

<https://classroom.github.com/a/jAXkIZjY>

The dataset `carnivora` is a sample of 112 animals 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` and `LS`. Further, use the following code to consider only some of the families:

```
dplyr::filter(Family %in% c('Canidae', 'Felidae',  
                          'Mustelidae', 'Viverridae')) %>%  
droplevels
```

2. Using `ggplot2`, make a jittered scatter plot of the variables `LS` and `Family`. Store your plot into a variable `p`. Hint: `?geom_jitter`
3. Use the likelihood method together with `optim` to estimate the (population) means of `LS` by levels of `Family`.
4. Use the functions `dplyr::group_by()` and `dplyr::summarise()` to double check your group means.
5. Write 1 complete English sentences describing the estimated mean for the Family `Mustelidae` in context of these data.
6. Add bootstrapped confidence intervals to your plot `p` via the `ggplot` layer (function) `stat_summary()`. Look in the help file for an example that uses the argument `fun.data = "mean_cl_boot"`.
7. Using the bootstrap method, calculate a 87% confidence interval for the population the means of each level of `Family`.
8. Write 1 complete English sentence interpreting the confidence interval for the Family `Mustelidae` in the context of these data.