Gráficos

Jocelyn Sánchez Campos

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Introducción: Se va a trabajar con la matriz penguins

Lectura de la matriz de datos

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

2. Abrir libreria

```
library(readxl)
```

3. Lectura de la matriz de datos

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

4. Dimensión de la matriz penguins

```
dim(penguins)
```

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

Construcción de gráficos

1. Instalar la libreria **ggplot2**

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

2. Abrir libreria

```
library(ggplot2)
```

3. Configuración de la matriz Convertir las variables

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

```
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"
```

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

```r
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"
```

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

```r
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 2009
```

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

Boxplot

1.- Creación de un vector de color

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

2.- Creacion del grafico

```
BX<-ggplot(penguins, 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
```

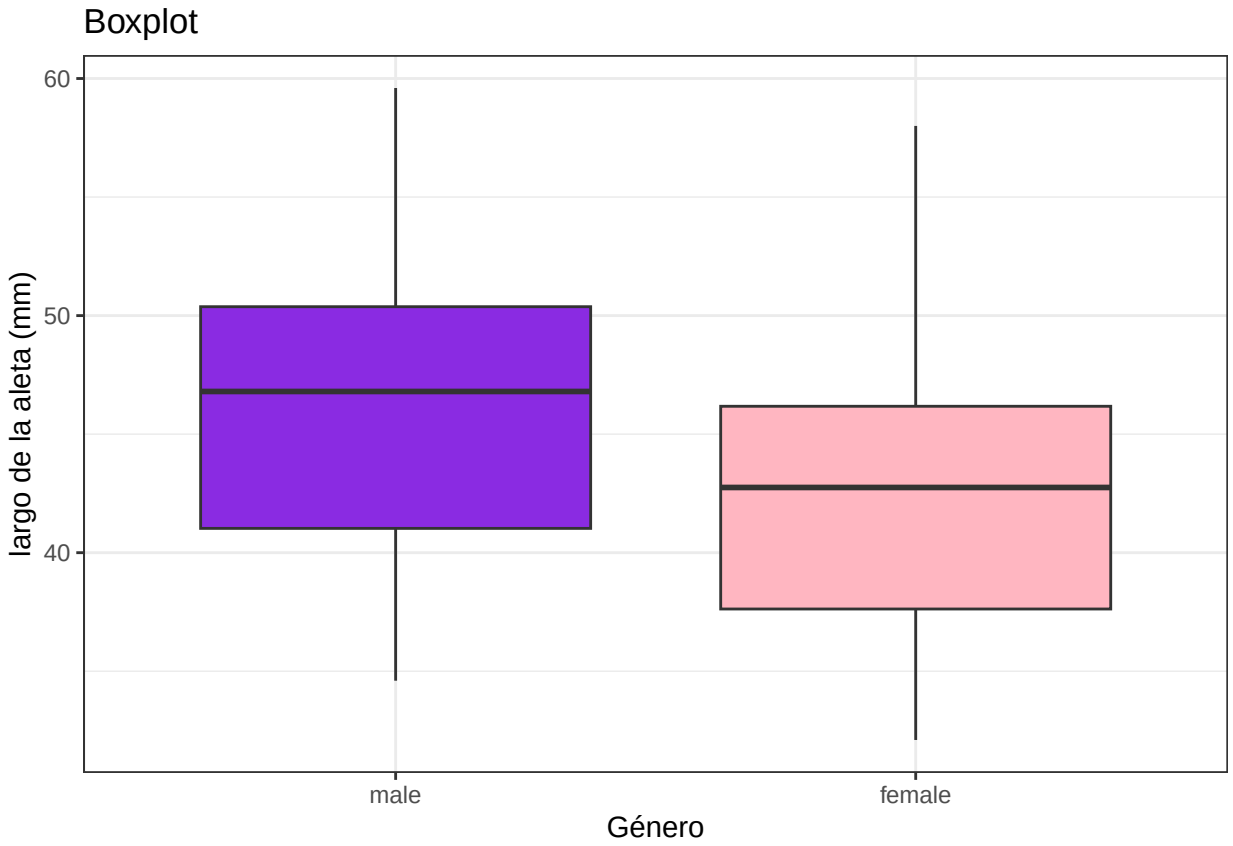


Gráfico de barras

1.- Creación de un vector de color

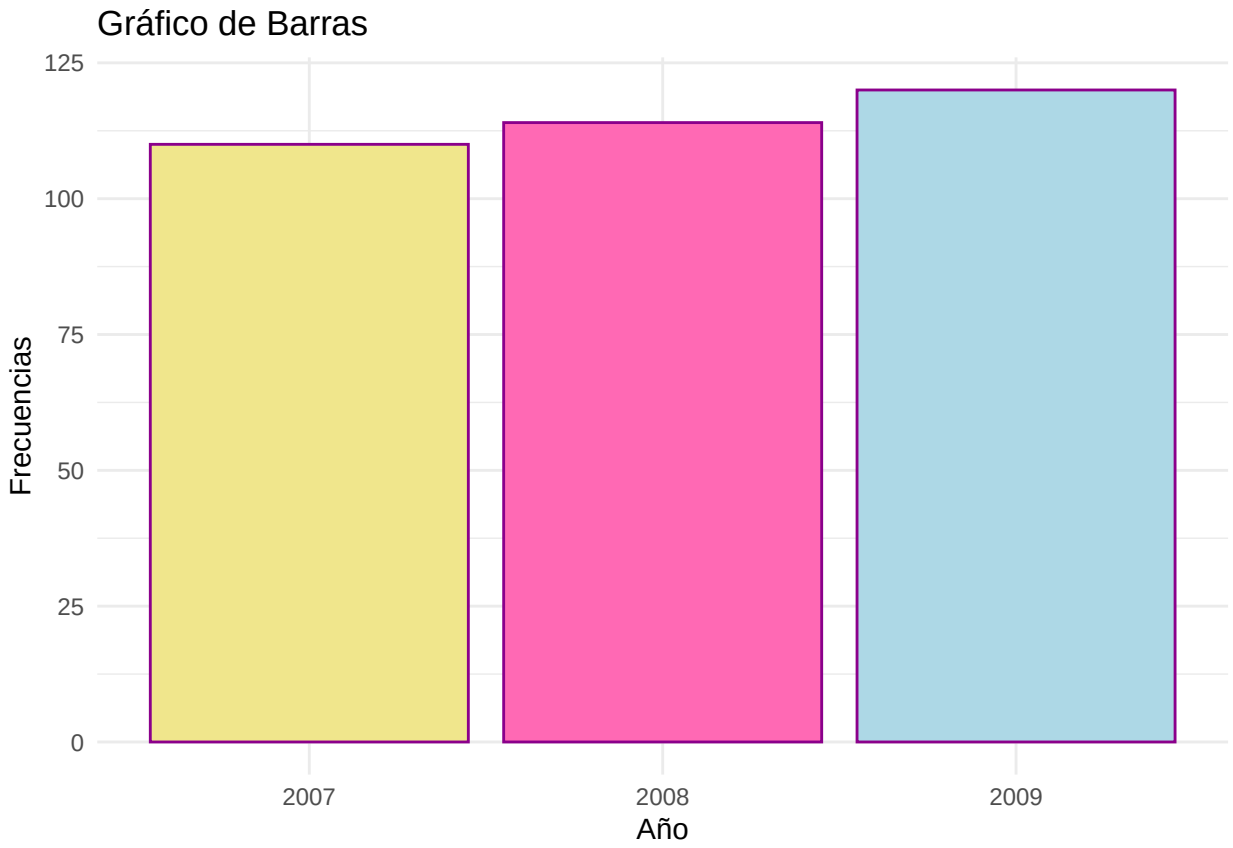
```
color=c("khaki", "hotpink", "lightblue")
```

2.- Creación del gráfico

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

3.- Visualizacion del grafico

```
GB1
```

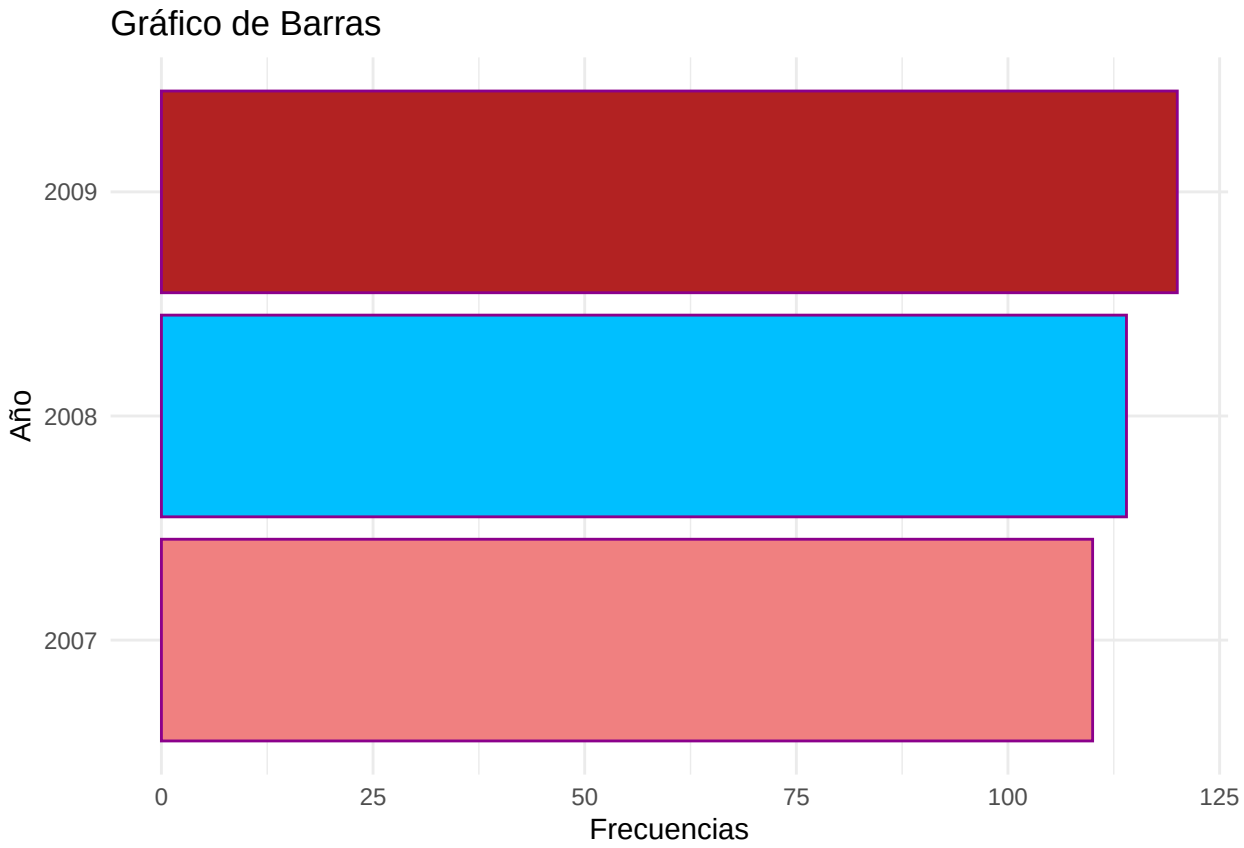


4.- Barras verticales

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

5. Visualizacion del objeto

```
GB2
```



Histograma 1.- Construccion del grafico

```
HG<-ggplot(penguins, aes(x=largo_aleta_mm))+
  geom_histogram(binwidth=0.1, col="lavender", fill="lemonchiffon", alpha=0.4)+
  ggtitle("Histograma")+
  xlab("Largo de la aleta (mm)")+
  ylab("Frecuencias")+
  theme_classic()
```

```
## Warning in geom_histogram(binwidth = 0.1, col = "lavender", fill =
## "lemonchiffon", : Ignoring unknown parameters: `binwidth`
```

2.- Visualizacion del grafico

```
HG
```

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

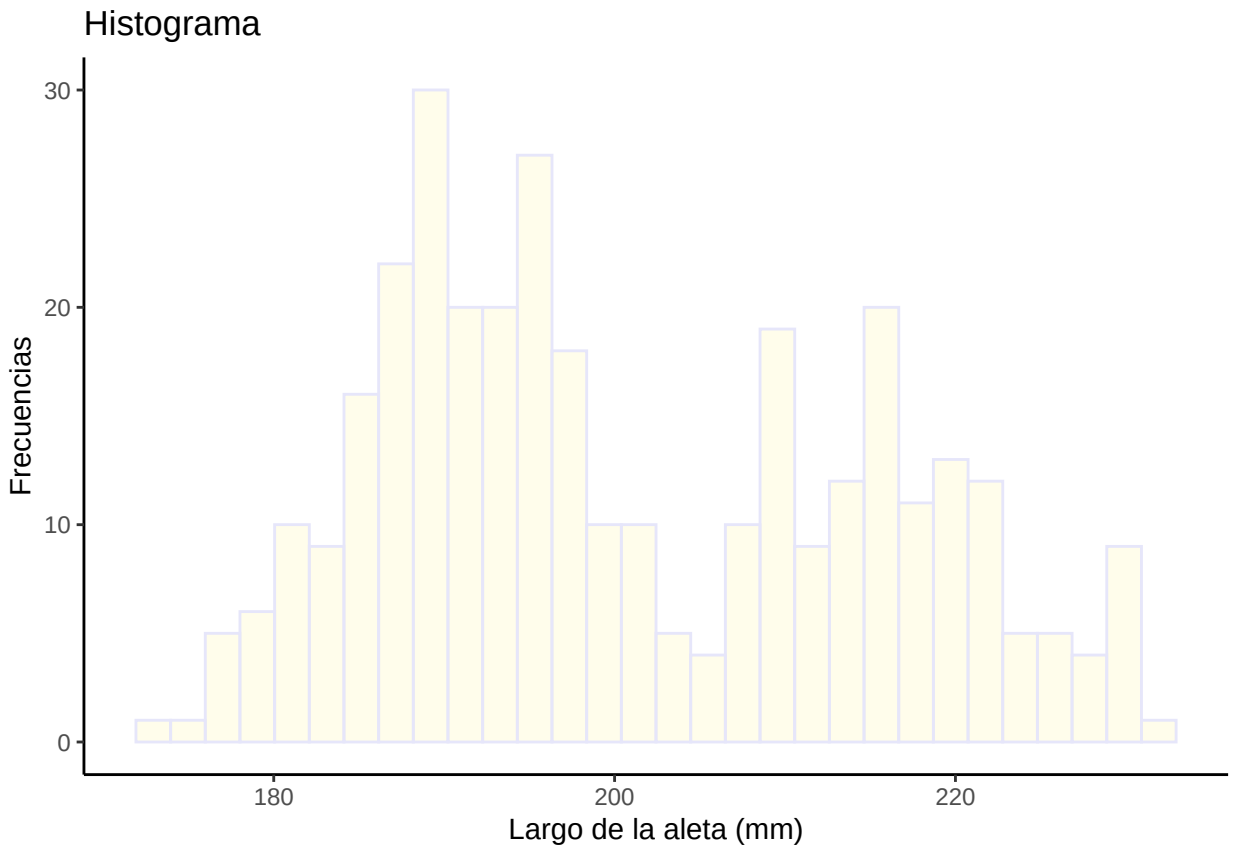


Gráfico de dispersión 1.- Construccion del grafico

```
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()
```

GRÁFICO DE DISPERSION 2

```
GD2<-ggplot(penguins, aes(x=largo_pico_mm, y=grosor_pico_mm))+
  geom_point(aes())+
  ggtitle("Gráfico de dispersión2")+
  xlab("largo del pico (mm)")+
  ylab("grosor del pico (mm)")+
  theme_light()
```

```
GD3<-ggplot(penguins, aes(x=largo_pico_mm, y=grosor_pico_mm))+
  geom_point(aes(color=especie))+
  scale_color_manual(values=c("lightcoral", "lawngreen", "forestgreen"))+
  ggtitle("Gráfico de dispersión3")+
  xlab("largo del pico (mm)")+
  ylab("grosor del pico (mm)")+
  theme_light()
```

2.- Visualizacion del objeto

```
GD
```

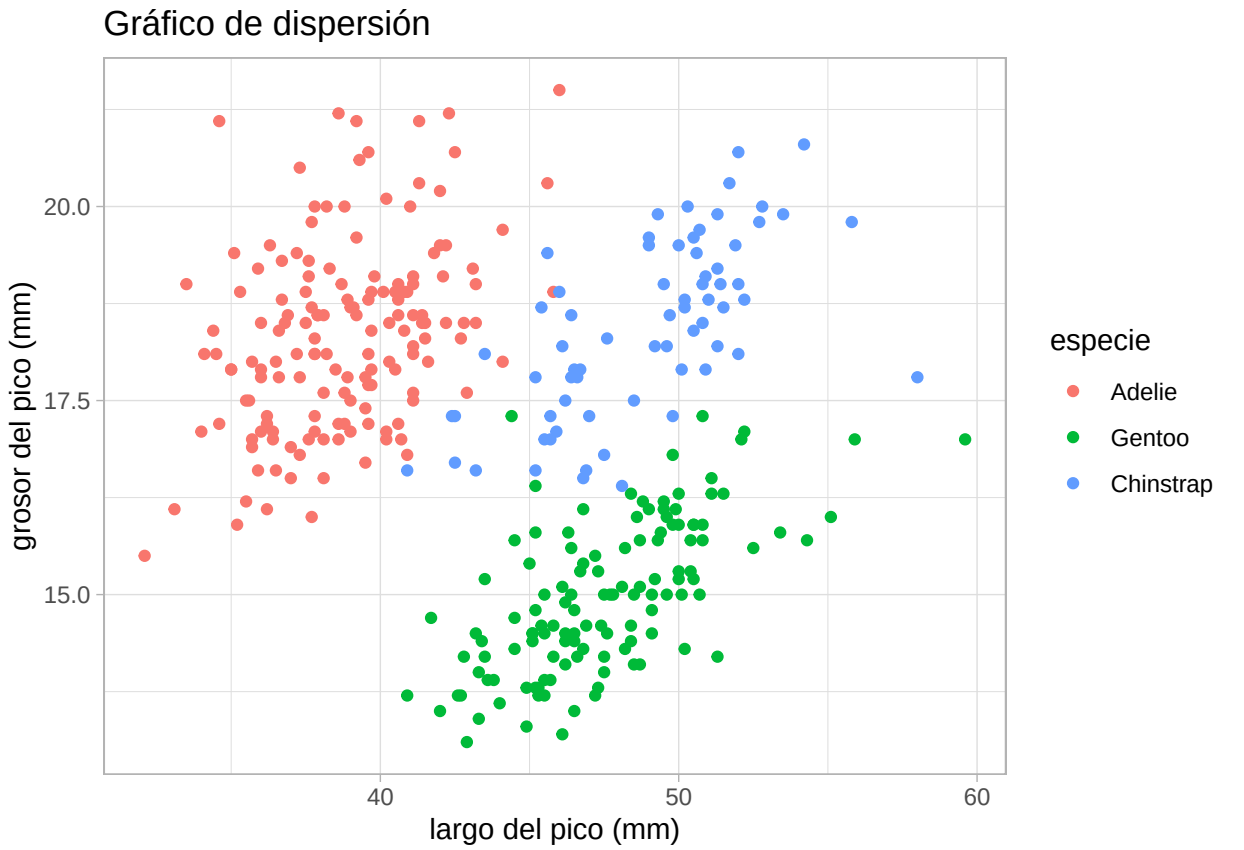


Gráfico de dispersión
grosor del pico (mm)
20.0
17.5
15.0
40
50
60
largo del pico (mm)
especie
Adelie
Gentoo
Chinstrap

```
GD2
```

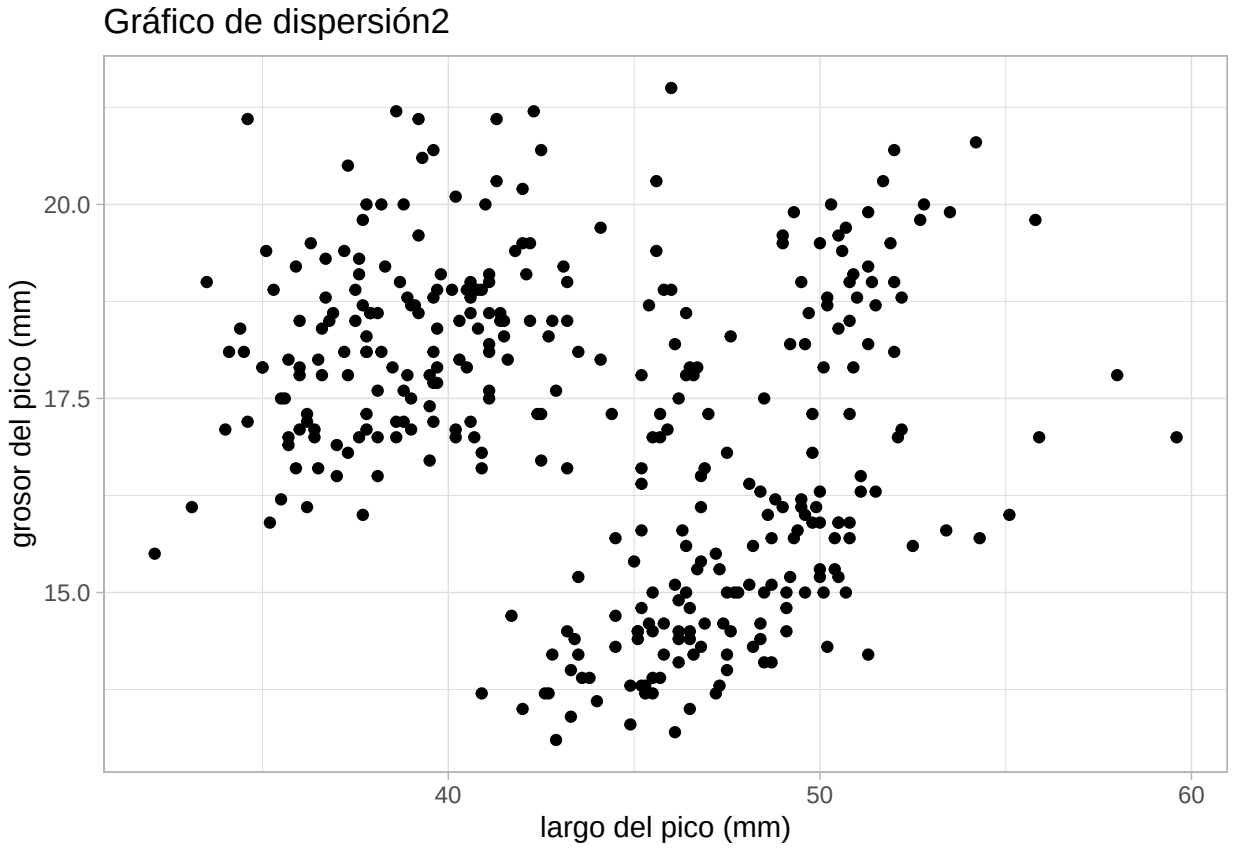
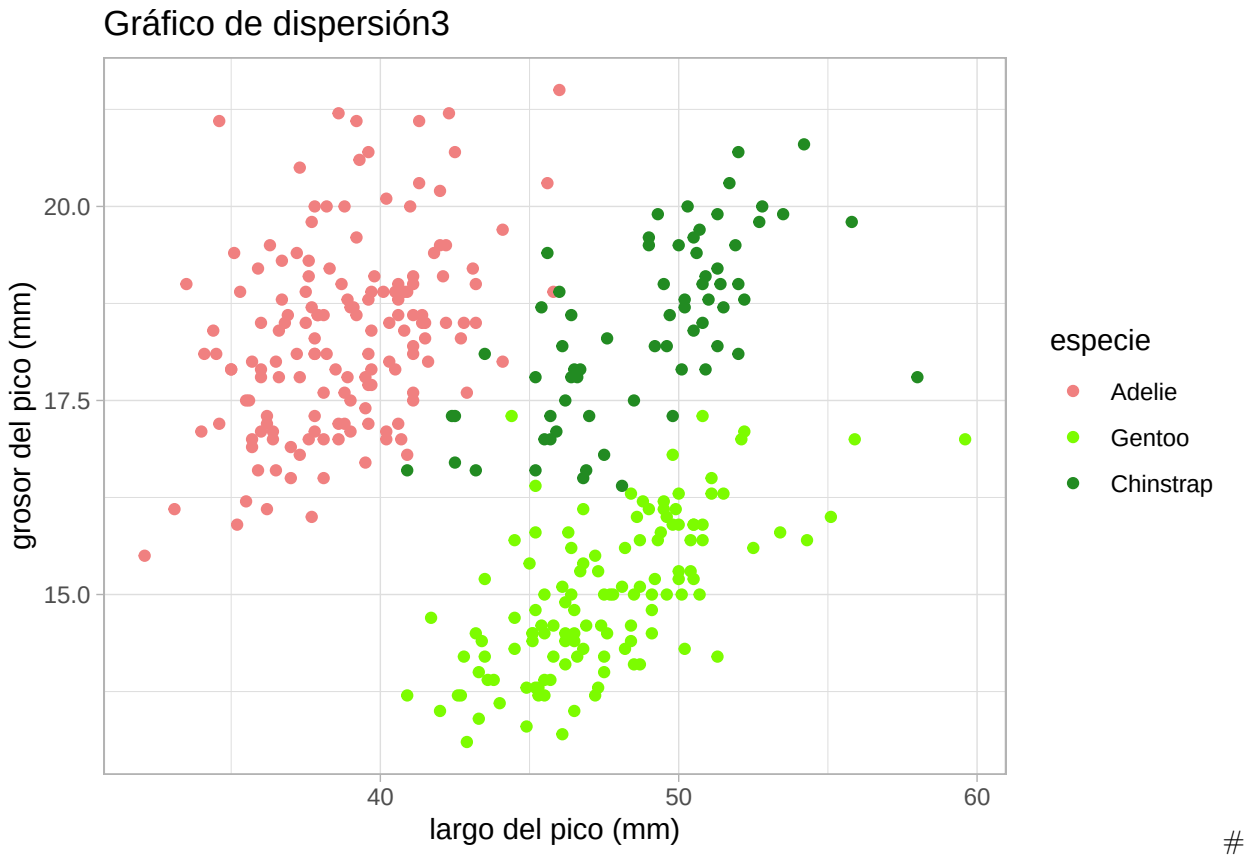


Gráfico de dispersión2
grosor del pico (mm)
20.0
17.5
15.0
40
50
60
largo del pico (mm)

```
GD3
```



#

Organizacion de graficos 1.- Descargar el paquete gridExtra

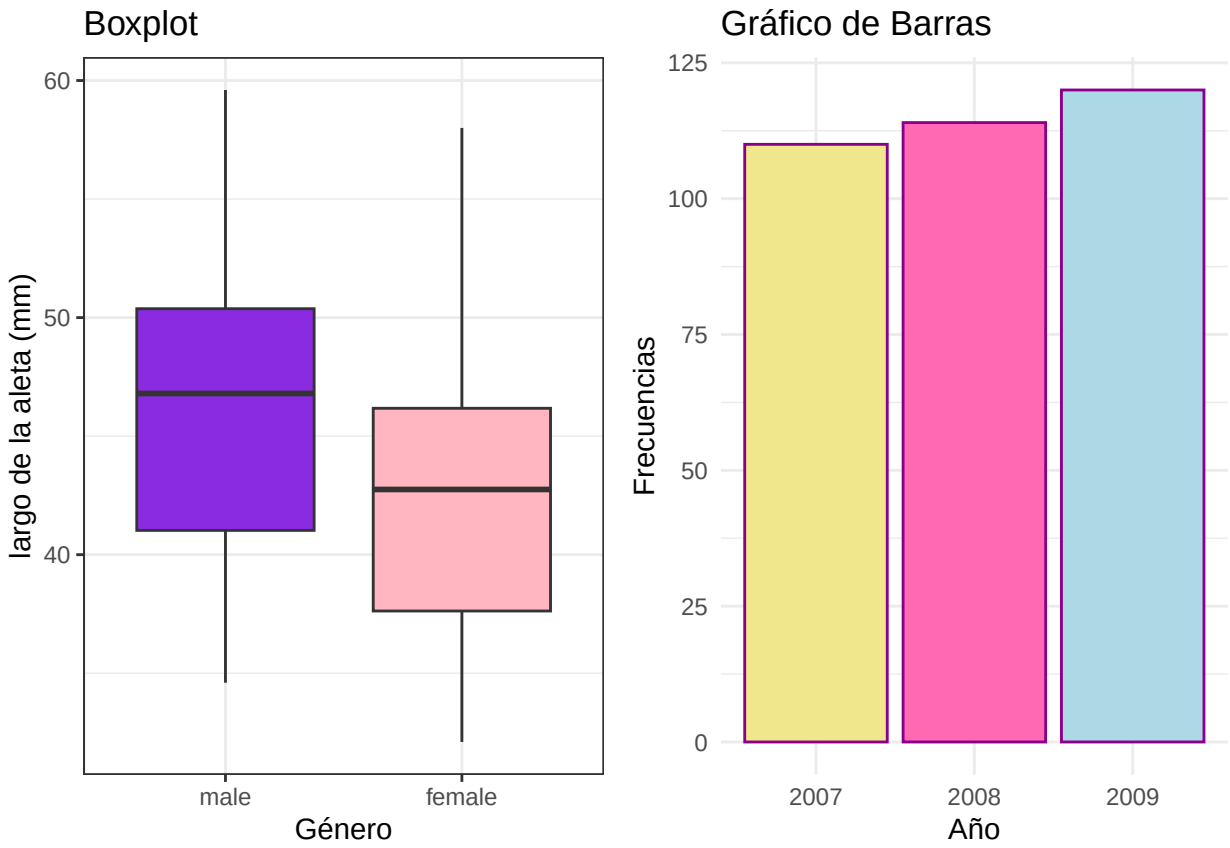
```
install.packages("gridExtra")
```

2.- Abrir la libreria

```
library(gridExtra)
```

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

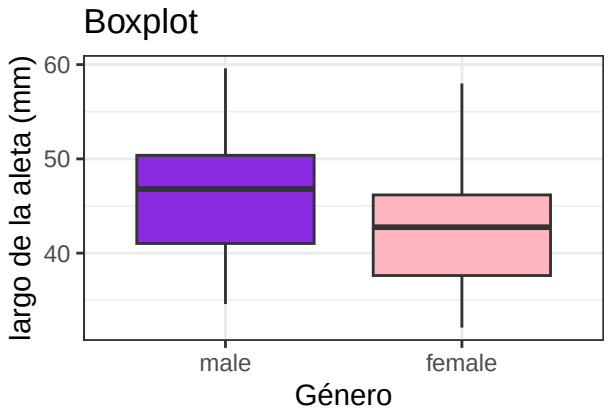
```
grid.arrange(BX,GB1, nrow=1, ncol=2)
```

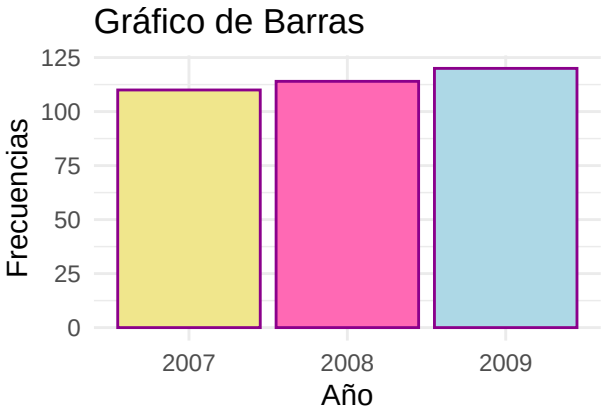


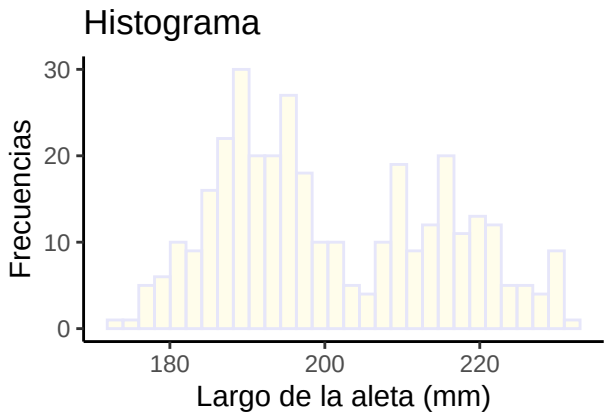
4.- Organizacion 3 graficos en dos filas y dos columnas

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

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



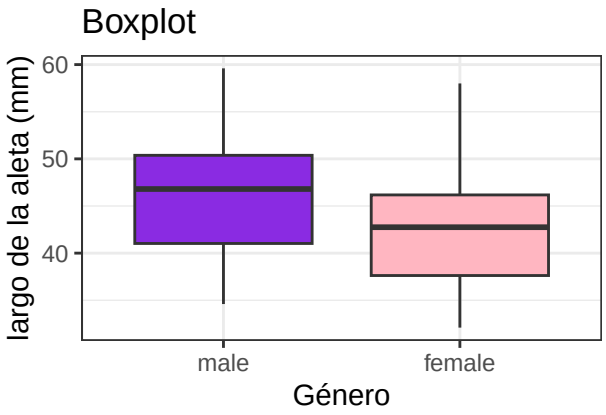




5.- Organizacion 4 graficos en dos filas y dos columnas

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

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


Boxplot
largo de la aleta (mm)
60
50
40
male
female
Género

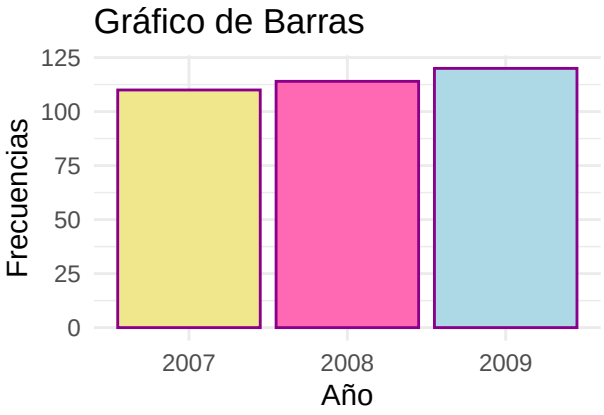
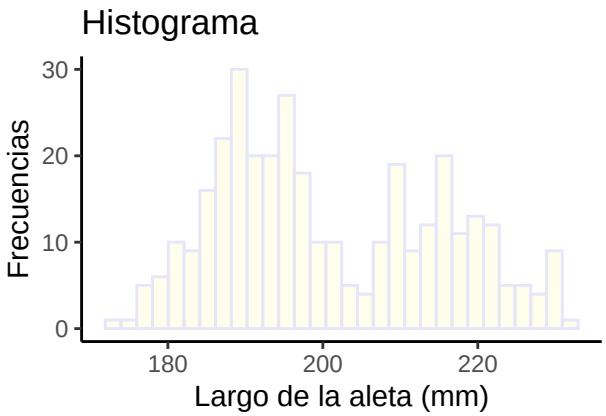


Gráfico de Barras
Frecuencias
125
100
75
50
25
0
2007
2008
2009
Año


Histograma
Frecuencias
30
20
10
0
180
200
220
Largo de la aleta (mm)

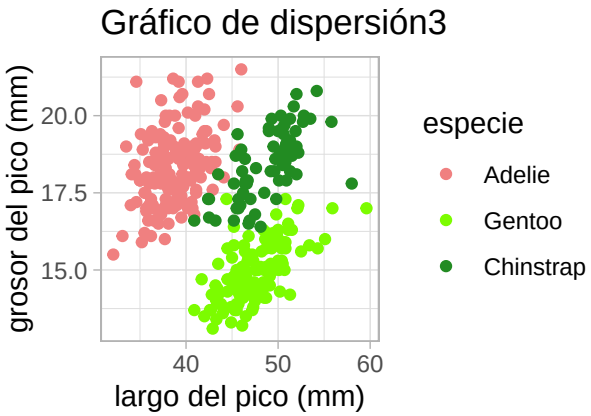


Gráfico de dispersión3
grosor del pico (mm)
20.0
17.5
15.0
40
50
60
largo del pico (mm)
especie
Adelie
Gentoo
Chinstrap