

# Data exploration using the palmerpenguins dataset

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## Acknowledgements

The content of this module are based on materials from:

olivier gimenez's materials

## Data exploration

### Motivation

In this section, we **explore** the data from package **palmerpenguins**. A recent publication from the researcher, Dr Kristen Gorman, who shared the data is Connors et al. (2020).

```
## Warning: package 'palmerpenguins' was built under R version 4.1.1
```

```
## Warning: package 'ggplot2' was built under R version 4.1.1
```

```
## Warning: package 'readr' was built under R version 4.1.1
```

### Data

The data are displayed below (first 10 rows) :

```
penguins %>%  
  slice(1:10) %>%  
  knitr::kable()
```

species	island	bill_length_mm	bill_depth_mm	flipper_length_mm	body_mass_g	sex	year
Adelie	Torgersen	39.1	18.7	181	3750	male	2007
Adelie	Torgersen	39.5	17.4	186	3800	female	2007
Adelie	Torgersen	40.3	18.0	195	3250	female	2007
Adelie	Torgersen	NA	NA	NA	NA	NA	2007
Adelie	Torgersen	36.7	19.3	193	3450	female	2007
Adelie	Torgersen	39.3	20.6	190	3650	male	2007
Adelie	Torgersen	38.9	17.8	181	3625	female	2007
Adelie	Torgersen	39.2	19.6	195	4675	male	2007

species	island	bill_length_mm	bill_depth_mm	flipper_length_mm	body_mass_g	sex	year
Adelie	Torgersen	34.1	18.1	193	3475	NA	2007
Adelie	Torgersen	42.0	20.2	190	4250	NA	2007

## Numerical exploration

There are 344 penguins in the dataset, and 3 different species. The data were collected in 3 islands of the Palmer archipelago in Antarctica.

The mean of all traits that were measured on the penguins are:

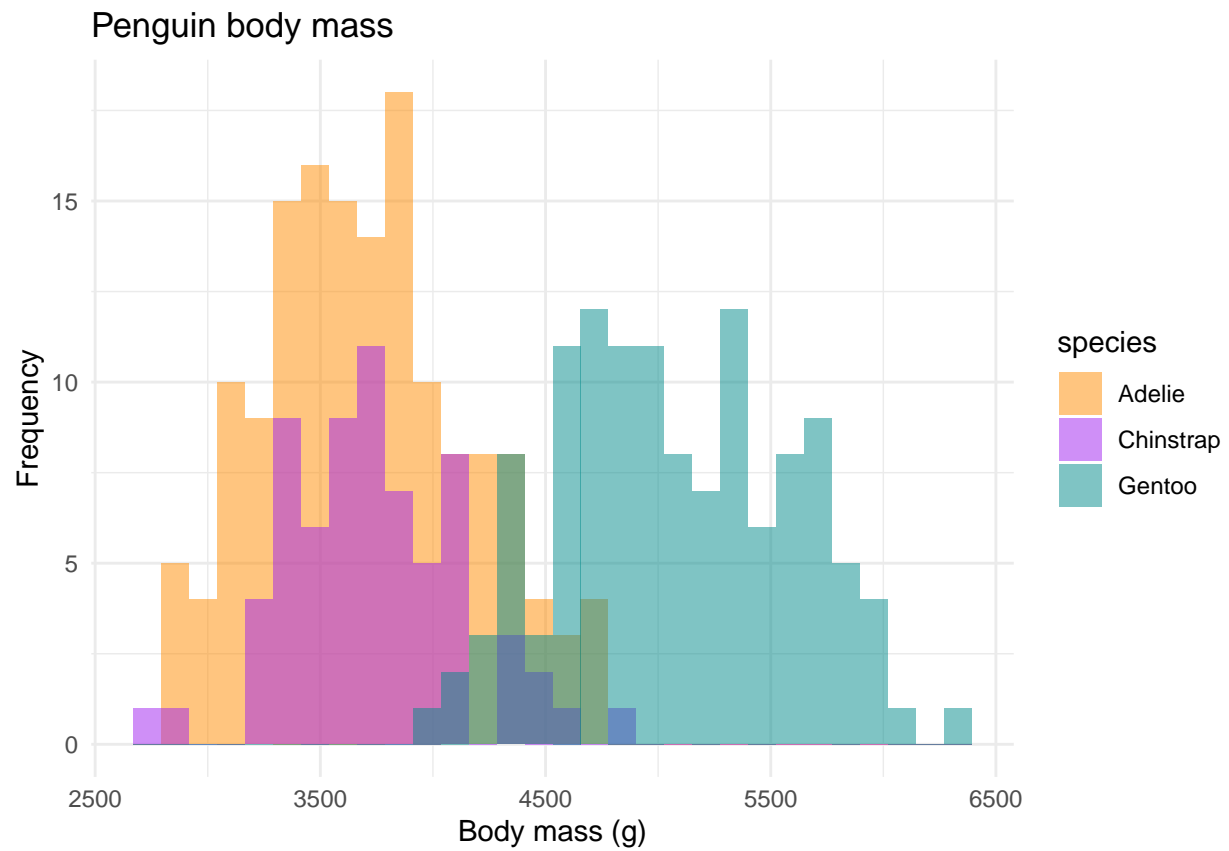
```
## # A tibble: 3 x 6
##   species  bill_length_mm bill_depth_mm flipper_length_mm body_mass_g  year
##   <fct>          <dbl>         <dbl>          <dbl>        <dbl> <dbl>
## 1 Adelie           38.8           18.3           190.         3701. 2008.
## 2 Chinstrap        48.8           18.4           196.         3733. 2008.
## 3 Gentoo          47.5           15.0           217.         5076. 2008.
```

## Graphical exploration

A histogram of body mass per species:

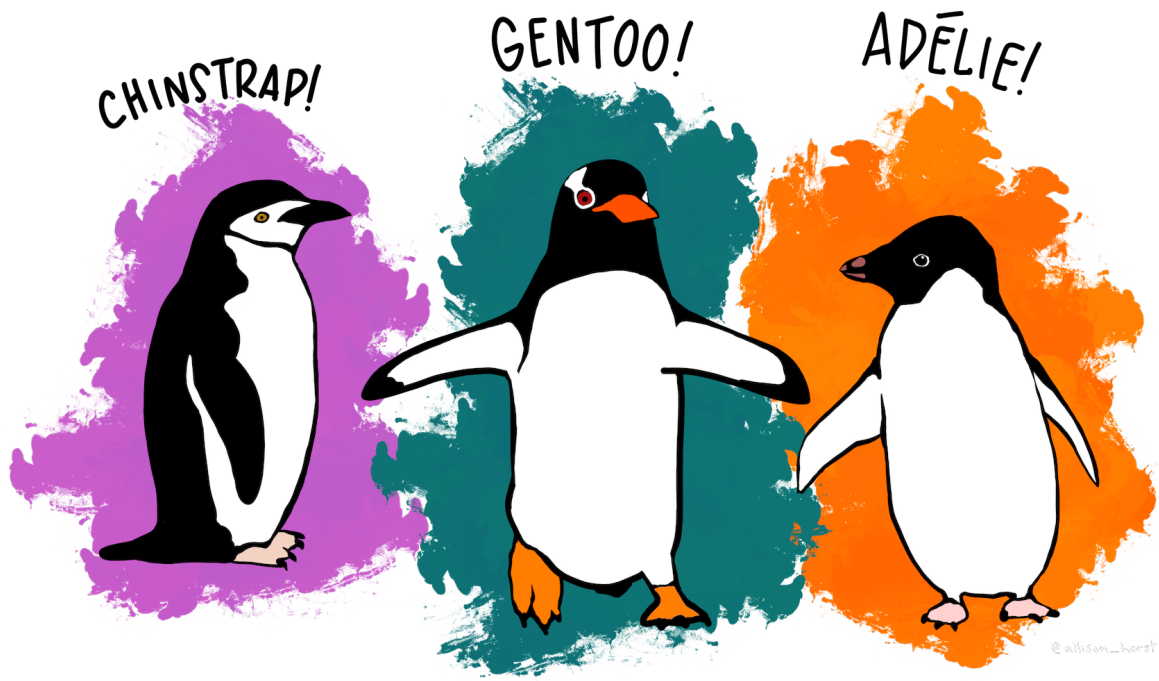
```
penguins %>%
  ggplot() +
  aes(x = body_mass_g) +
  geom_histogram(aes(fill = species),
                 alpha = 0.5,
                 position = "identity") +
  scale_fill_manual(values = c("darkorange", "purple", "cyan4")) +
  theme_minimal() +
  labs(x = "Body mass (g)",
       y = "Frequency",
       title = "Penguin body mass")
```

```
## Warning: Removed 2 rows containing non-finite values (stat_bin).
```



## The end

The 3 species of penguins:



## References

Connors, Brendan, Michael J. Malick, Gregory T. Ruggerone, Pete Rand, Milo Adkison, James R. Irvine, Robert Campbell, and Kristen Gorman. 2020. "Climate and Competition Influence Sockeye Salmon Population Dynamics Across the Northeast Pacific Ocean." *Canadian Journal of Fisheries and Aquatic Sciences* 77 (6): 943–49. <https://doi.org/10.1139/cjfas-2019-0422>.