Gráficos básicos

Patricia Cabrera Jiménez

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_____**Gráficos**_____

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 categóticas a factores

```r
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 1 ...
##  $ isla           : Factor w/ 3 levels "Torgersen","Biscoe",..: 1 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("coral1","darkred")
```

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()
```

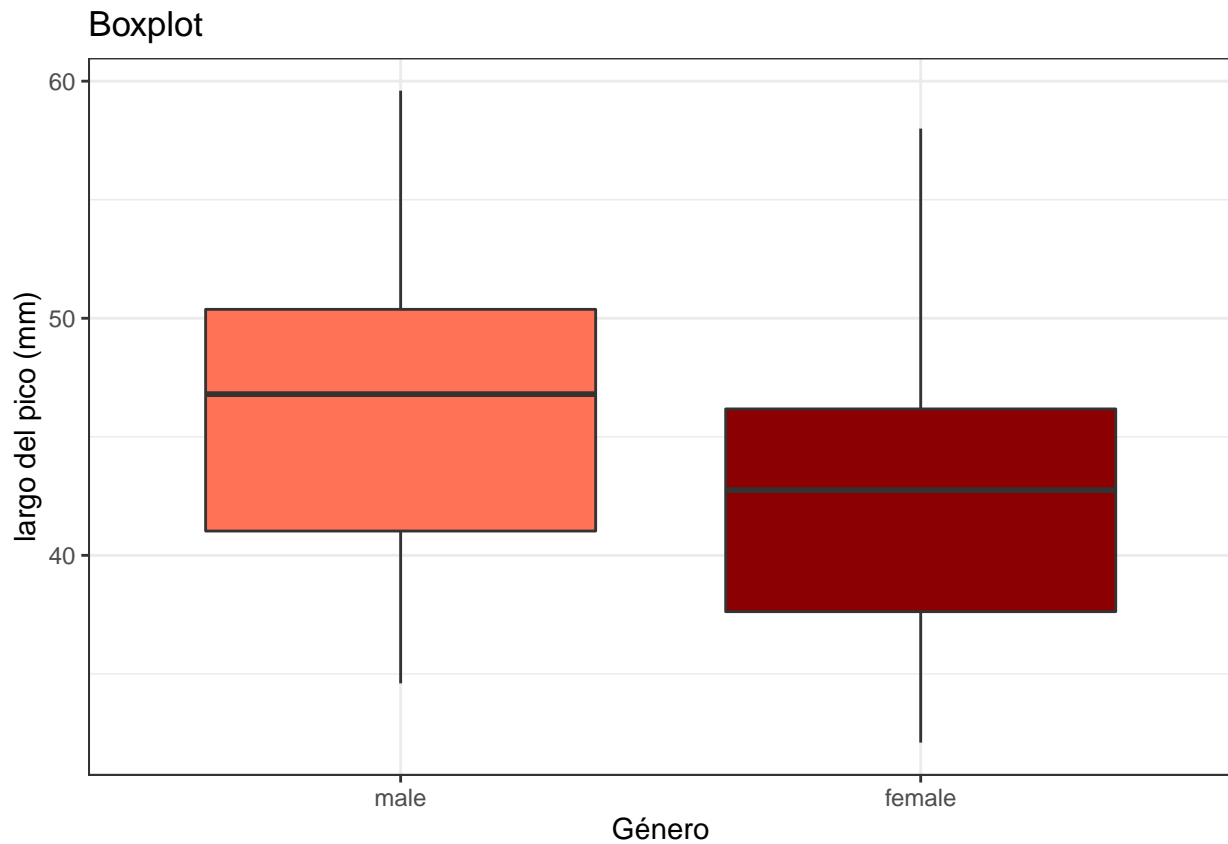## 3.- Visualización del boxplot

```
BX
```


Boxplot

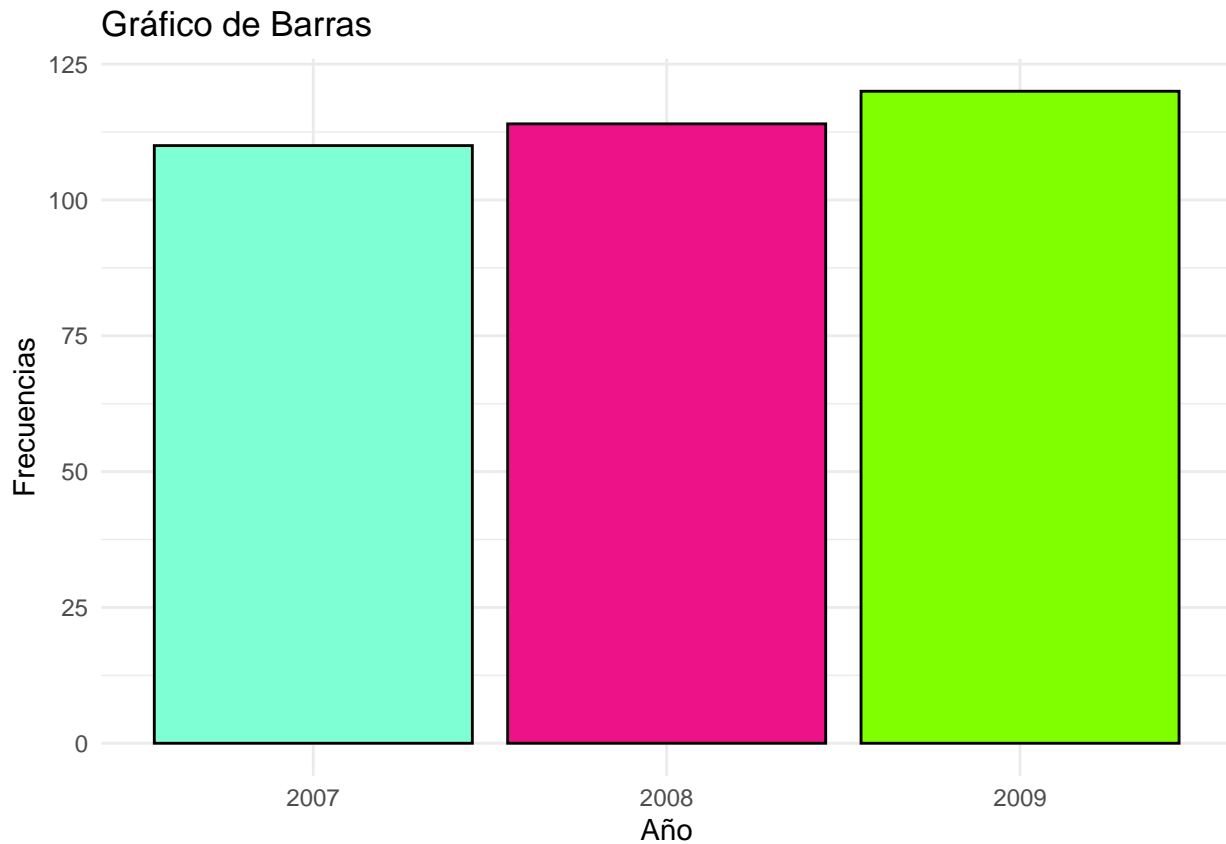## 1.- Creación de un vector de color

```
color=c("aquamarine", "deeppink2", "chartreuse")
```

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

Gráfico de Barras

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()
```

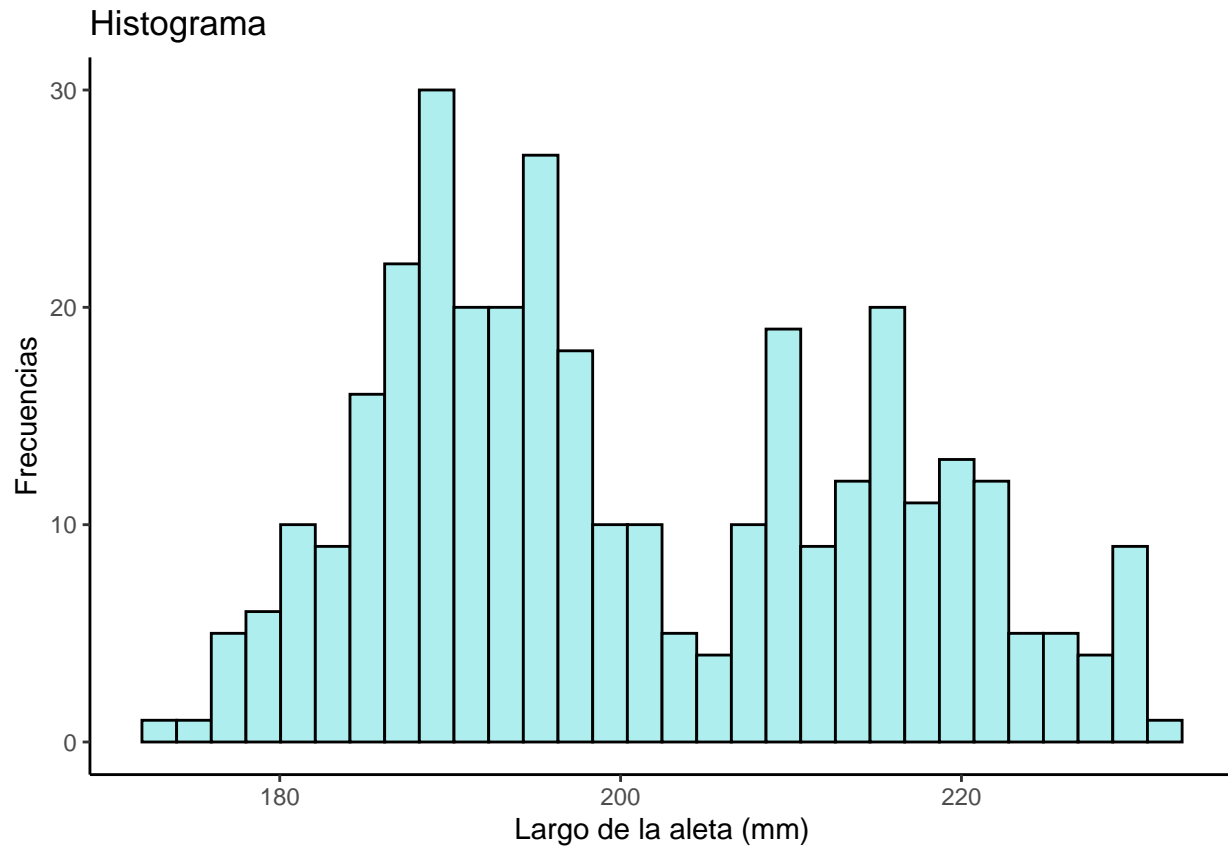## 5. Visualizacion del objeto

GB2

Gráfico de Barras
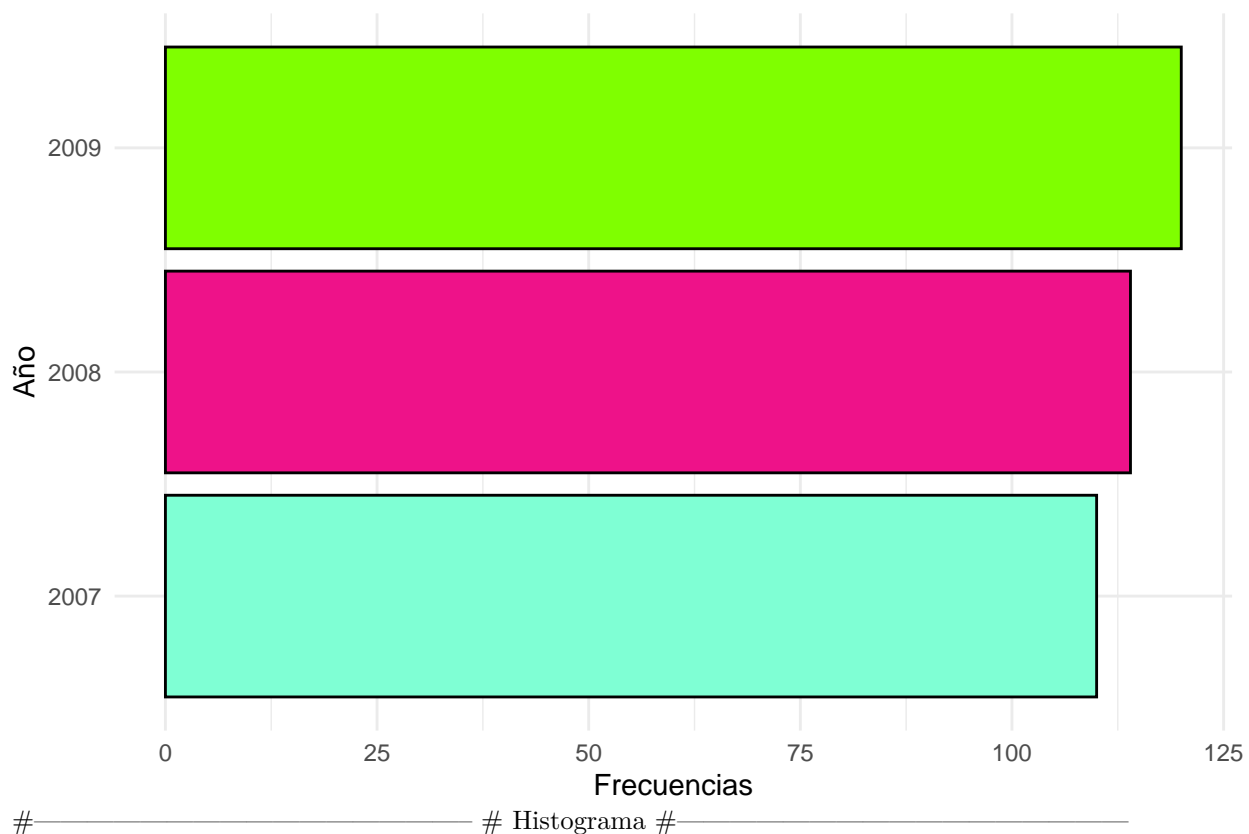
───────────────── # Histograma # ─────────────────

1.- Construccion del grafico

```
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.- Visualizacion del grafico

```
HG
```

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

Histograma

──────────────────── # Grafico de dispersion # ────────────────────

1.- Construccion del grafico

```
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.- Visualizacion del objeto

```
GD
```

Gráfico de dispersión
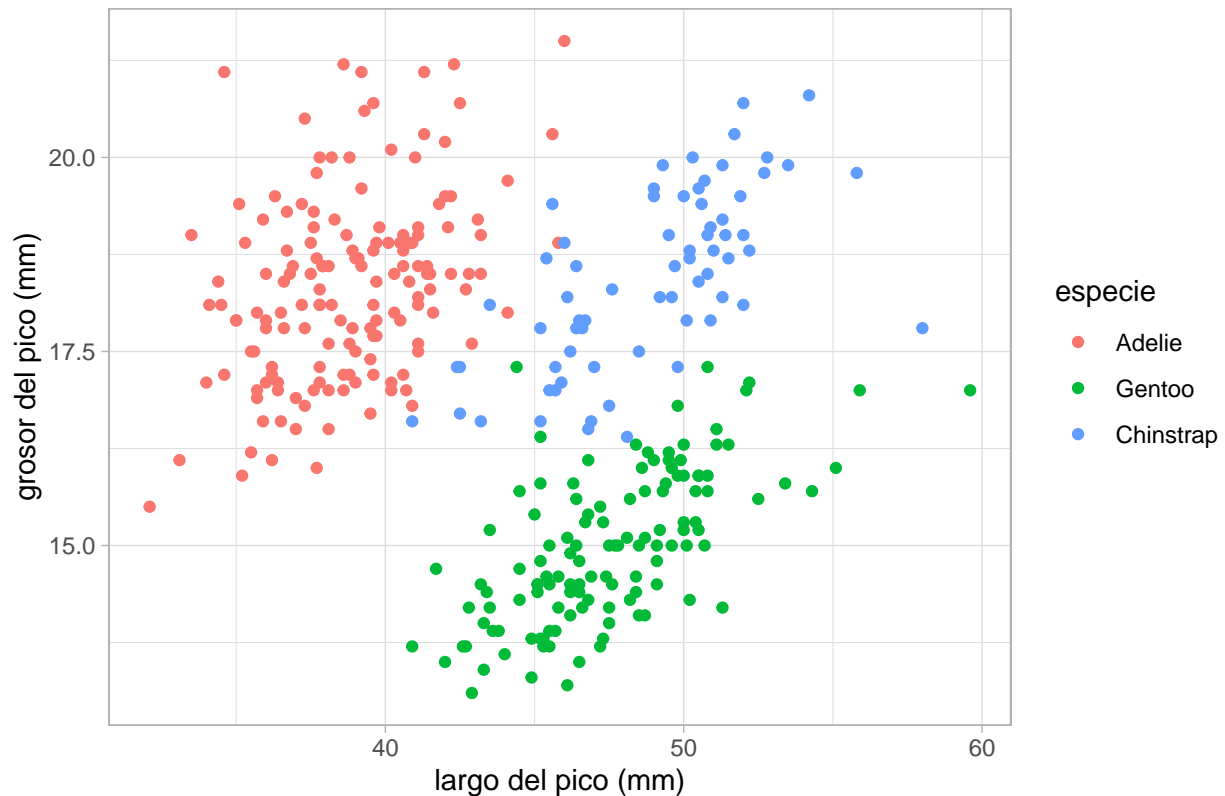
#————————————- # Organizacion de graficos #————————————-

1.- Descargar el paquete gridExtra

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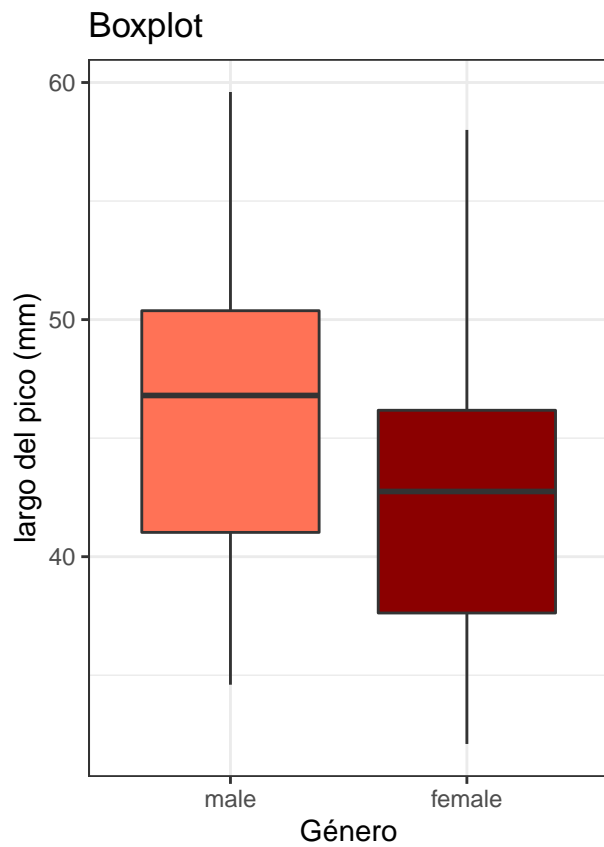
```
## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.2'
## (as 'lib' is unspecified)
```

2.- Abrir la libreria

```
library(gridExtra)
```

3.- Organizacion 2 graficos en una fila y dos columnas
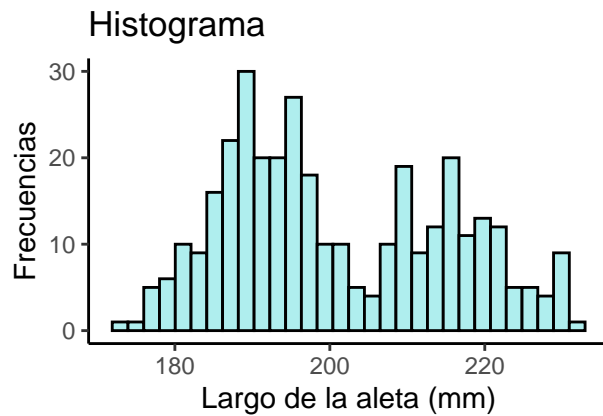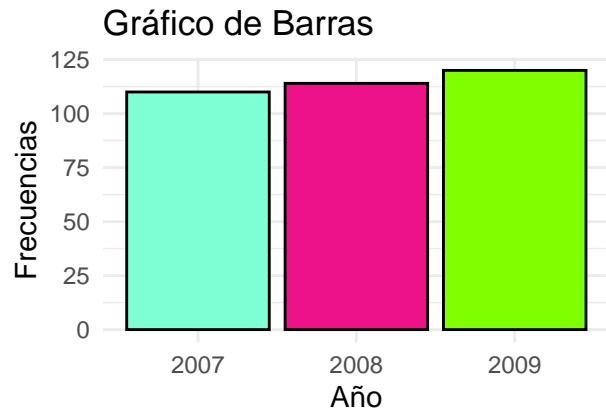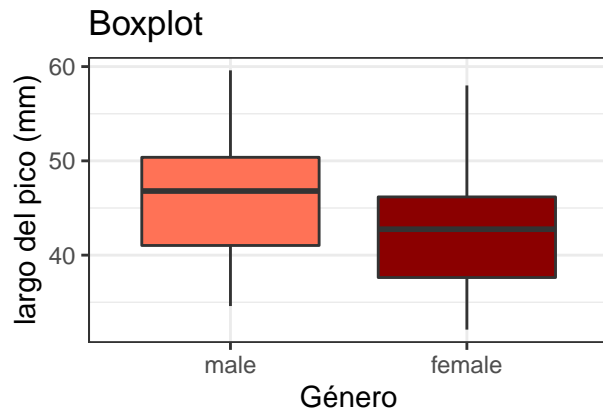
```
grid.arrange(BX,GB1, nrow=1, ncol=2)
```
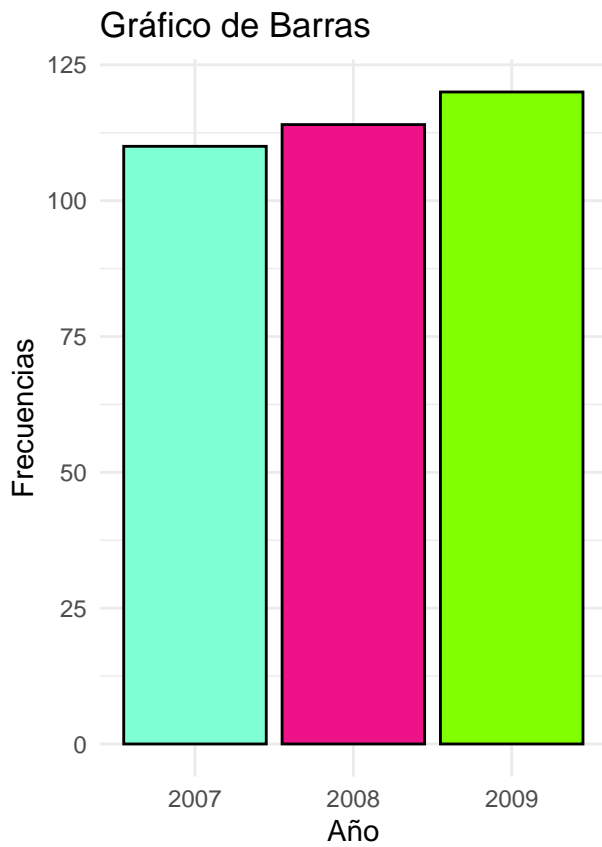
4.- Organizacion 3 graficos en dos filas y dos columnas

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

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

Boxplot

Gráfico de Barras

Histograma

5.- Organizacion 4 graficos 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`.
```

Boxplot

Gráfico de Barras

Histograma

Gráfico de dispersión