

# Gráficos básicos

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2022-03-14

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## Gráficos

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### Matriz penguins, se encuentra en classroom

#----- # Importación de matriz #-----

**Import data-> From excel-> Browse-> Seleccionar archivo-> Aceptar**

#----- # Exploración #-----

Abrir librería

```
library(readxl)
```

```
penguins<-read_excel("penguins.xlsx")
```

#Exploración de matriz

```
dim(penguins)
```

```
## [1] 344 9
```

### Nombre de las variables

```
colnames(penguins)
```

```
## [1] "ID" "especie" "isla" "largo_pico_mm"  
## [5] "grosor_pico_mm" "largo_aleta_mm" "masa_corporal_g" "genero"  
## [9] "año"
```

### Tipo de variables

```
str(penguins)
```

```
## tibble [344 x 9] (S3: tbl_df/tbl/data.frame)  
## $ ID : chr [1:344] "i1" "i2" "i3" "i4" ...  
## $ especie : chr [1:344] "Adelie" "Adelie" "Adelie" "Adelie" ...  
## $ isla : chr [1:344] "Torgersen" "Torgersen" "Torgersen" "Torgersen" ...  
## $ largo_pico_mm : num [1:344] 39.1 39.5 40.3 37.8 36.7 39.3 38.9 39.2 34.1 42 ...  
## $ grosor_pico_mm : num [1:344] 18.7 17.4 18 18.1 19.3 20.6 17.8 19.6 18.1 20.2 ...
```

```
## $ largo_aleta_mm : num [1:344] 181 186 195 190 193 190 181 195 193 190 ...
## $ masa_corporal_g: num [1:344] 3750 3800 3250 3700 3450 ...
## $ genero          : chr [1:344] "male" "female" "female" "female" ...
## $ año             : num [1:344] 2007 2007 2007 2007 2007 ...
```

## En busca de valores perdidos (NA's)

```
anyNA(penguins)
```

```
## [1] FALSE
```

## Estadística descriptiva

```
summary(penguins)
```

```
##      ID          especie      isla      largo_pico_mm
## Length:344      Length:344      Length:344      Min.   :32.10
## Class :character Class :character Class :character 1st Qu.:39.20
## Mode  :character Mode  :character Mode  :character Median :44.45
##                                           Mean  :43.92
##                                           3rd Qu.:48.50
##                                           Max.   :59.60
## grosor_pico_mm largo_aleta_mm masa_corporal_g genero
## Min.   :13.10 Min.   :172.0 Min.   :2700 Length:344
## 1st Qu.:15.60 1st Qu.:190.0 1st Qu.:3550 Class :character
## Median :17.30 Median :197.0 Median :4050 Mode  :character
## Mean   :17.15 Mean   :200.9 Mean   :4202
## 3rd Qu.:18.70 3rd Qu.:213.2 3rd Qu.:4756
## Max.   :21.50 Max.   :231.0 Max.   :6300
## año
## Min.   :2007
## 1st Qu.:2007
## Median :2008
## Mean   :2008
## 3rd Qu.:2009
## Max.   :2009
```

```
#----- # Configuración de la matriz #-----
```

```
penguins$especie
```

```
## [1] "Adelie" "Adelie" "Adelie" "Adelie" "Adelie" "Adelie"
## [7] "Adelie" "Adelie" "Adelie" "Adelie" "Adelie" "Adelie"
## [13] "Adelie" "Adelie" "Adelie" "Adelie" "Adelie" "Adelie"
## [19] "Adelie" "Adelie" "Adelie" "Adelie" "Adelie" "Adelie"
## [25] "Adelie" "Adelie" "Adelie" "Adelie" "Adelie" "Adelie"
## [31] "Adelie" "Adelie" "Adelie" "Adelie" "Adelie" "Adelie"
## [37] "Adelie" "Adelie" "Adelie" "Adelie" "Adelie" "Adelie"
## [43] "Adelie" "Adelie" "Adelie" "Adelie" "Adelie" "Adelie"
## [49] "Adelie" "Adelie" "Adelie" "Adelie" "Adelie" "Adelie"
## [55] "Adelie" "Adelie" "Adelie" "Adelie" "Adelie" "Adelie"
## [61] "Adelie" "Adelie" "Adelie" "Adelie" "Adelie" "Adelie"
## [67] "Adelie" "Adelie" "Adelie" "Adelie" "Adelie" "Adelie"
## [73] "Adelie" "Adelie" "Adelie" "Adelie" "Adelie" "Adelie"
```

```
## [79] "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"
## [85] "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"
## [91] "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"
## [97] "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"
## [103] "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"
## [109] "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"
## [115] "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"
## [121] "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"
## [127] "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"
## [133] "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"
## [139] "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"
## [145] "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"      "Adelie"
## [151] "Adelie"      "Adelie"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [157] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [163] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [169] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [175] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [181] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [187] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [193] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [199] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [205] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [211] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [217] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [223] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [229] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [235] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [241] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [247] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [253] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [259] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [265] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [271] "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"      "Gentoo"
## [277] "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"
## [283] "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"
## [289] "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"
## [295] "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"
## [301] "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"
## [307] "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"
## [313] "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"
## [319] "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"
## [325] "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"
## [331] "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"
## [337] "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"  "Chinstrap"
## [343] "Chinstrap"  "Chinstrap"
```

#1.- Convertir las variables categóricas a factores

```
penguins$especie<-factor(penguins$especie,
                          levels=c("Adelie", "Gentoo", "Chinstrap"))
```

```
penguins$isla<-factor(penguins$isla,
                      levels=c("Torgersen", "Biscoe", "Dream"))
```

```

penguins$genero<-factor(penguins$genero,
                        levels=c("male", "female"))

penguins$año<-factor(penguins$año,
                    levels=c("2007", "2008", "2009"))

str(penguins)

## tibble [344 x 9] (S3: tbl_df/tbl/data.frame)
## $ ID          : chr [1:344] "i1" "i2" "i3" "i4" ...
## $ especie     : Factor w/ 3 levels "Adelie","Gentoo",...: 1 1 1 1 1 1 1 1 1 ...
## $ isla        : Factor w/ 3 levels "Torgersen","Biscoe",...: 1 1 1 1 1 1 1 1 1 ...
## $ largo_pico_mm : num [1:344] 39.1 39.5 40.3 37.8 36.7 39.3 38.9 39.2 34.1 42 ...
## $ grosor_pico_mm : num [1:344] 18.7 17.4 18 18.1 19.3 20.6 17.8 19.6 18.1 20.2 ...
## $ largo_aleta_mm : num [1:344] 181 186 195 190 193 190 181 195 193 190 ...
## $ masa_corporal_g: num [1:344] 3750 3800 3250 3700 3450 ...
## $ genero      : Factor w/ 2 levels "male","female": 1 2 2 2 2 1 2 1 2 1 ...
## $ año         : Factor w/ 3 levels "2007","2008",...: 1 1 1 1 1 1 1 1 1 1 ...

summary(penguins)

##      ID          especie      isla      largo_pico_mm
## Length:344      Adelie   :152   Torgersen: 52   Min.    :32.10
## Class :character  Gentoo   :124   Biscoe  :168   1st Qu.:39.20
## Mode  :character  Chinstrap: 68   Dream   :124   Median :44.45
##                                     Mean    :43.92
##                                     3rd Qu.:48.50
##                                     Max.    :59.60
## grosor_pico_mm  largo_aleta_mm  masa_corporal_g  genero      año
## Min.    :13.10  Min.    :172.0  Min.    :2700   male   :170   2007:110
## 1st Qu.:15.60  1st Qu.:190.0  1st Qu.:3550   female:174   2008:114
## Median :17.30  Median :197.0  Median :4050                   2009:120
## Mean    :17.15  Mean    :200.9  Mean    :4202
## 3rd Qu.:18.70  3rd Qu.:213.2  3rd Qu.:4756
## Max.    :21.50  Max.    :231.0  Max.    :6300

#----- # Librerías #-----

install.packages("ggplot2")

## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.2'
## (as 'lib' is unspecified)

library(ggplot2)

```

## Boxplot

#-----

### 1.- Creación de un vector de color

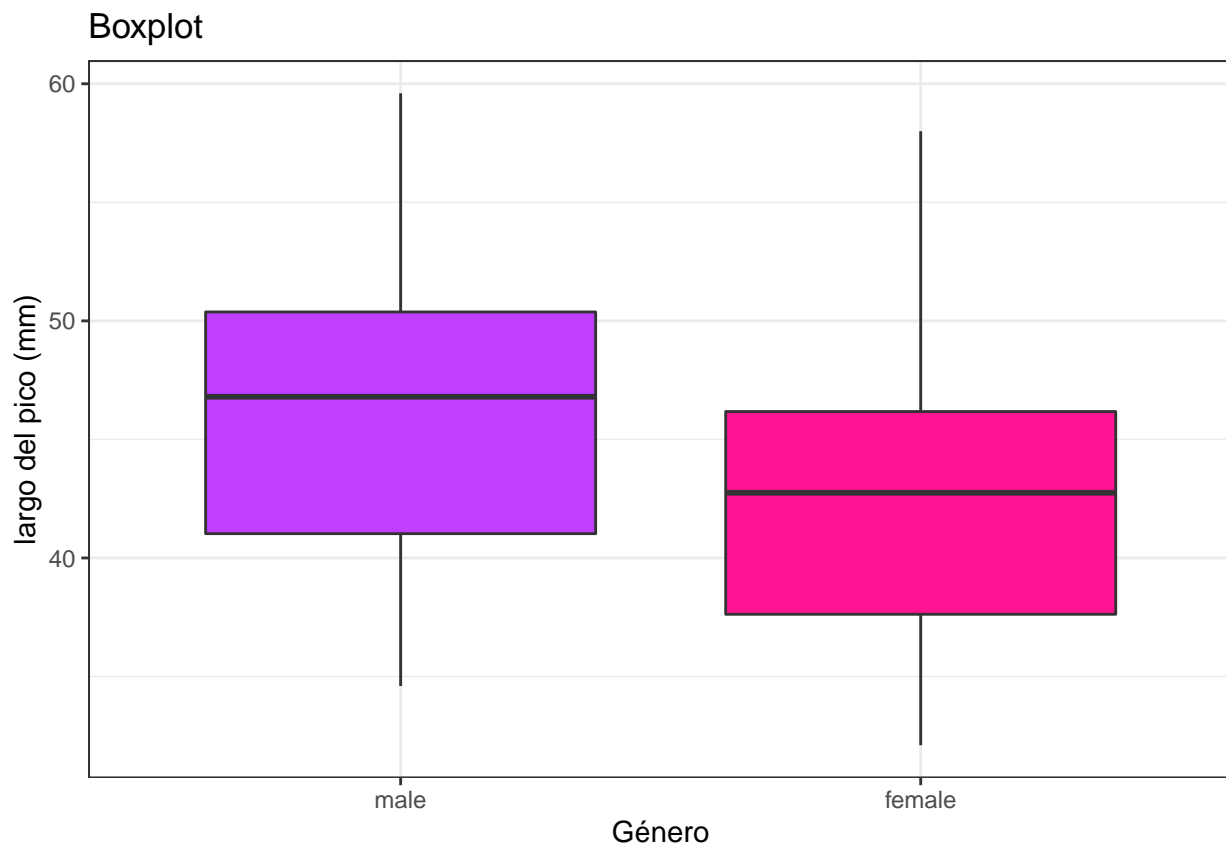
```
color=c("darkorchid1","deeppink")
```

## 2.- Creacion del grafico

```
BX<-ggplot(penguins, aes(x=genero, y=largo_pico_mm))+  
  geom_boxplot(fill=color)+  
  ggtitle("Boxplot")+  
  xlab("Género")+  
  ylab("largo del pico (mm)")+  
  theme_bw()
```

## 3.- Visualización del boxplot

BX



# ————— # Gráfico de barras # —————

## 1.- Creación de un vector de color

```
color=c("darkorange", "darksalmon", "burlywood1")
```

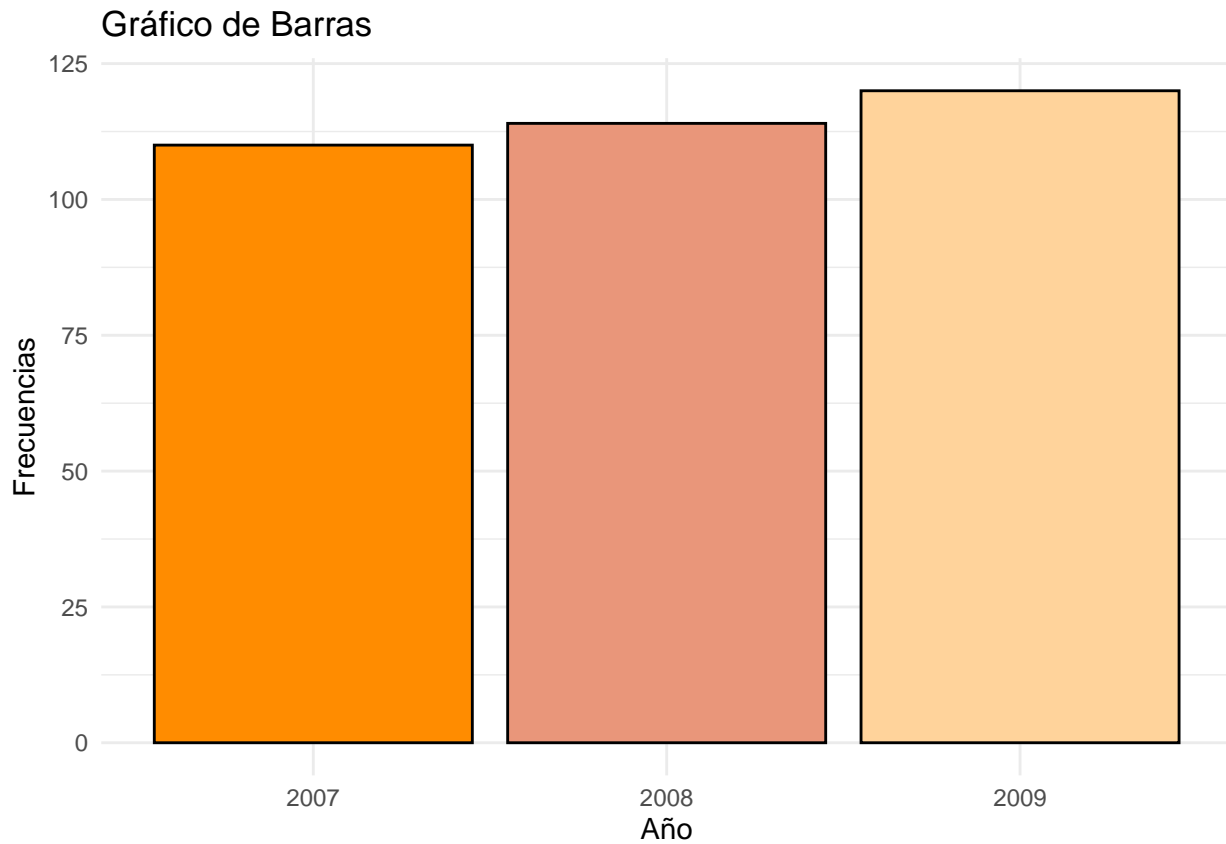
## 2.- Creación del gráfico barras verticales

```
GB1<-ggplot(penguins, aes(x=año))+  
  geom_bar(colour= "black", fill=color)+  
  ggtitle("Gráfico de Barras")
```

```
xlab("Año")+
ylab("Frecuencias")+
theme_minimal()
```

### 3.- Visualizacion del grafico

GB1



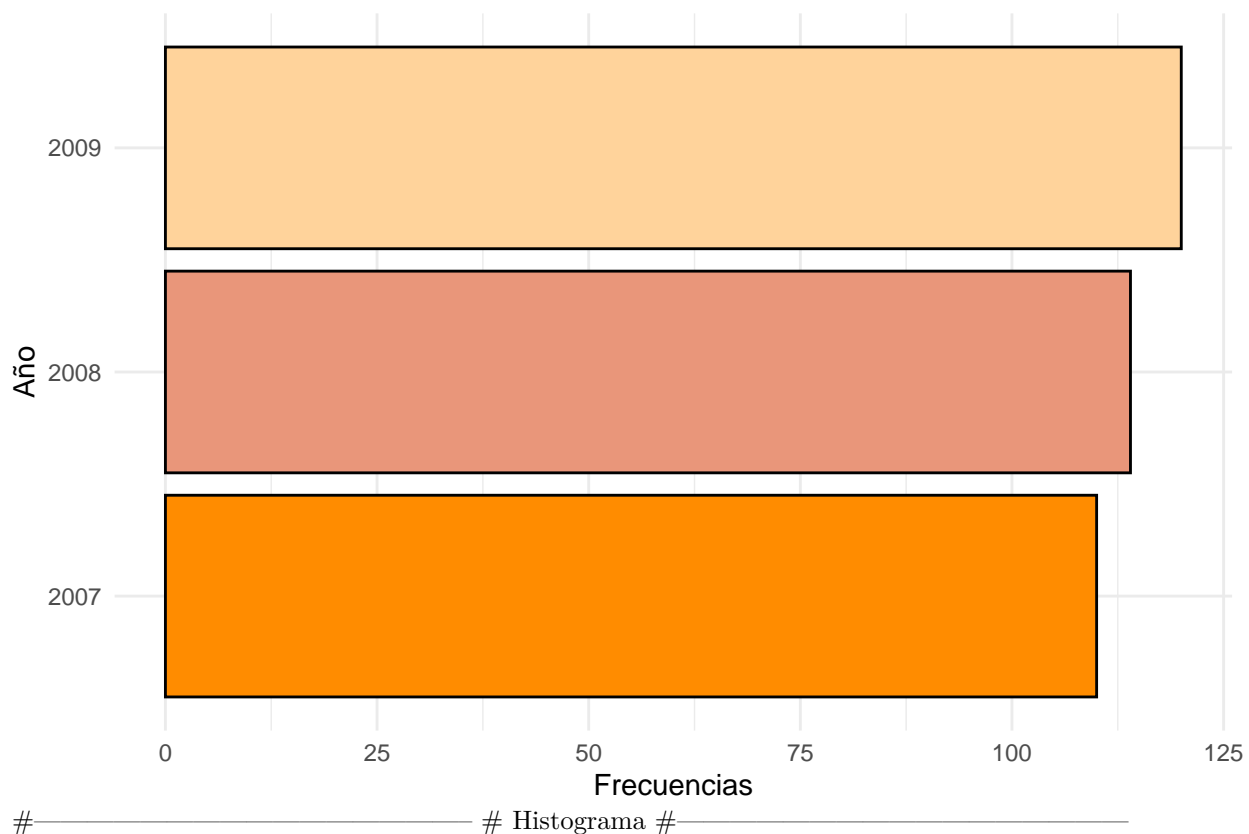
### 4.- Barras horizontales

```
GB2<-ggplot(penguins, aes(x=año))+
  geom_bar(colour= "black", fill=color)+
  ggtitle("Gráfico de Barras")+
  xlab("Año")+
  ylab("Frecuencias")+
  coord_flip()+
  theme_minimal()
```

### 5. Visualizacion del objeto

GB2

Gráfico de Barras



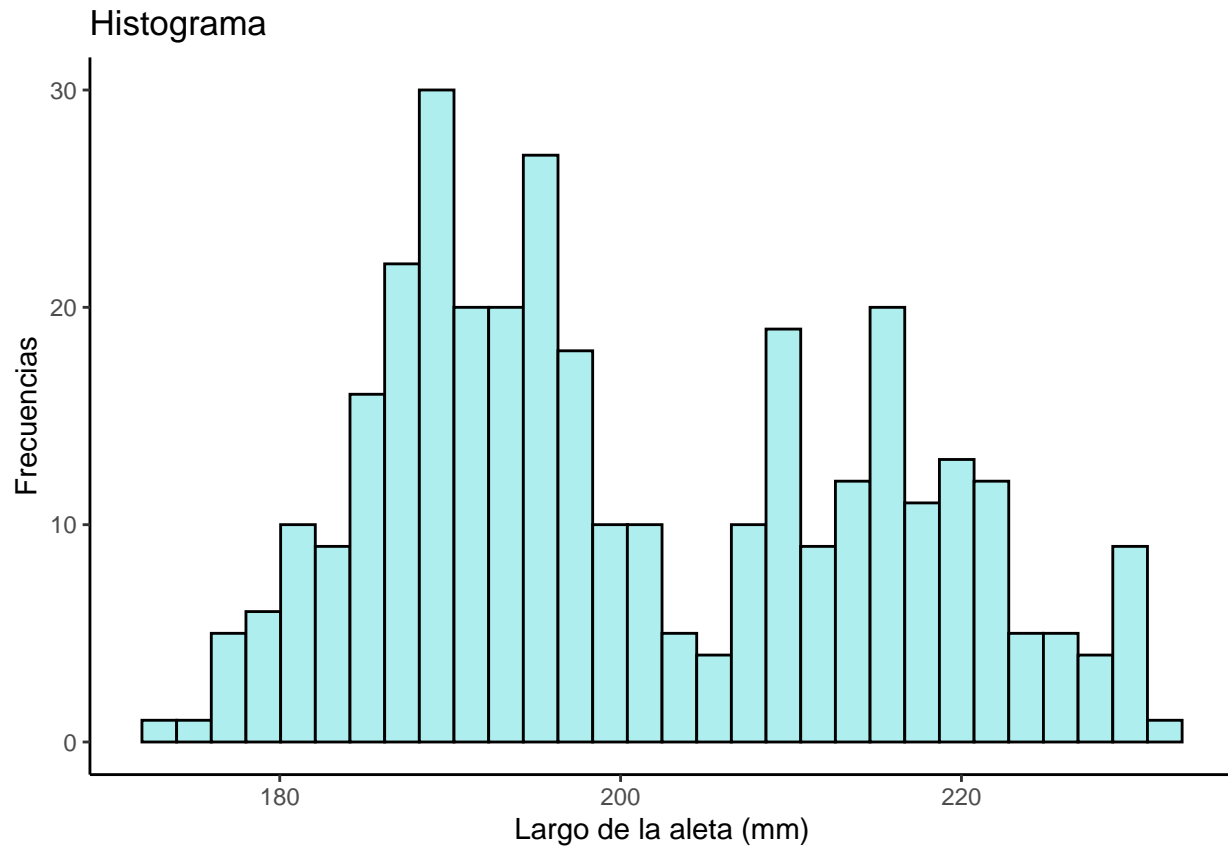
## 1.- Construcción del gráfico

```
HG<-ggplot(penguins, aes(x=largo_aleta_mm))+
  geom_histogram(col="black", fill="paleturquoise")+
  ggtitle("Histograma")+
  xlab("Largo de la aleta (mm)")+
  ylab("Frecuencias")+
  theme_classic()
```

## 2.- Visualización del gráfico

HG

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```



#-----# Grafico de dispersion #-----

## 1.- Construcción del gráfico

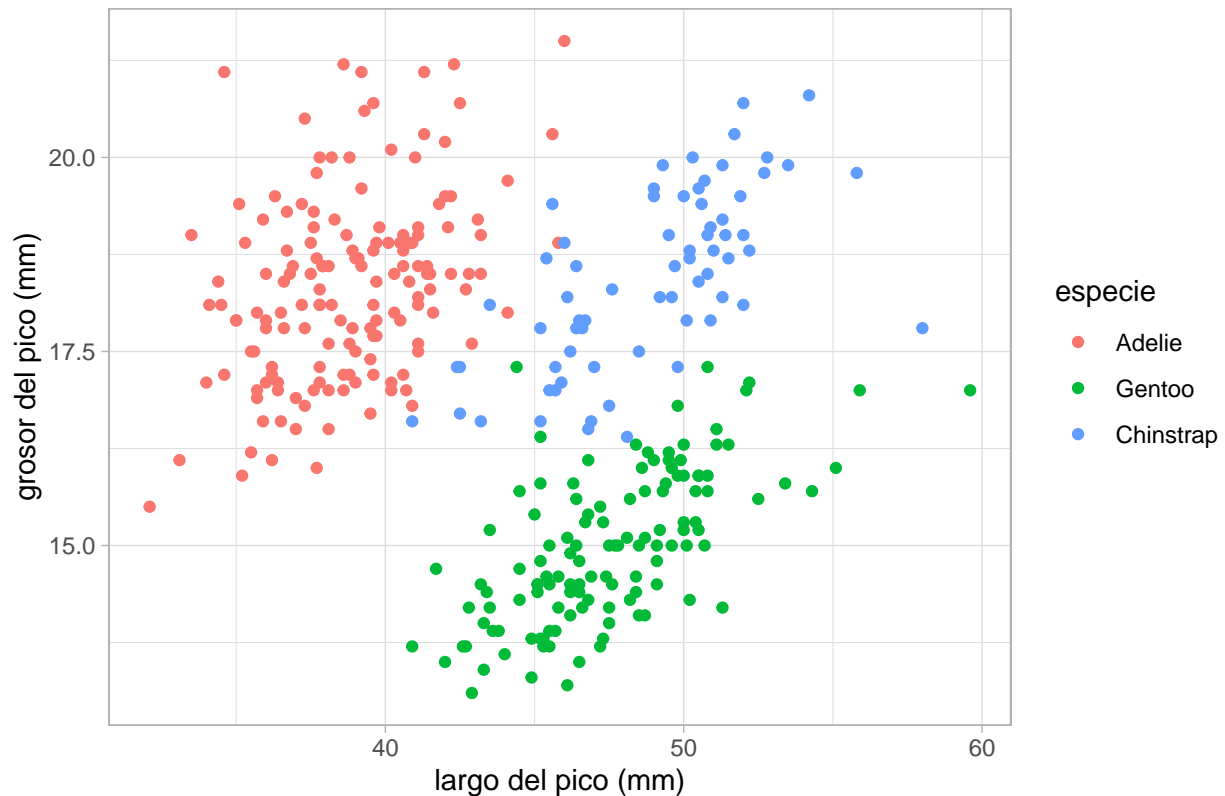
```
GD<-ggplot(penguins, aes(x=largo_pico_mm, y=grosor_pico_mm))+
  geom_point(aes(color=especie))+
  ggtitle("Gráfico de dispersión")+
  xlab("largo del pico (mm)")+
  ylab("grosor del pico (mm)")+
  theme_light()
```

## 2.- Visualización del objeto

```
GD
```



Gráfico de dispersión



#-----# Organizacion de graficos #-----

## 1.- Descargar el paquete gridExtra

```
install.packages("gridExtra")
```

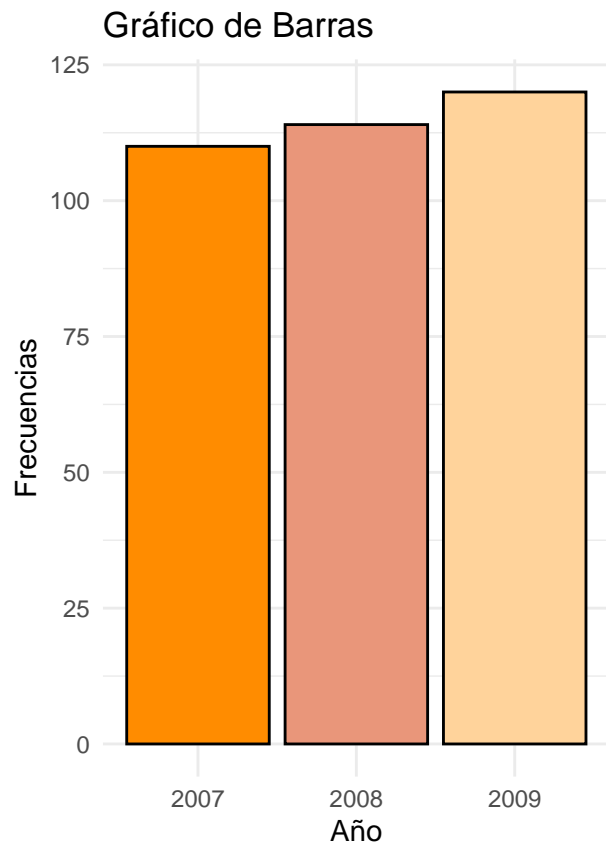
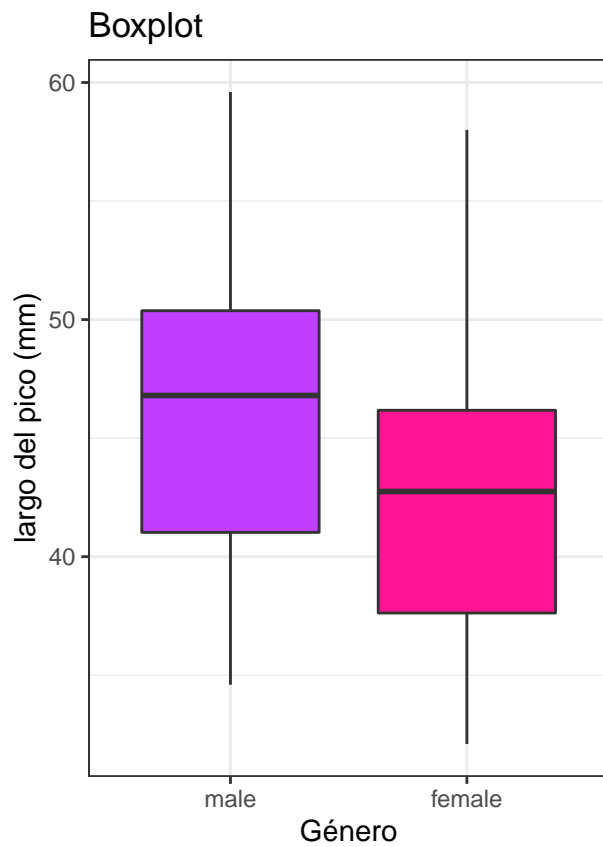
```
## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.2'  
## (as 'lib' is unspecified)
```

## 2.- Abrir la libreria

```
library(gridExtra)
```

## 3.- Organizacion 2 graficos en una fila y dos columnas

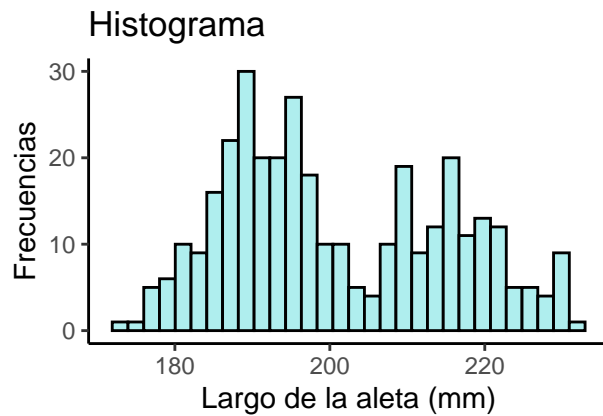
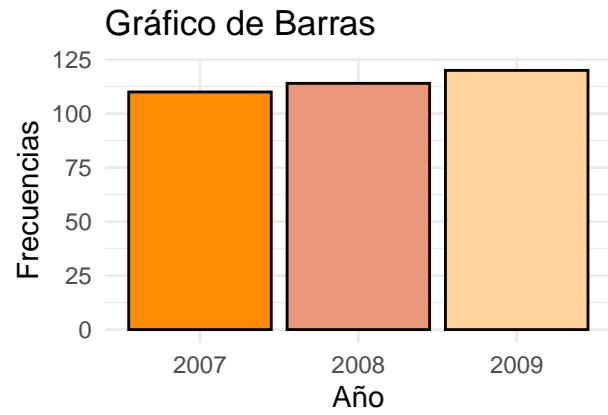
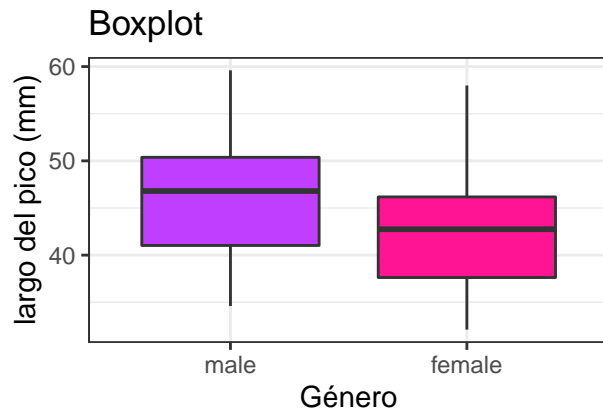
```
grid.arrange(BX,GB1, nrow=1, ncol=2)
```



# 4.- Organizacion 3 graficos en dos filas y dos columnas

```
grid.arrange(BX,GB1,HG, nrow=2, ncol=2)
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```



# 5.- Organización 4 gráficos en dos filas y dos columnas

```
grid.arrange(BX,GB1,HG,GD, nrow=2, ncol=2)
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```

