

# Palmer penguins report

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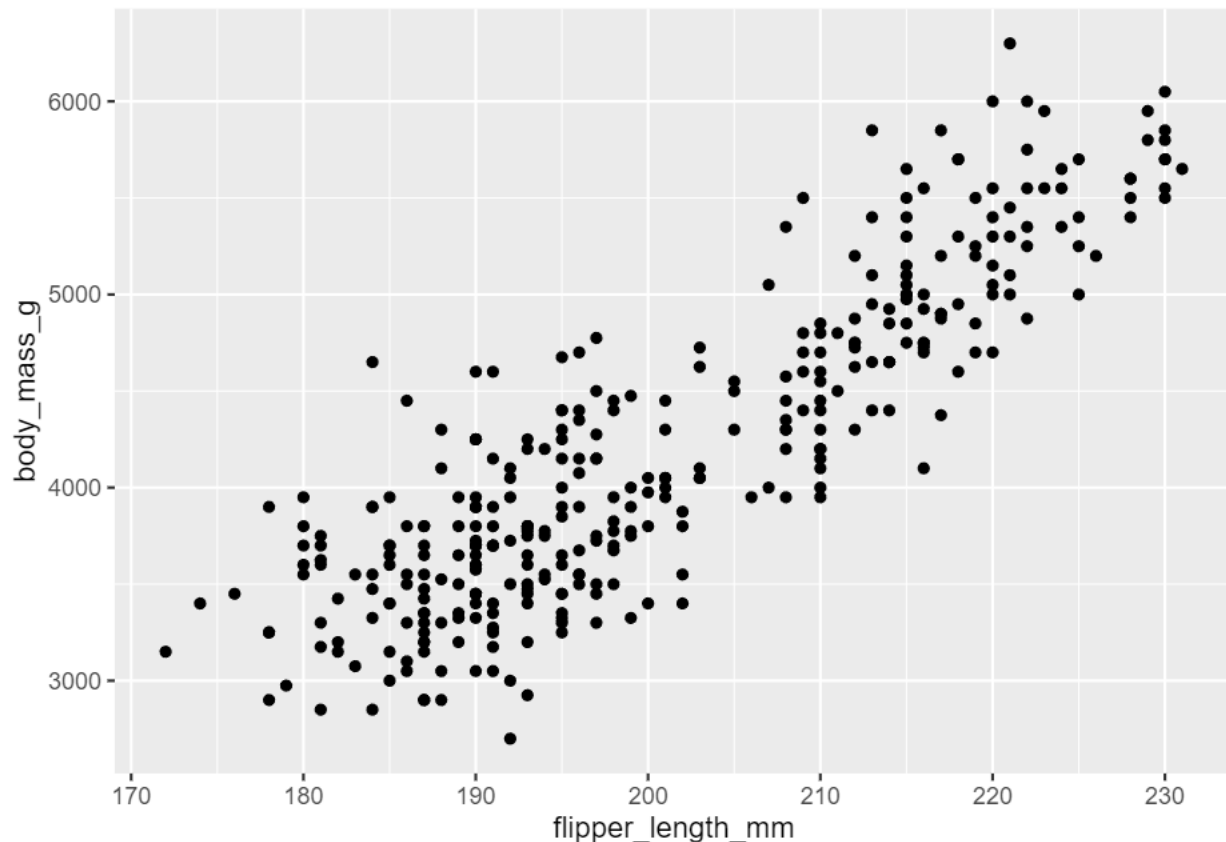
In this report we want to verify if there exists a correlation between the flipper length and the body mass of the penguins from the data set **palmerpenguins**.

## Loading librarys and the data set

```
library(ggplot2)
library(palmerpenguins)
library(tidyverse)
data(penguins)
```

## Correlation flipper length vs body mass

we plot the variables flipper length vs body mass to check if there is a correlation between them:

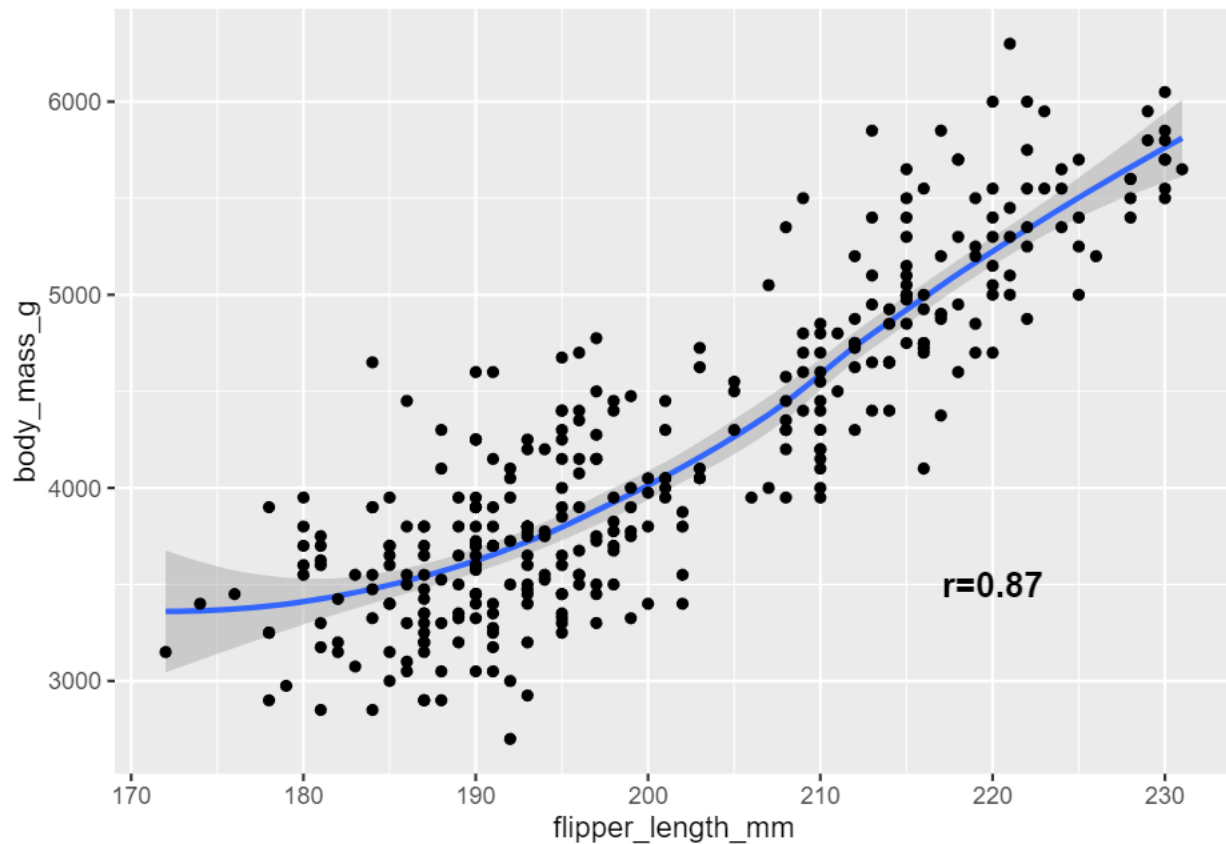


This image strongly suggest that our two variables are correlated. However, just to be sure we verify this by adding a trend line over the plot and calculating the correlation coefficient

## Correlation coefficient

```
cor(x=penguins$flipper_length_mm, y=penguins$body_mass_g, use='complete.obs')
```

```
## [1] 0.8712018
```



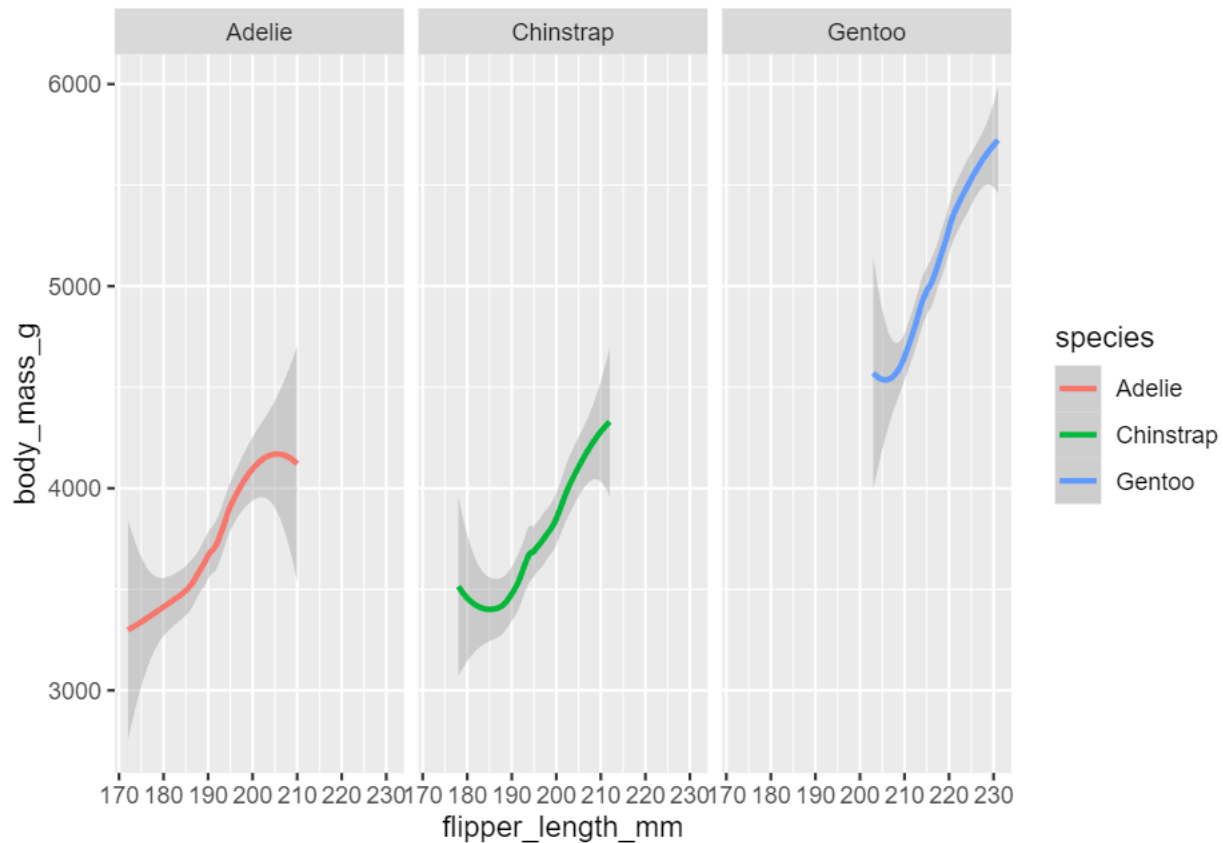
## Correlation flipper length vs body mass by species

Now, we are also interested to see if this behavior continue if we make the same analysis by species:



for that we filter the data by species

```
Adelie_specie=penguins %>% filter(species=="Adelie")  
Chinstrap_specie=penguins %>% filter(species=="Chinstrap")  
Gentoo_specie=penguins %>% filter(species=="Gentoo")
```



and now we calculate the correlation coefficient by specie

```
cor(x=Adelie_specie$flipper_length_mm, y=Adelie_specie$body_mass_g, use='complete.obs')
```

```
## [1] 0.4682017
```

```
cor(x=Chinstrap_specie$flipper_length_mm, y=Chinstrap_specie$body_mass_g, use='complete.obs')
```

```
## [1] 0.6415594
```

```
cor(x=Gentoo_specie$flipper_length_mm, y=Gentoo_specie$body_mass_g, use='complete.obs')
```

```
## [1] 0.7026665
```

## Conclusions

- The correlation coefficient  $r=0,87$  indicates that, in fact, there exists a correlation between the variables flipper length and body mass of the whole data set palmerpenguins.
- Making the analysis by specie we conclude that there exists a strong, moderate and low correlation between the variables flipper length and body mass of the species Gentoo, Chinstrap and Adelie of the data set palmerpenguins, respectively.