Gráficos

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_____Gráficos_____

Se va a trabajar con la matriz penguins

Importación de matriz

Import data / from excel /browse / seleccionar archivo / aceptar

1.- Instalación de paquetería

```
install.packages("readxl")
```

1.1.- Se abre librería

```
library("readxl")
```

2.- Exportación de la matriz de datos

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

Exploración de la matriz

1.- Dimensión de la matriz

```
dim(penguins)
```

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

2.- Nombre de las columnas

```
colnames(penguins)
```

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

3.- 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 ...
```

4.- En busca de datos perdidos

```
anyNA(penguins)
```

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

5.- 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

1.- Visualización de las columnas: **especie, isla, género y año**

1.1.- Especie

```
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"
```

1.2.- Isla

```
penguins$isla
```

```
##   [1] "Torgersen" "Torgersen" "Torgersen" "Torgersen" "Torgersen" "Torgersen"
##   [7] "Torgersen" "Torgersen" "Torgersen" "Torgersen" "Torgersen" "Torgersen"
##  [13] "Torgersen" "Torgersen" "Torgersen" "Torgersen" "Torgersen" "Torgersen"
##  [19] "Torgersen" "Torgersen" "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
##  [25] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
```

```
##  [31] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
##  [37] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
##  [43] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
##  [49] "Dream"     "Dream"     "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
##  [55] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
##  [61] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
##  [67] "Biscoe"    "Biscoe"    "Torgersen" "Torgersen" "Torgersen" "Torgersen"
##  [73] "Torgersen" "Torgersen" "Torgersen" "Torgersen" "Torgersen" "Torgersen"
##  [79] "Torgersen" "Torgersen" "Torgersen" "Torgersen" "Torgersen" "Torgersen"
##  [85] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
##  [91] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
##  [97] "Dream"     "Dream"     "Dream"     "Dream"     "Biscoe"    "Biscoe"
## [103] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [109] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [115] "Biscoe"    "Biscoe"    "Torgersen" "Torgersen" "Torgersen" "Torgersen"
## [121] "Torgersen" "Torgersen" "Torgersen" "Torgersen" "Torgersen" "Torgersen"
## [127] "Torgersen" "Torgersen" "Torgersen" "Torgersen" "Torgersen" "Torgersen"
## [133] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
## [139] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
## [145] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
## [151] "Dream"     "Dream"     "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [157] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [163] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [169] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [175] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [181] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [187] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [193] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [199] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [205] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [211] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [217] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [223] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [229] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [235] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [241] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [247] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [253] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [259] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [265] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [271] "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"    "Biscoe"
## [277] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
## [283] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
## [289] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
## [295] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
## [301] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
## [307] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
## [313] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
## [319] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
## [325] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
## [331] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
## [337] "Dream"     "Dream"     "Dream"     "Dream"     "Dream"     "Dream"
## [343] "Dream"     "Dream"
```

1.3.- Género

```
penguins$genero
```

```
##   [1] "male"   "female" "female" "female" "female" "male"   "female" "male"
##   [9] "female" "male"   "female" "female" "female" "male"   "male"   "female"
##  [17] "female" "male"   "female" "male"   "female" "male"   "female" "male"
##  [25] "male"   "female" "male"   "female" "female" "male"   "female" "male"
##  [33] "female" "male"   "female" "male"   "male"   "female" "female" "male"
##  [41] "female" "male"   "female" "male"   "female" "male"   "male"   "female"
##  [49] "female" "male"   "female" "male"   "female" "male"   "female" "male"
##  [57] "female" "male"   "female" "male"   "female" "male"   "female" "male"
##  [65] "female" "male"   "female" "male"   "female" "male"   "female" "male"
##  [73] "female" "male"   "female" "male"   "female" "male"   "female" "male"
##  [81] "female" "male"   "female" "male"   "female" "male"   "male"   "female"
##  [89] "male"   "female" "female" "male"   "female" "male"   "female" "male"
##  [97] "female" "male"   "female" "male"   "female" "male"   "female" "male"
## [105] "female" "male"   "female" "male"   "female" "male"   "female" "male"
## [113] "female" "male"   "female" "male"   "female" "male"   "female" "male"
## [121] "female" "male"   "female" "male"   "female" "male"   "female" "male"
## [129] "female" "male"   "female" "male"   "female" "male"   "female" "male"
## [137] "female" "male"   "female" "male"   "female" "male"   "female" "male"
## [145] "female" "male"   "male"   "female" "female" "male"   "female" "male"
## [153] "female" "male"   "female" "male"   "male"   "female" "female" "male"
## [161] "female" "male"   "female" "male"   "female" "male"   "female" "male"
## [169] "female" "male"   "female" "male"   "male"   "female" "female" "male"
## [177] "female" "male"   "female" "male"   "female" "male"   "male"   "female"
## [185] "female" "male"   "female" "male"   "female" "male"   "female" "male"
## [193] "female" "male"   "female" "male"   "male"   "female" "female" "male"
## [201] "female" "male"   "female" "male"   "female" "male"   "female" "male"
## [209] "female" "male"   "female" "male"   "female" "male"   "female" "male"
## [217] "female" "male"   "female" "male"   "female" "male"   "female" "male"
## [225] "male"   "female" "female" "male"   "female" "male"   "female" "male"
## [233] "female" "male"   "female" "male"   "female" "male"   "female" "male"
## [241] "female" "male"   "female" "male"   "female" "male"   "female" "male"
## [249] "male"   "female" "female" "male"   "female" "male"   "female" "male"
## [257] "female" "male"   "female" "male"   "female" "male"   "female" "male"
## [265] "female" "male"   "female" "male"   "female" "male"   "female" "male"
## [273] "female" "male"   "female" "male"   "female" "male"   "male"   "female"
## [281] "male"   "female" "female" "male"   "female" "male"   "female" "male"
## [289] "female" "male"   "female" "male"   "male"   "female" "female" "male"
## [297] "female" "male"   "female" "male"   "female" "male"   "female" "male"
## [305] "female" "male"   "female" "male"   "female" "male"   "male"   "female"
## [313] "female" "male"   "female" "male"   "male"   "female" "male"   "female"
## [321] "female" "male"   "female" "male"   "male"   "female" "female" "male"
## [329] "female" "male"   "female" "male"   "female" "male"   "male"   "female"
## [337] "male"   "female" "female" "male"   "female" "male"   "male"   "female"
```

1.4.- Año

```
penguins$año
```

```
##   [1] 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007
##  [16] 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007
##  [31] 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007
##  [46] 2007 2007 2007 2007 2007 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008
```

```
##  [61] 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008
##  [76] 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008
##  [91] 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2009 2009 2009 2009 2009
## [106] 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009
## [121] 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009
## [136] 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009
## [151] 2009 2009 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007
## [166] 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007
## [181] 2007 2007 2007 2007 2007 2007 2008 2008 2008 2008 2008 2008 2008 2008 2008
## [196] 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008
## [211] 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008
## [226] 2008 2008 2008 2008 2008 2008 2008 2009 2009 2009 2009 2009 2009 2009 2009
## [241] 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009
## [256] 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009
## [271] 2009 2009 2009 2009 2009 2009 2007 2007 2007 2007 2007 2007 2007 2007 2007
## [286] 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007 2007
## [301] 2007 2007 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008 2008
## [316] 2008 2008 2008 2008 2008 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009
## [331] 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009 2009
```

2.- Convertir las variables categóricas a factores

2.1.- Especie

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

2.2.- Isla

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

2.3.- Género

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

2.4.- Año

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

3.- Visualizar el tipo de variables que tenemos ahora

```
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 ...
```

4.- Estadística descriptiva

```
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
```

5.- Visualización de la matriz de datos

```
penguins
```

```
## # A tibble: 344 x 9
##    ID    especie isla      largo_pico_mm grosor_pico_mm largo_aleta_mm
##    <chr> <fct>   <fct>             <dbl>          <dbl>          <dbl>
##  1 i1    Adelie  Torgersen          39.1           18.7            181
##  2 i2    Adelie  Torgersen          39.5           17.4            186
##  3 i3    Adelie  Torgersen          40.3           18              195
##  4 i4    Adelie  Torgersen          37.8           18.1            190
##  5 i5    Adelie  Torgersen          36.7           19.3            193
##  6 i6    Adelie  Torgersen          39.3           20.6            190
##  7 i7    Adelie  Torgersen          38.9           17.8            181
##  8 i8    Adelie  Torgersen          39.2           19.6            195
##  9 i9    Adelie  Torgersen          34.1           18.1            193
## 10 i10   Adelie  Torgersen          42             20.2            190
## # i 334 more rows
## # i 3 more variables: masa_corporal_g <dbl>, genero <fct>, año <fct>
```

——Este paso es opcional para crear una nueva base de datos.——

Creamos una nueva matriz de datos donde se seleccionan las columnas de la 2 a la 9.

1.- Seleccionamos las columnas a trabajar y le damos un nuevo nombre (BD1)

```
BD1<-penguins[,2:9]
```

2.- Visualizamos las columnas que tenemos

```
colnames(BD1)
```

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

Nota: Otra alternativa para quitar la columna y se visualiza

```
BD1<-penguins[,-1]
colnames(BD1)
```

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

Librerías

1.- Instalamos la paquetería “ggplot2”

```
install.packages("ggplot2")
```

```
## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.3'
## (as 'lib' is unspecified)
```

2.- Abrimos librería

```
library(ggplot2)
```

Boxplot

1.- Creación de un vector de color

```
color=c("cyan1","blueviolet")
```

2.- Creación del gráfico

```
BX<-ggplot(BD1, aes(x=genero, y=largo_pico_mm))+
  geom_boxplot(fill=color)+
  ggtitle("Boxplot")+
  xlab("Género")+
  ylab("largo de la aleta (mm)")+
  theme_bw()
```

3- Visualización del boxplot

```
BX
```

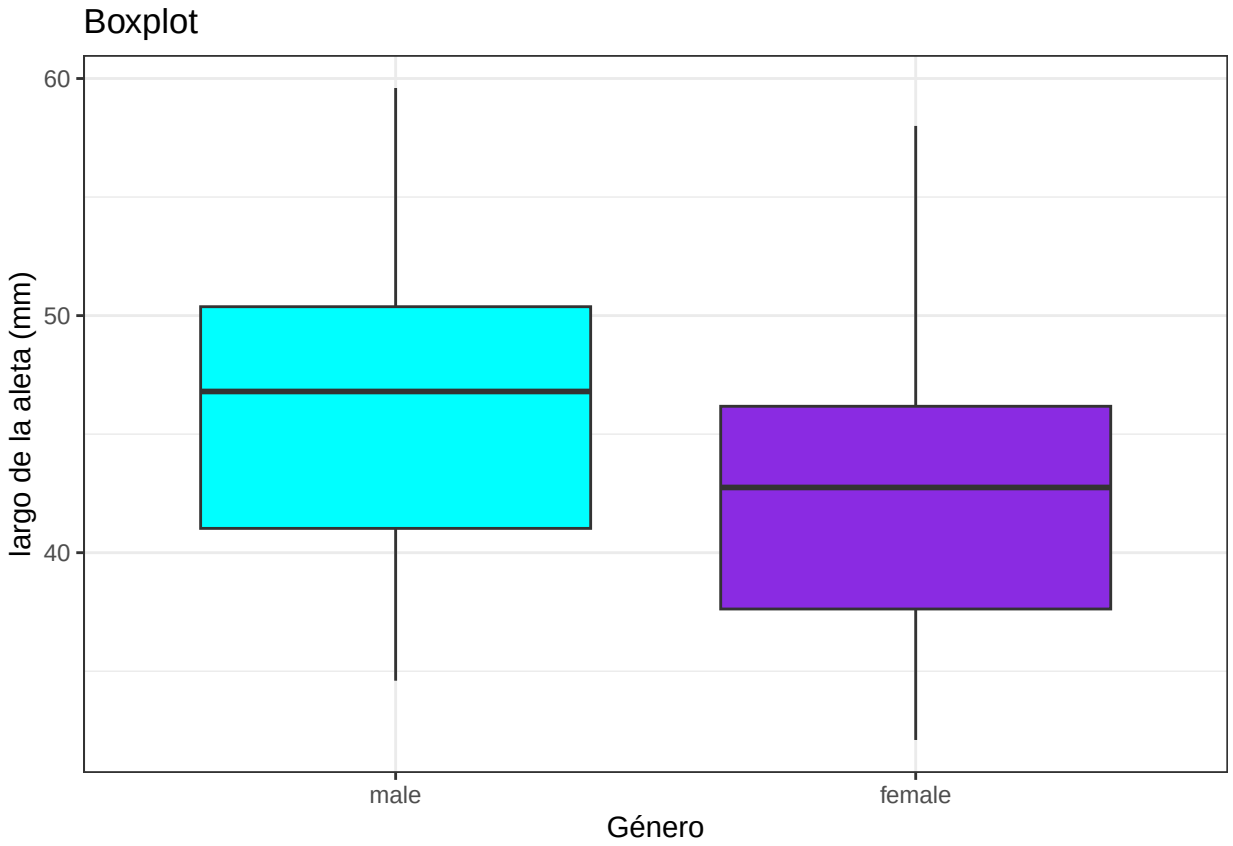


Gráfico de barras

1.- Barras verticales

1.1.- Creación de un vector de color

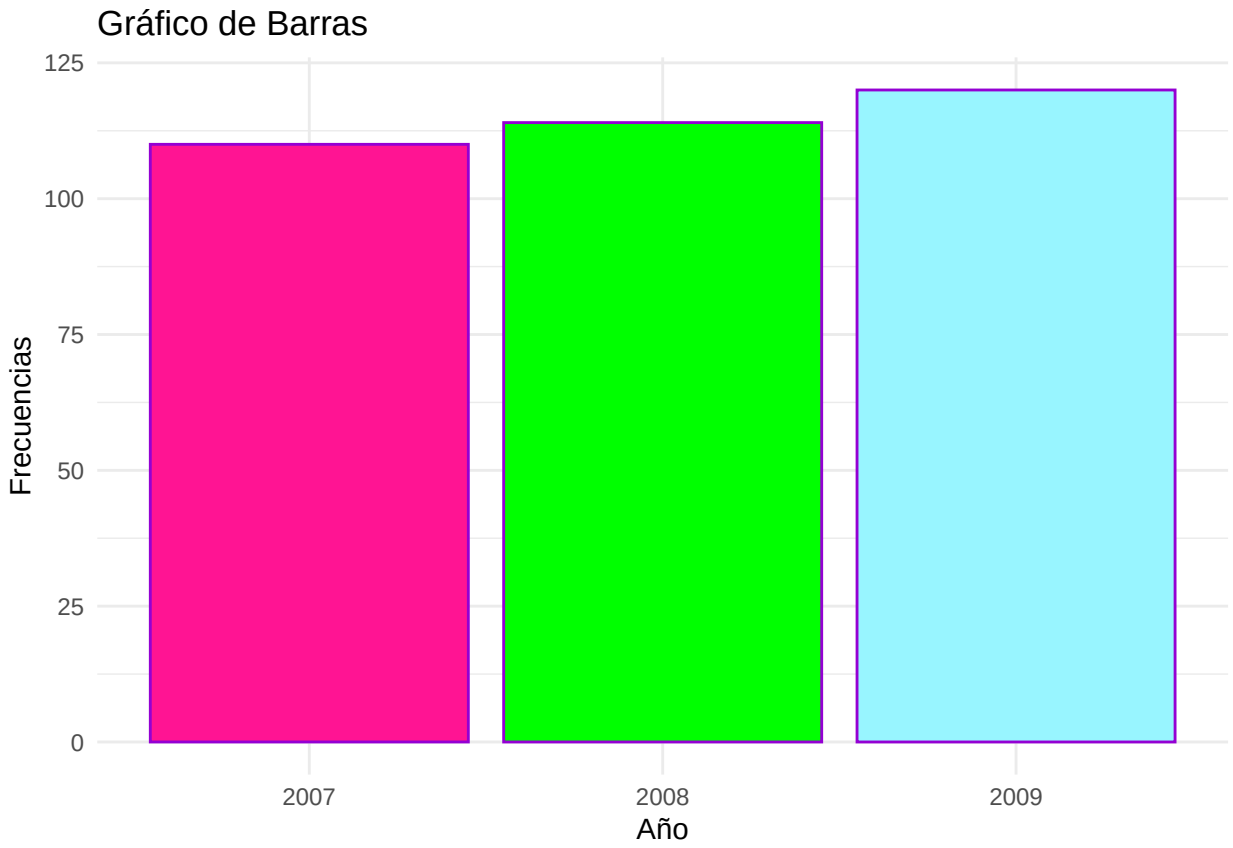
```
color=c("deeppink1", "green", "cadetblue1")
```

1.2.- Creación del gráfico

```
GB1<-ggplot(BD1, aes(x=año))+
  geom_bar(colour= "darkviolet", fill=color)+
  ggtitle("Gráfico de Barras")+
  xlab("Año")+
  ylab("Frecuencias")+
  theme_minimal()
```

1.3.- Visualización del gráfico

```
GB1
```



2.- Barras horizontales

2.1.- Creación de un vector de color

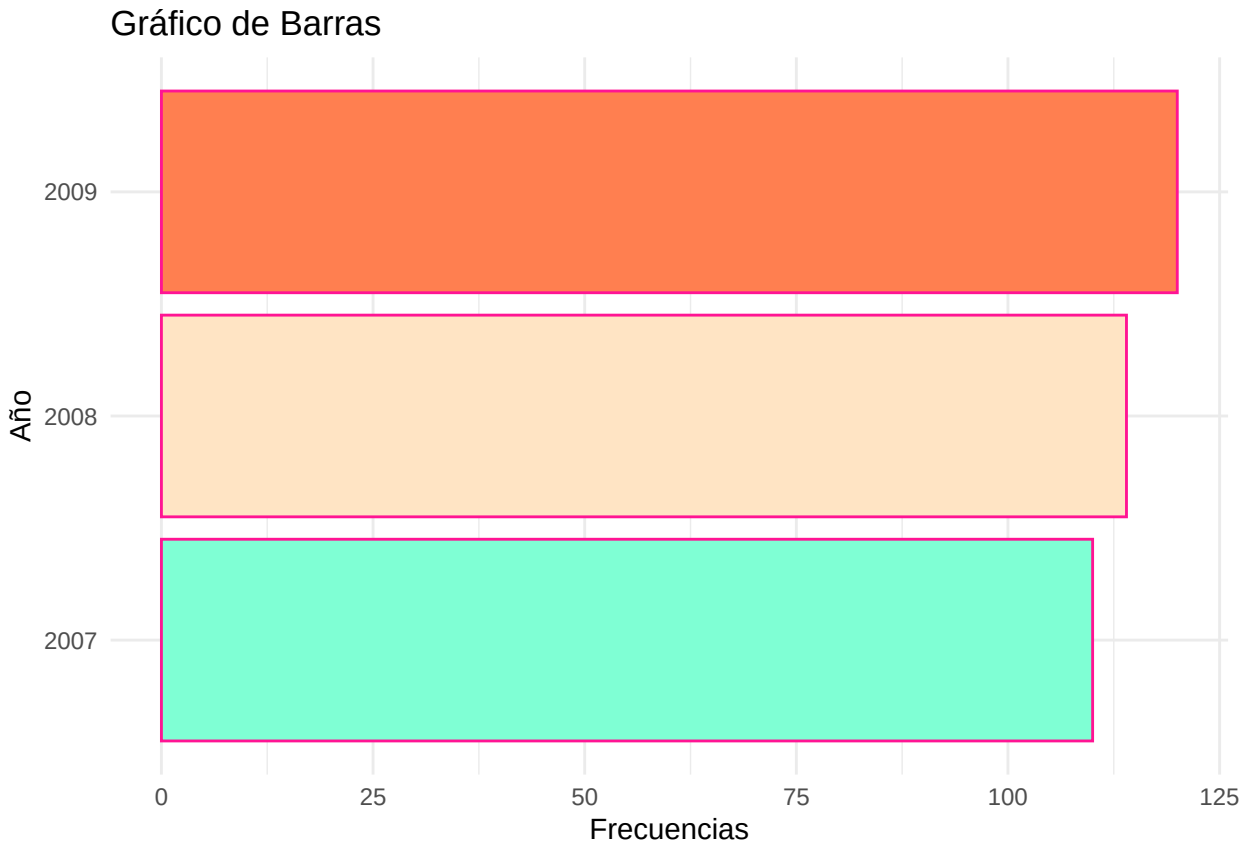
```
color=c("aquamarine", "bisque", "coral")
```

2.2 Creación del gráfico

```
GB2<-ggplot(BD1, aes(x=año))+
  geom_bar(colour= "deeppink", fill=color)+
  ggtitle("Gráfico de Barras")+
  xlab("Año")+
  ylab("Frecuencias")+
  coord_flip()+
  theme_minimal()
```

2.3.- Visualización del objeto

```
GB2
```



Histograma

1.- Construcción del gráfico

```
HG<-ggplot(BD1, aes(x=largo_aleta_mm))+
  geom_histogram(col="chartreuse", fill="darkorange1",alpha=0.6)+
  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`.
```

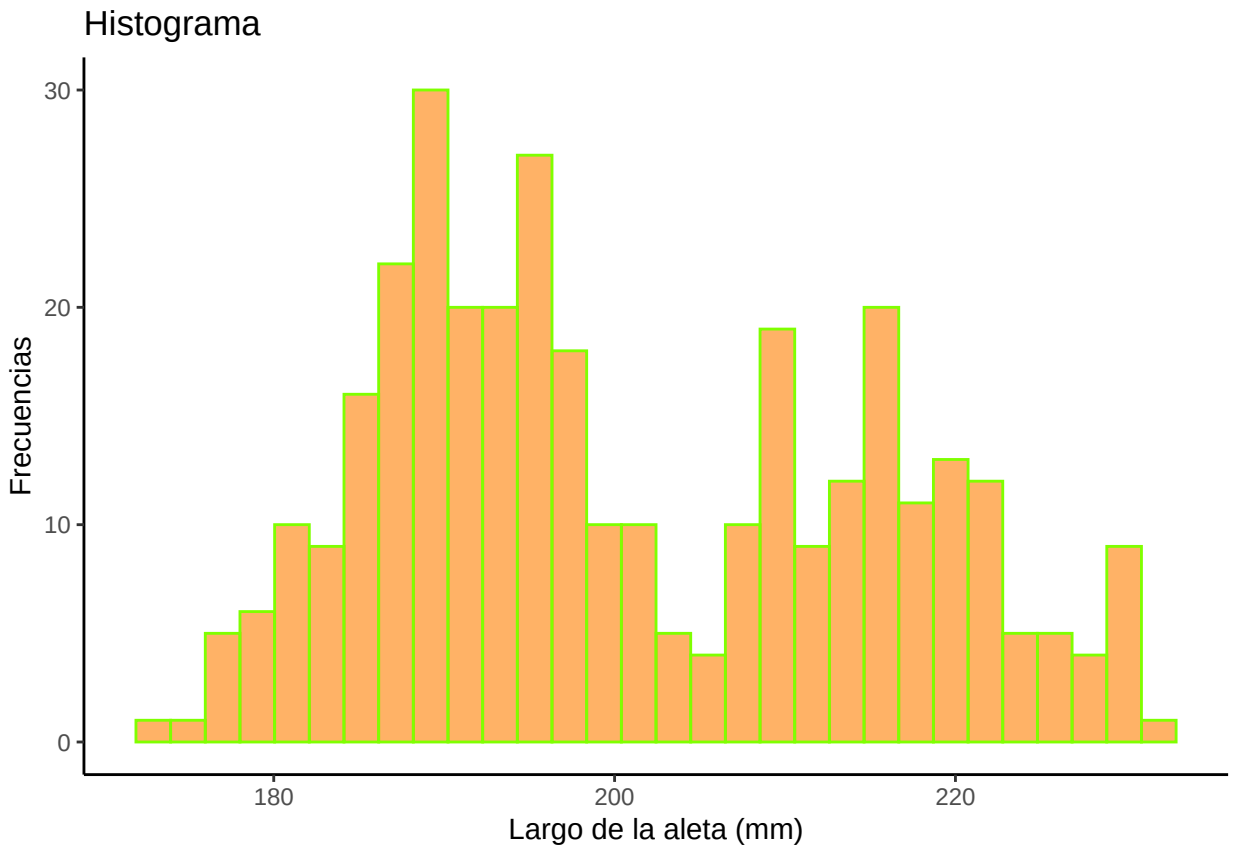


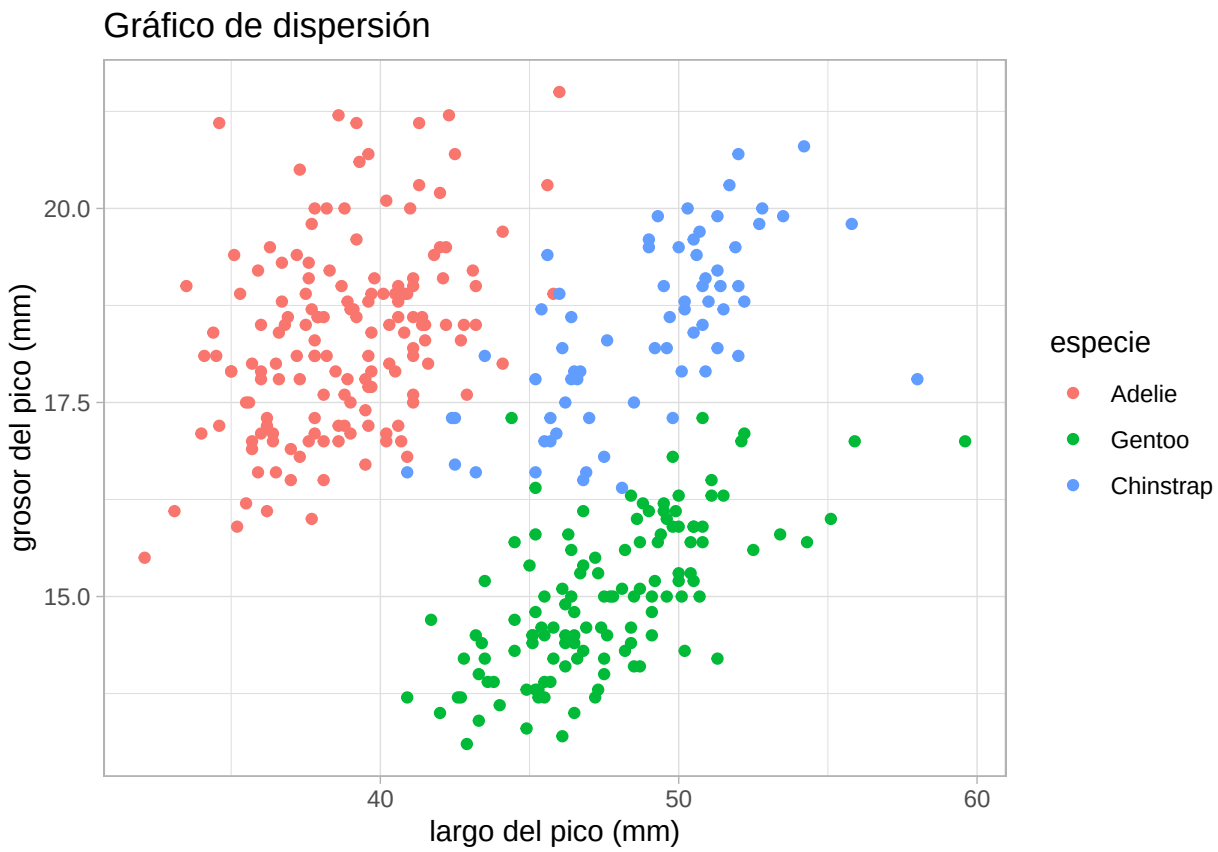
Gráfico de dispersión

1.- Construcción del gráfico

```
GD<-ggplot(BD1, 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
```

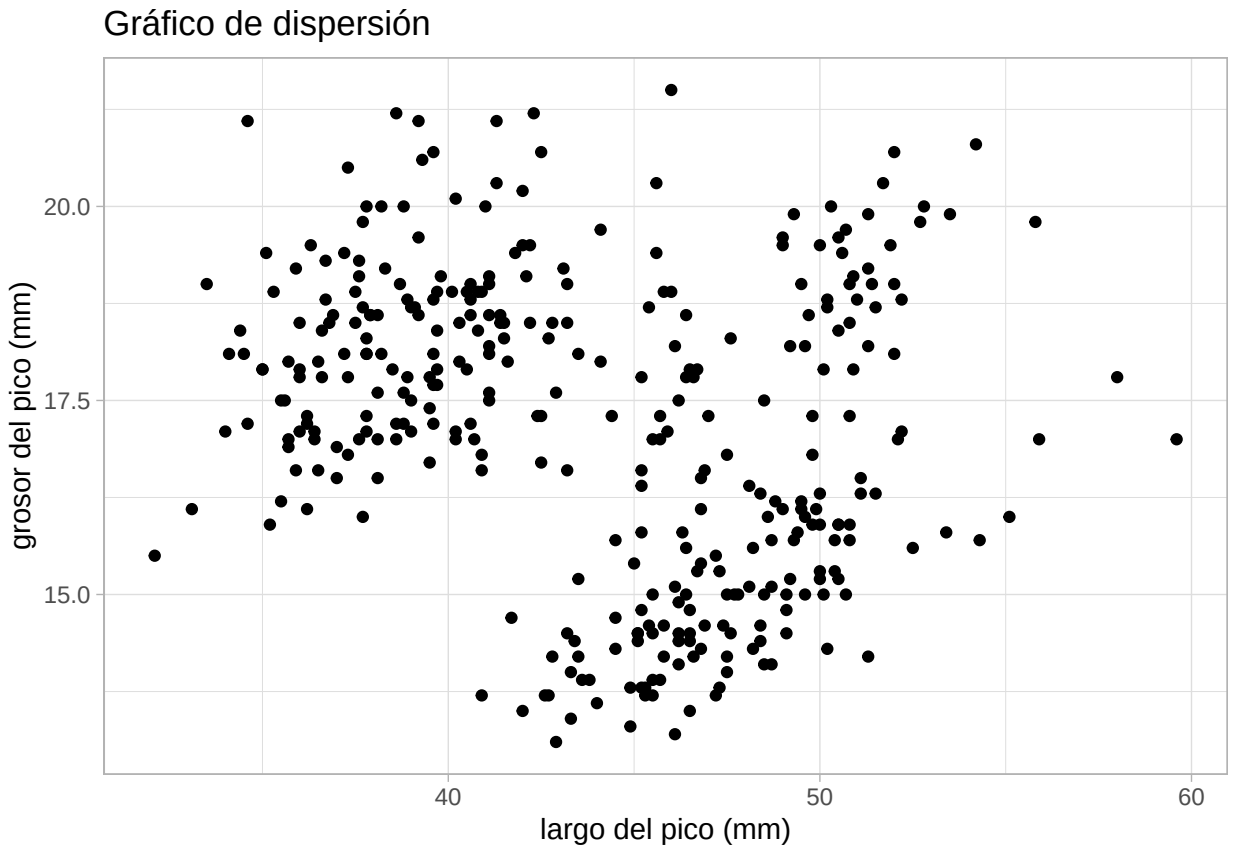


3.- Construcción del gráfico sin color

```
GD2<-ggplot(BD1, aes(x=largo_pico_mm, y=grosor_pico_mm))+
  geom_point()+
  ggtitle("Gráfico de dispersión")+
  xlab("largo del pico (mm)")+
  ylab("grosor del pico (mm)")+
  theme_light()
```

3.1 Visualización del gráfico

```
GD2
```



4.- El gráfico con diferentes colores

4.1.- Creación de los vectores de color

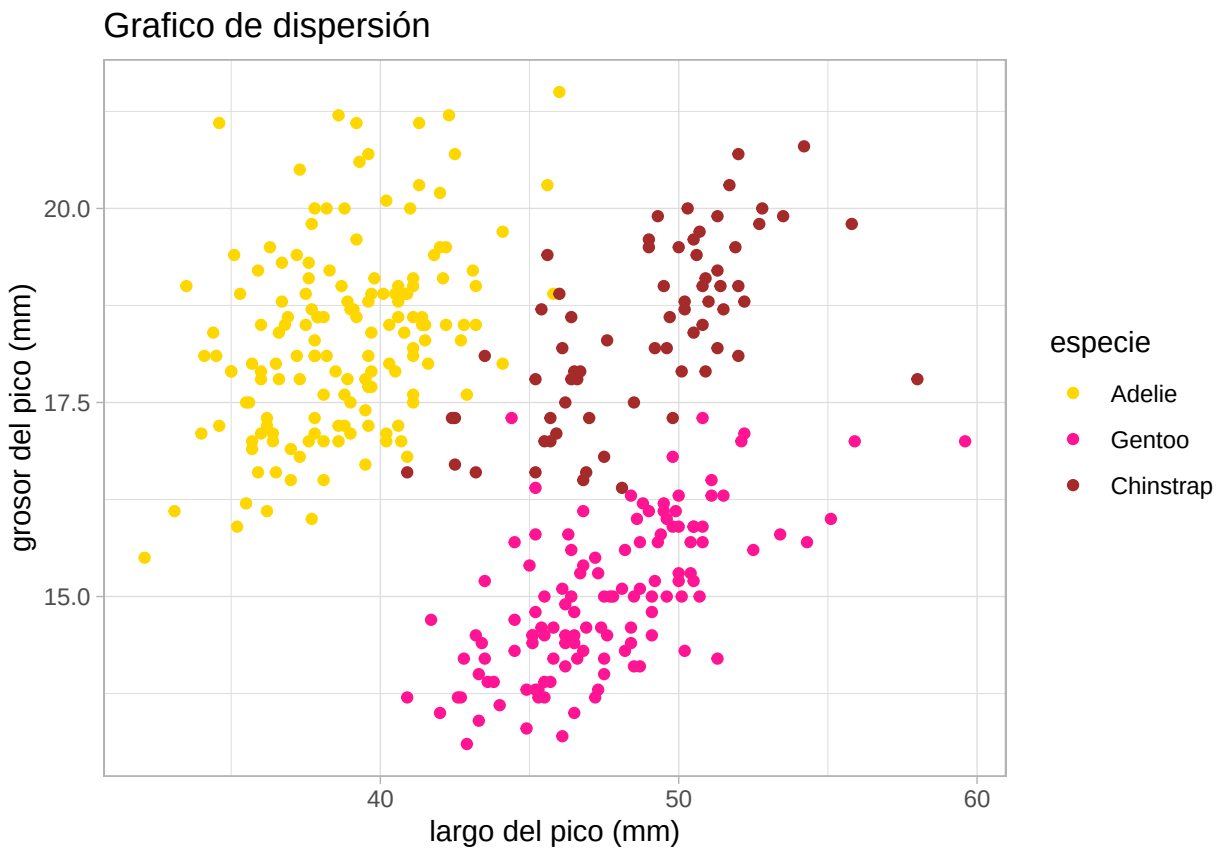
```
color=c("gold", "brown", "deeppink")
```

4.2.- Creación del gráfico

```
GD3<-ggplot(BD1, aes(x=largo_pico_mm, y=grosor_pico_mm))+
  geom_point(aes(color=especie))+
  scale_color_manual(values=c('gold',"deeppink",'brown'))+
  ggtitle("Grafico de dispersión")+
  xlab("largo del pico (mm)")+
  ylab("grosor del pico (mm)")+
  theme_light()
```

4.3.- Visualización del gráfico

```
GD3
```



Organización de gráficos

1.- Descargar el paquete gridExtra

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

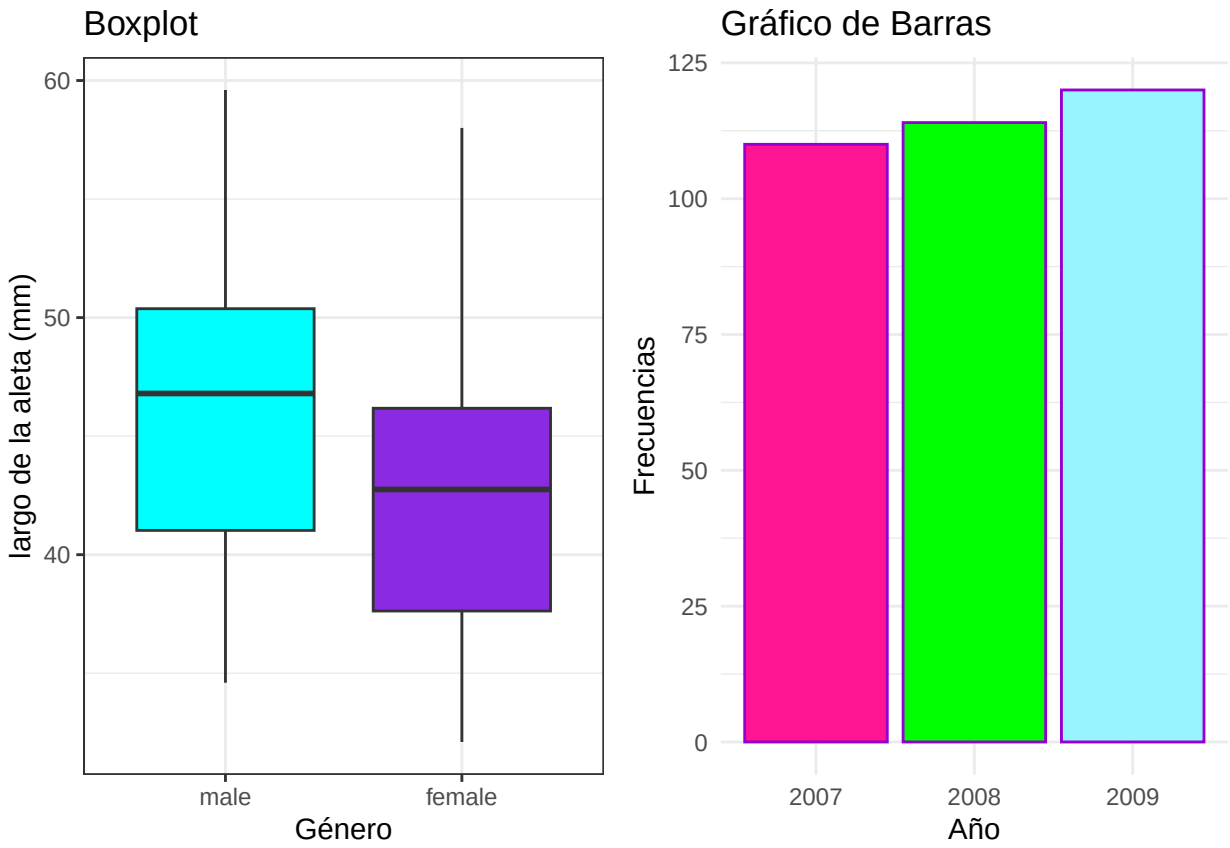
```
## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.3'
## (as 'lib' is unspecified)
```

2.- Abrir la librería

```
library(gridExtra)
```

3.- Organización 2 gráficos en una fila y dos columnas

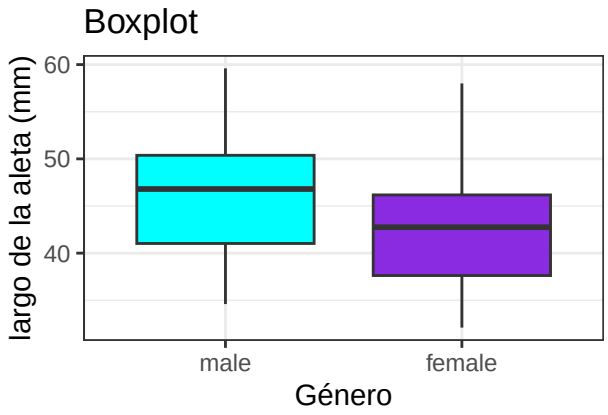
```
grid.arrange(BX,GB1, nrow=1, ncol=2)
```

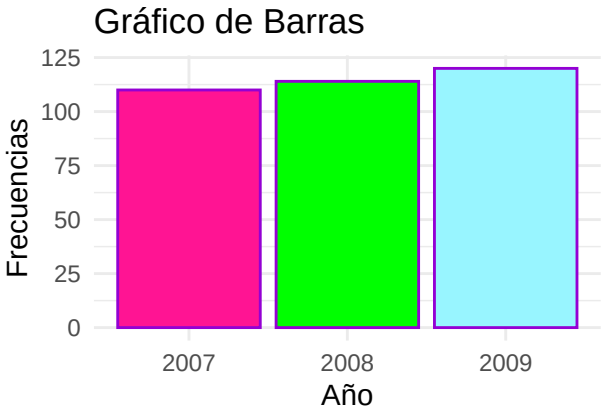


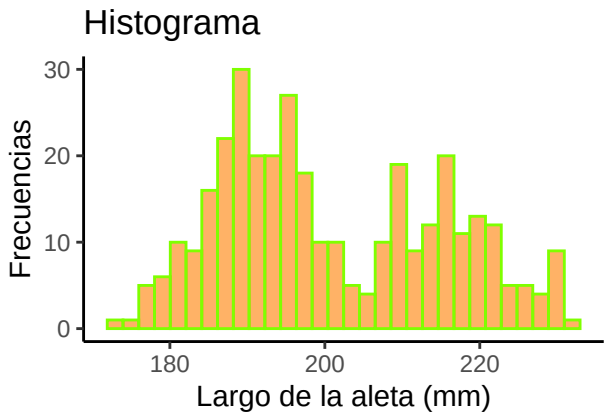
4.- Organización 3 gráficos en dos filas y dos columnas

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

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



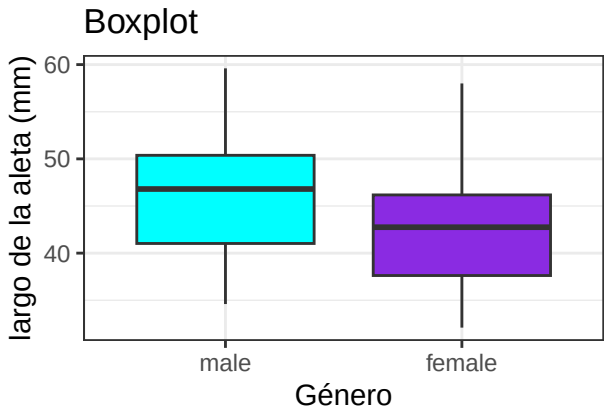


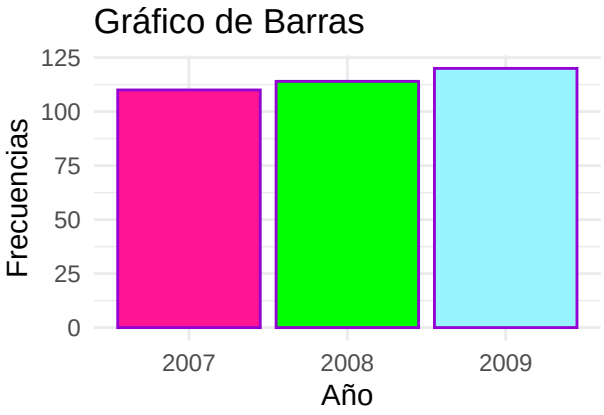


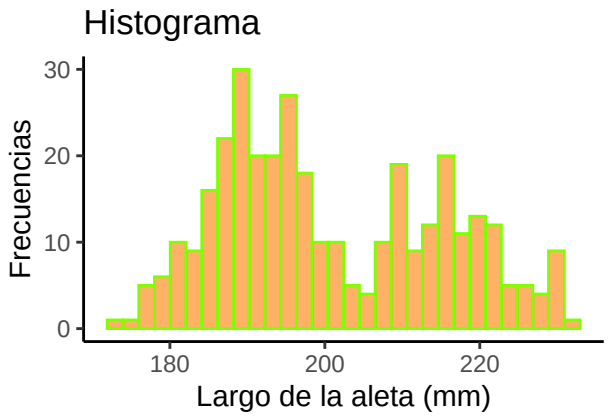
5.- Organización 4 gráficos en dos filas y dos columnas

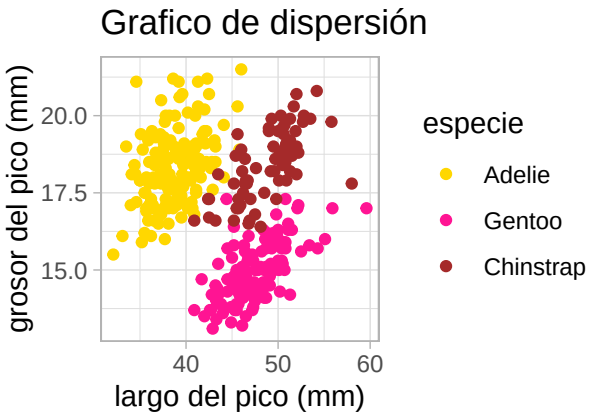
```
grid.arrange(BX,GB1,HG,GD3, nrow=2, ncol=2)
```

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









Extra

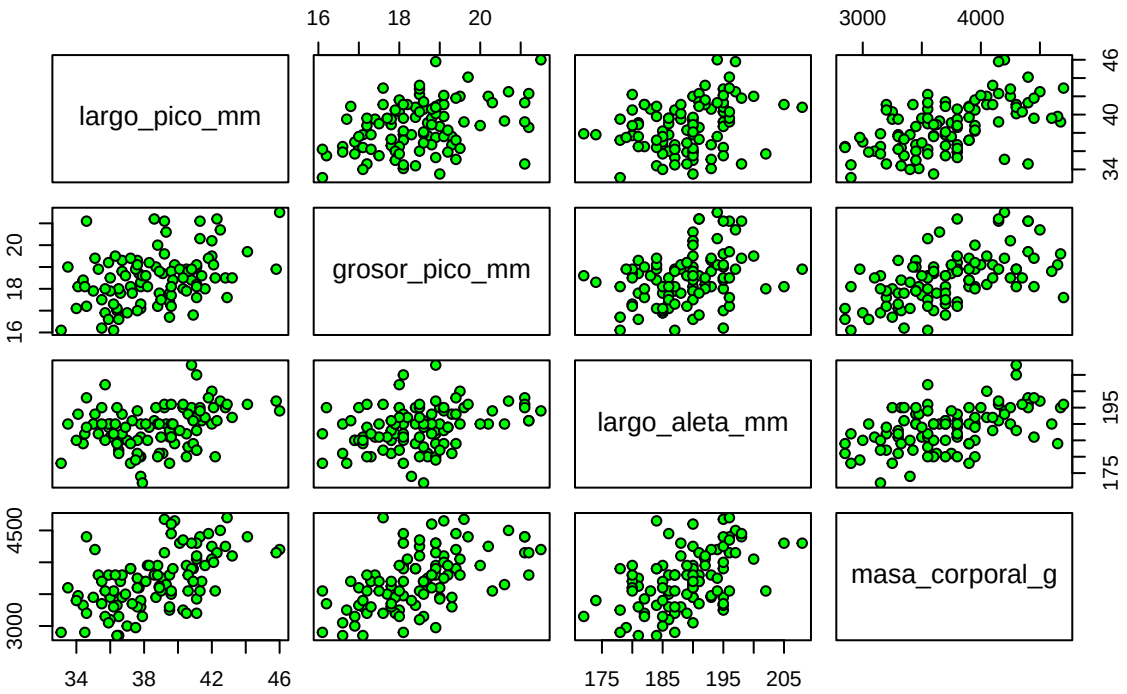
Gráfico de dispersión múltiple

1.-Variables a graficar

```
adelie<-BD1[1:100,c(-1,-2,-7,-8)]
```

1.2.- Se construye el gráfico

```
GDM<-pairs(adelie, main="gráfico de dispersión", pch=21, bg="green")
```



2.-Variables a graficar

```
gentoo<-BD1[1:100,c(-1,-2,-7,-8)]
```

2.1.- Se construye el gráfico

```
GDM<-pairs(adelie, main="gráfico de dispersión", pch=21, bg="khaki")
```

gráfico de dispersión