` using a multiple linear regression model with unique intercepts by `Family`, one slope across `LS`, and one slope across `BW`.
5. Write 1 complete English sentence describing the estimated intercept for `Mustelidae`.
6. Write 1 complete English sentence describing the estimated slope for `LS`.
7. Write 1 complete English sentence describing the estimated slope for `BW`.
8. Use the bootstrap method to calculate $R = 999$ bootstrapped estimated coefficients from your model.
9. Write 1 complete English sentence describing a 90% confidence interval for intercept for `Felidae`.
10. Write 1 complete English sentence describing a 90% confidence interval for the estimated slope for `LS`.
11. Write 1 complete English sentence describing a 90% confidence interval for the estimated slope for `BW`.
12. Write 1 complete English sentence describing a 90% confidence interval for the predicted `SW` for `Felidae` when `BW` and `LS` are equal to their median.