PIA.R

Usuario

2023-11-28

```
# Genaro Sánchez Tovar
# 28/Noviembre/23
# Matricula: 2133642

# Importar datos ------------------------------------------------------------

setwd ("C:/Genaro Met.ES/Met_ES/Scripts")
Temperaturas <- read.csv("Temp_julio.csv", header = TRUE)
head (Temperaturas)
```

```
##        Fecha Temperatura.Máxima Temperatura.Mínima
## 1 01/07/2022           29.44043           28.80638
## 2 02/07/2022           29.60417           28.93333
## 3 03/07/2022           30.02708           29.37917
## 4 04/07/2022           30.38542           29.75000
## 5 05/07/2022           30.22500           29.54792
## 6 06/07/2022           30.46458           29.78958
```

```
# Medidas de tendencia central ----------------------------------------------

# Media ---------------------------------------------------------------------

mean(Temperaturas$Temperatura.Mínima)
```

```
## [1] 29.49234
```

```
mean(Temperaturas$Temperatura.Máxima)
```

```
## [1] 30.18665
```

```
# Mediana -------------------------------------------------------------------

median(Temperaturas$Temperatura.Mínima)
```

```
## [1] 29.67292
```

```
median(Temperaturas$Temperatura.Máxima)
```

```
## [1] 30.29583
```

```
# Rango -----------------------------------------------------------------

range(Temperaturas$Temperatura.Mínima)
```

```
## [1] 25.97292 31.46042
```

```
range(Temperaturas$Temperatura.Máxima)
```

```
## [1] 26.75208 32.15000
```

```
# Fivenum ---------------------------------------------------------------

fivenum(Temperaturas$Temperatura.Mínima)
```

```
## [1] 25.97292 28.85312 29.67292 30.16771 31.46042
```

```
fivenum(Temperaturas$Temperatura.Máxima)
```

```
## [1] 26.75208 29.57812 30.29583 30.87292 32.15000
```

```
# Medidas de dispersión -------------------------------------------------

# Desviación estandar ---------------------------------------------------

sd(Temperaturas$Temperatura.Mínima)
```

```
## [1] 1.095497
```

```
sd(Temperaturas$Temperatura.Máxima)
```

```
## [1] 1.082203
```

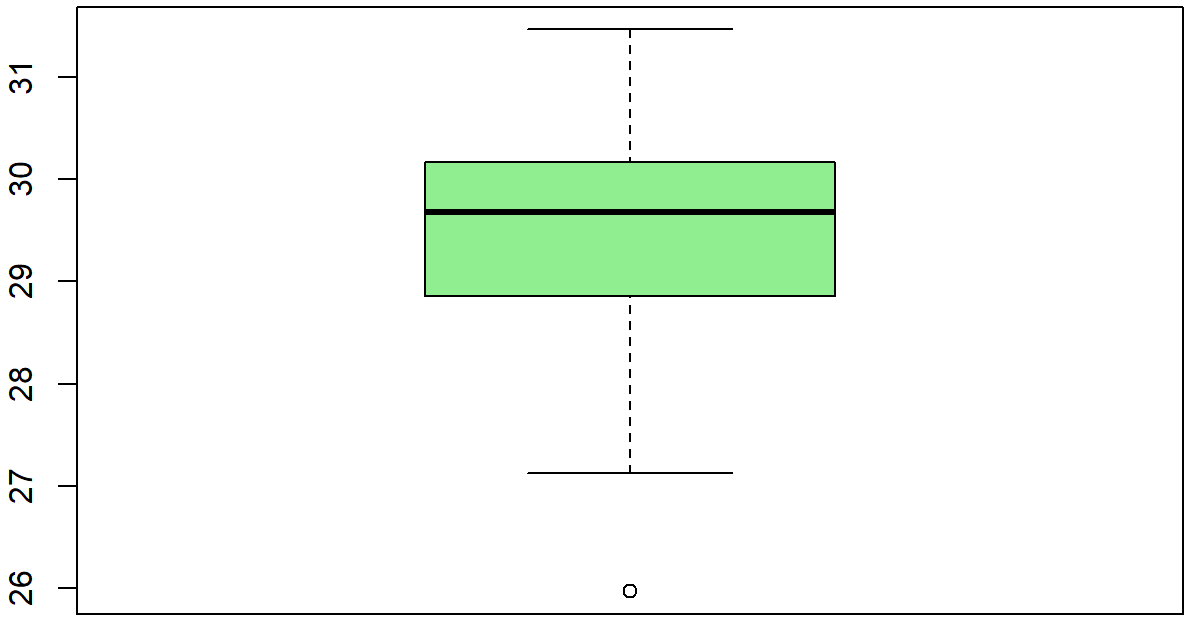
```
# Varianza --------------------------------------------------------------

var(Temperaturas$Temperatura.Mínima)
```

```
## [1] 1.200114
```

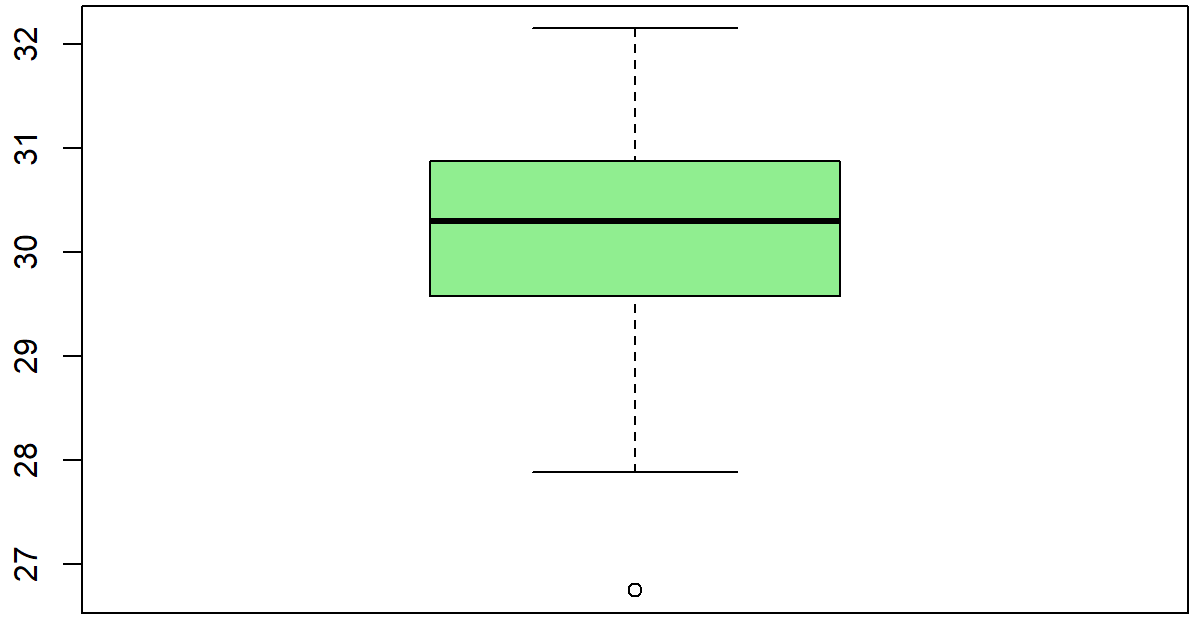
```
var(Temperaturas$Temperatura.Máxima)
```

```
## [1] 1.171163
```

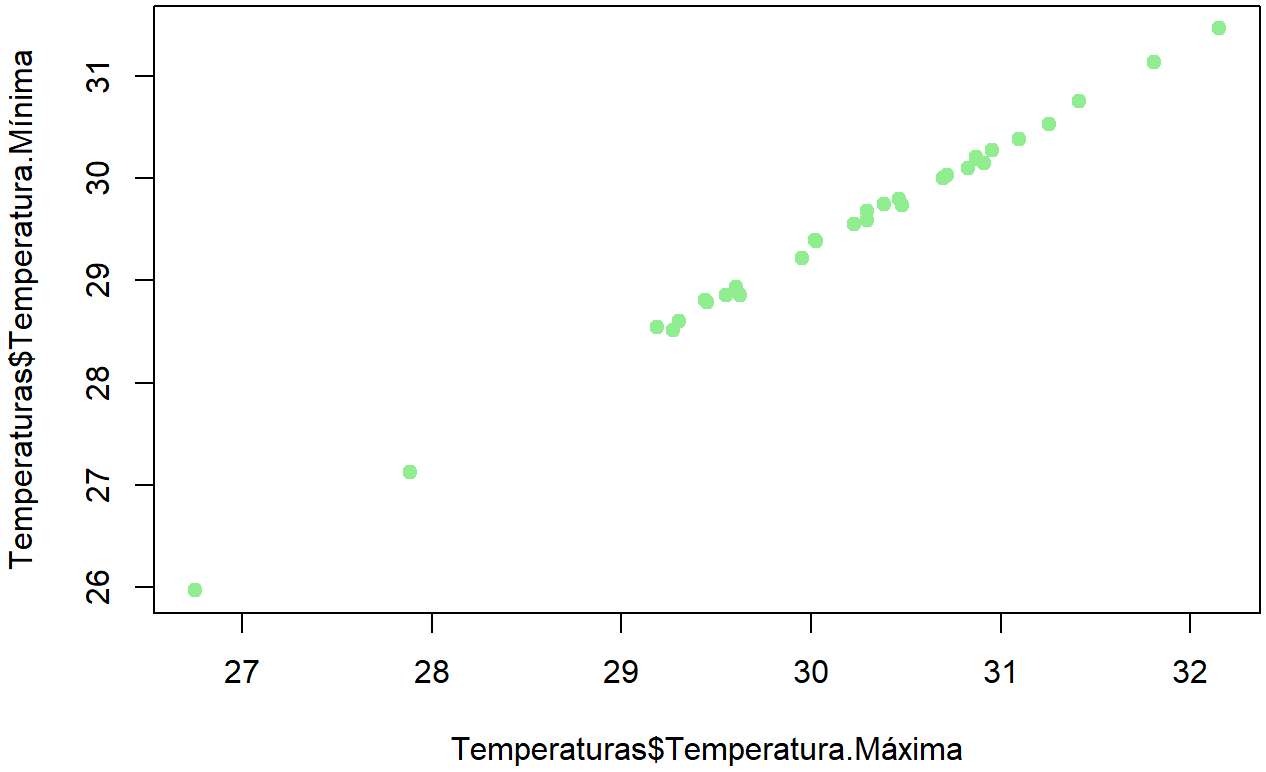
```
# Boxplot ----------------------------------------------------------------

boxplot(Temperaturas$Temperatura.Mínima, col = "lightgreen")
```




```
boxplot(Temperaturas$Temperatura.Máxima, col = "lightgreen")
```




```
plot(Temperaturas$Temperatura.Mínima ~ Temperaturas$Temperatura.Máxima, col ="lightgreen", pch =
19 )
```




```
# Prueba t ------------------------------------------------------------------

t.test(Temperaturas$Temperatura.Mínima)
```

```
##
##  One Sample t-test
##
## data:  Temperaturas$Temperatura.Mínima
## t = 149.89, df = 30, p-value < 2.2e-16
## alternative hypothesis: true mean is not equal to 0
## 95 percent confidence interval:
##  29.09051 29.89417
## sample estimates:
## mean of x
##  29.49234
```

```
t.test(Temperaturas$Temperatura.Máxima)
```

```
##
##  One Sample t-test
##
## data:  Temperaturas$Temperatura.Máxima
## t = 155.31, df = 30, p-value < 2.2e-16
## alternative hypothesis: true mean is not equal to 0
## 95 percent confidence interval:
##  29.78970 30.58361
## sample estimates:
## mean of x
##  30.18665
```

```
# Correlación ------------------------------------------------------------

cor.test(Temperaturas$Temperatura.Mínima, Temperaturas$Temperatura.Máxima)
```

```
##
##  Pearson's product-moment correlation
##
## data:  Temperaturas$Temperatura.Mínima and Temperaturas$Temperatura.Máxima
## t = 139.31, df = 29, p-value < 2.2e-16
## alternative hypothesis: true correlation is not equal to 0
## 95 percent confidence interval:
##  0.9984353 0.9996442
## sample estimates:
##       cor
## 0.9992537
```

```
# t = 139.31, df = 29, p-value < 2.2e-16

summary(Temperaturas)
```

```
##     Fecha           Temperatura.Máxima Temperatura.Mínima
##  Length:31          Min.   :26.75      Min.   :25.97
##  Class :character   1st Qu.:29.58      1st Qu.:28.85
##  Mode  :character   Median :30.30      Median :29.67
##                     Mean   :30.19      Mean   :29.49
##                     3rd Qu.:30.87      3rd Qu.:30.17
##                     Max.   :32.15      Max.   :31.46
```

```
# Temperatura.Máxima Temperatura.Mínima
# Min.   :26.75      Min.   :25.97
# 1st Qu.:29.58      1st Qu.:28.85
# Median :30.30      Median :29.67
# Mean   :30.19      Mean   :29.49
# 3rd Qu.:30.87      3rd Qu.:30.17
# Max.   :32.15      Max.   :31.46

# Hipótesis ----------------------------------------------------------------

# La correlacion es igual a 0.9992537
# Se observo que entre las temperaturas máximas y míminas no hay mucha diferencia, ya que estas temperaturas pertenecen al mes de julio del año 2022, por lo que la temperatura no varia demasiado
```