Ejercicio-1.R

Usuario

2025-08-21

```
# JAIRO ALBERTO LEAL GOMEZ
# 21/08/2025
# SEMANA 2

# EJERCICIO 1

temperatura <- read.csv("C:/JAIRO LEAL/Posgrado_Estadistica_2025/temperatura.csv")
temperatura
```

```
##     Año  Ene  Feb  Mar  Abr  May  Jun  Jul  Ago  Sep  Oct  Nov  Dic
## 1  2000 22.5 18.9 19.4 14.0 16.0 22.0 15.0 13.4 18.8 12.4 22.9 21.1
## 2  2001 19.3 20.3 18.5 24.1 17.5 29.4 17.2 22.6 16.2 17.8 25.7 20.2
## 3  2002 23.2 12.9 12.6 26.8 24.6 20.9 20.5 21.5 15.6 24.3 24.8 16.7
## 4  2003 27.6 17.3 16.4 19.6 21.6 21.3 17.5 21.3 15.9 21.1 23.3 30.7
## 5  2004 18.8 20.6 17.7 25.0 17.4 19.6 12.2 21.7 19.6 13.8 18.4 23.2
## 6  2005 18.8 14.2 25.3 21.8 22.6 10.4 20.3 16.6 21.7 20.9 23.8  9.9
## 7  2006 27.9 21.9 21.7 16.8 20.5 19.9 14.7 21.2 21.4 21.9 16.1 20.9
## 8  2007 23.8 17.0 11.2 21.8 24.8 20.3 22.4 21.5 24.1 15.6 18.8 16.7
## 9  2008 17.7 18.5 21.6 27.7 16.5 32.3 15.4 16.4 20.1 20.8 17.6 24.3
## 10 2009 22.7 17.0 18.1 19.8 18.4 19.0 27.7 29.3 27.3 20.3 20.4 16.0
## 11 2010 17.7 29.3 16.6 27.8 18.0 21.5 16.1 22.4 18.7 14.3 31.6 19.4
## 12 2011 17.7 19.9 23.1  6.9 12.7 19.8 18.4 14.0 33.6 21.8 10.7 22.5
## 13 2012 21.2 14.7 25.2 24.1 21.5 14.2 24.1 23.3 23.1 22.8 23.4 24.3
## 14 2013 10.4 24.1 24.7 20.4 21.3 25.7 13.8 15.1 15.7 25.4 11.9 14.0
## 15 2014 11.4 13.9 15.8 18.5 20.0 23.8 21.1 23.9 14.6 25.3 17.6 18.3
## 16 2015 17.2 21.0 18.5 20.5 18.8 24.0 26.5 25.8 22.4 13.1 25.4 17.6
## 17 2016 14.9 10.2 21.7 10.1 12.9 15.5 12.0 15.9 18.9 15.3 20.3 16.7
## 18 2017 21.6 13.4 24.9 18.9 17.9 27.0 20.9 24.8 23.6 22.6 14.6 28.8
## 19 2018 15.5 21.0 17.6 21.8 18.3 13.0 21.3 22.1 22.4 22.6 16.4 22.0
## 20 2019 12.9 23.7 19.1 27.4 16.0 22.9 23.9 24.1 19.6 22.6 23.4 13.7
## 21 2020 27.3 20.9 14.5 17.4 19.2 31.0 13.8 29.5 15.8 39.3 16.3 24.6
```

```
temp <- temperatura

View(temp)
head(temp) #primeras 6 filas
```

```
##    Año  Ene  Feb  Mar  Abr  May  Jun  Jul  Ago  Sep  Oct  Nov  Dic
## 1 2000 22.5 18.9 19.4 14.0 16.0 22.0 15.0 13.4 18.8 12.4 22.9 21.1
## 2 2001 19.3 20.3 18.5 24.1 17.5 29.4 17.2 22.6 16.2 17.8 25.7 20.2
## 3 2002 23.2 12.9 12.6 26.8 24.6 20.9 20.5 21.5 15.6 24.3 24.8 16.7
```

```
## 4 2003 27.6 17.3 16.4 19.6 21.6 21.3 17.5 21.3 15.9 21.1 23.3 30.7
## 5 2004 18.8 20.6 17.7 25.0 17.4 19.6 12.2 21.7 19.6 13.8 18.4 23.2
## 6 2005 18.8 14.2 25.3 21.8 22.6 10.4 20.3 16.6 21.7 20.9 23.8  9.9
```

```
dim(temp) #numero de filas y columnas
```

```
## [1] 21 13
```

```
names(temp) #nombre de las columnas
```

```
##  [1] "Año" "Ene" "Feb" "Mar" "Abr" "May" "Jun" "Jul" "Ago" "Sep" "Oct" "Nov"
## [13] "Dic"
```

```
str(temp) #ver estructura del dataframe 21 obs. of  13 variables
```

```
## 'data.frame':    21 obs. of  13 variables:
##  $ Año: int  2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 ...
##  $ Ene: num  22.5 19.3 23.2 27.6 18.8 18.8 27.9 23.8 17.7 22.7 ...
##  $ Feb: num  18.9 20.3 12.9 17.3 20.6 14.2 21.9 17 18.5 17 ...
##  $ Mar: num  19.4 18.5 12.6 16.4 17.7 25.3 21.7 11.2 21.6 18.1 ...
##  $ Abr: num  14 24.1 26.8 19.6 25 21.8 16.8 21.8 27.7 19.8 ...
##  $ May: num  16 17.5 24.6 21.6 17.4 22.6 20.5 24.8 16.5 18.4 ...
##  $ Jun: num  22 29.4 20.9 21.3 19.6 10.4 19.9 20.3 32.3 19 ...
##  $ Jul: num  15 17.2 20.5 17.5 12.2 20.3 14.7 22.4 15.4 27.7 ...
##  $ Ago: num  13.4 22.6 21.5 21.3 21.7 16.6 21.2 21.5 16.4 29.3 ...
##  $ Sep: num  18.8 16.2 15.6 15.9 19.6 21.7 21.4 24.1 20.1 27.3 ...
##  $ Oct: num  12.4 17.8 24.3 21.1 13.8 20.9 21.9 15.6 20.8 20.3 ...
##  $ Nov: num  22.9 25.7 24.8 23.3 18.4 23.8 16.1 18.8 17.6 20.4 ...
##  $ Dic: num  21.1 20.2 16.7 30.7 23.2 9.9 20.9 16.7 24.3 16 ...
```

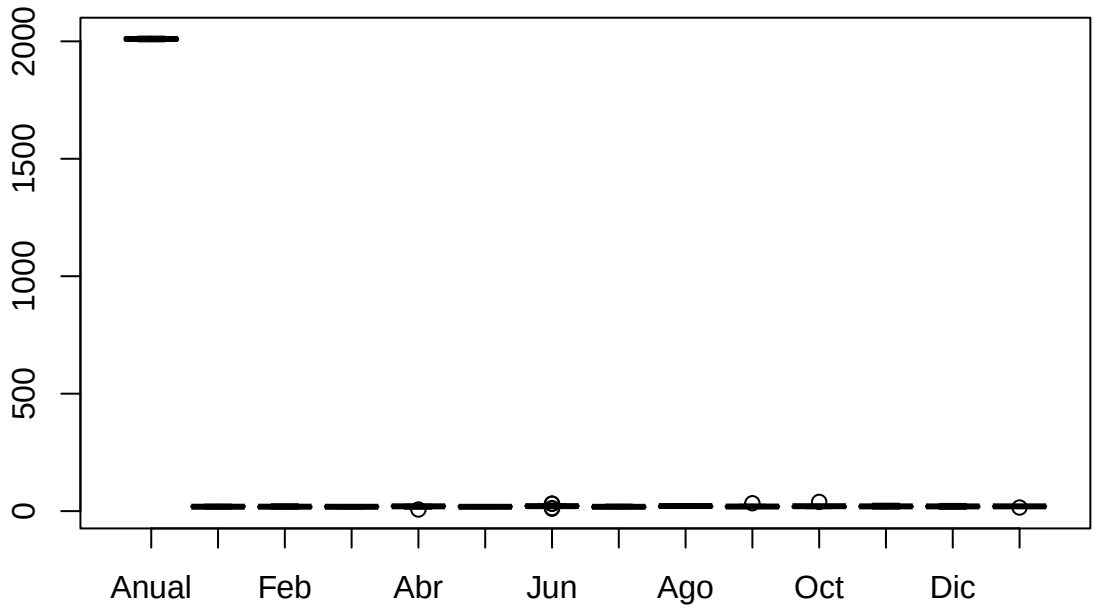
```
summary(temp) #resumen estadistico
```

```
##       Año            Ene             Feb            Mar             Abr
##  Min.   :2000   Min.   :10.40   Min.   :10.2   Min.   :11.20   Min.   : 6.90
##  1st Qu.:2005   1st Qu.:17.20   1st Qu.:14.7   1st Qu.:16.60   1st Qu.:18.50
##  Median :2010   Median :18.80   Median :18.9   Median :18.50   Median :20.50
##  Mean   :2010   Mean   :19.53   Mean   :18.6   Mean   :19.25   Mean   :20.53
##  3rd Qu.:2015   3rd Qu.:22.70   3rd Qu.:21.0   3rd Qu.:21.70   3rd Qu.:24.10
##  Max.   :2020   Max.   :27.90   Max.   :29.3   Max.   :25.30   Max.   :27.80
##       May             Jun            Jul             Ago             Sep
##  Min.   :12.70   Min.   :10.4   Min.   :12.0   Min.   :13.40   Min.   :14.60
##  1st Qu.:17.40   1st Qu.:19.6   1st Qu.:15.0   1st Qu.:16.60   1st Qu.:16.20
##  Median :18.40   Median :21.3   Median :18.4   Median :21.70   Median :19.60
##  Mean   :18.88   Mean   :21.6   Mean   :18.8   Mean   :21.26   Mean   :20.43
##  3rd Qu.:21.30   3rd Qu.:24.0   3rd Qu.:21.3   3rd Qu.:23.90   3rd Qu.:22.40
##  Max.   :24.80   Max.   :32.3   Max.   :27.7   Max.   :29.50   Max.   :33.60
##       Oct             Nov             Dic
##  Min.   :12.40   Min.   :10.70   Min.   : 9.90
##  1st Qu.:15.60   1st Qu.:16.40   1st Qu.:16.70
##  Median :21.10   Median :20.30   Median :20.20
##  Mean   :20.67   Mean   :20.16   Mean   :20.08
##  3rd Qu.:22.60   3rd Qu.:23.40   3rd Qu.:23.20
##  Max.   :39.30   Max.   :31.60   Max.   :30.70
```

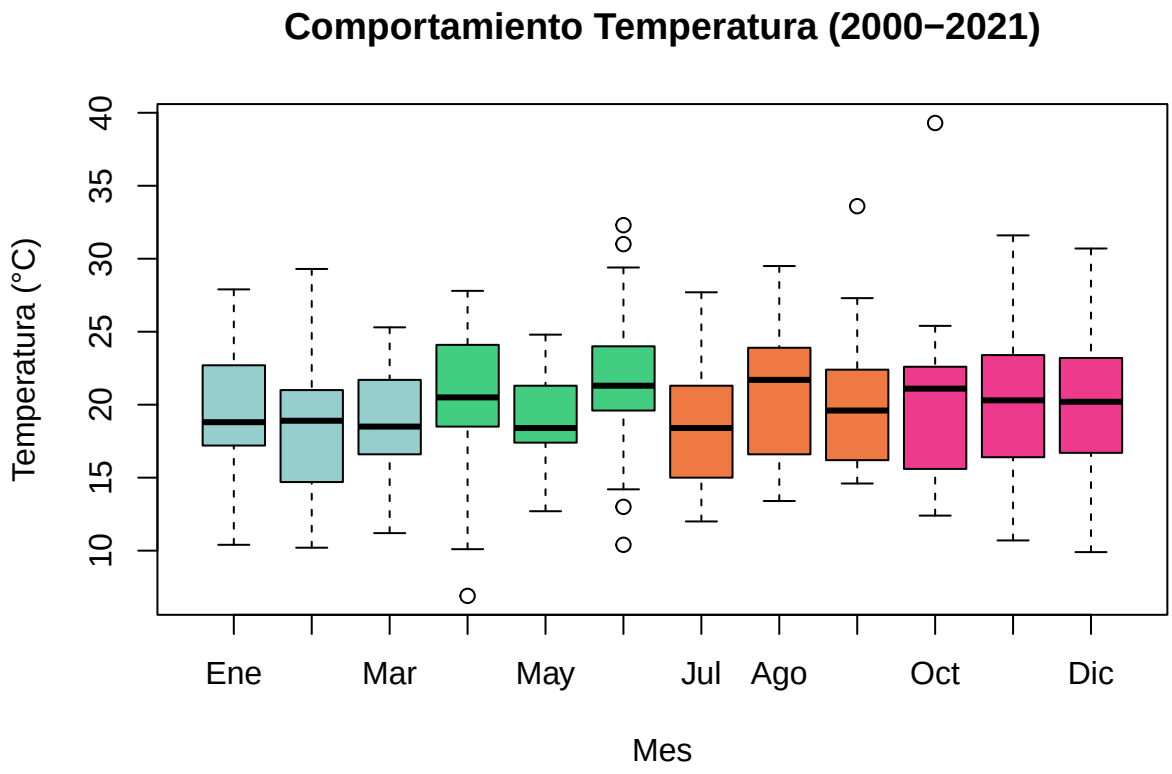
```r
names(temp) <- c("Anual", "Ene", "Feb", "Mar", "Abr", "May", "Jun", "Jul",
                 "Ago", "Sep", "Oct", "Nov", "Dic")

temp$media_anual <- rowMeans(temp[,2:13])
# la coma para columnas es antes de los numeros, la coma despues de los numeros
# son para seleccionar filas
# seleccionar temp[,2:13] y en consola aparece las columnas seleccionadas

head(temp)
```

```
##   Anual  Ene  Feb  Mar  Abr  May  Jun  Jul  Ago  Sep  Oct  Nov  Dic media_anual
## 1  2000 22.5 18.9 19.4 14.0 16.0 22.0 15.0 13.4 18.8 12.4 22.9 21.1    18.03333
## 2  2001 19.3 20.3 18.5 24.1 17.5 29.4 17.2 22.6 16.2 17.8 25.7 20.2    20.73333
## 3  2002 23.2 12.9 12.6 26.8 24.6 20.9 20.5 21.5 15.6 24.3 24.8 16.7    20.36667
## 4  2003 27.6 17.3 16.4 19.6 21.6 21.3 17.5 21.3 15.9 21.1 23.3 30.7    21.13333
## 5  2004 18.8 20.6 17.7 25.0 17.4 19.6 12.2 21.7 19.6 13.8 18.4 23.2    19.00000
## 6  2005 18.8 14.2 25.3 21.8 22.6 10.4 20.3 16.6 21.7 20.9 23.8  9.9    18.85833
```

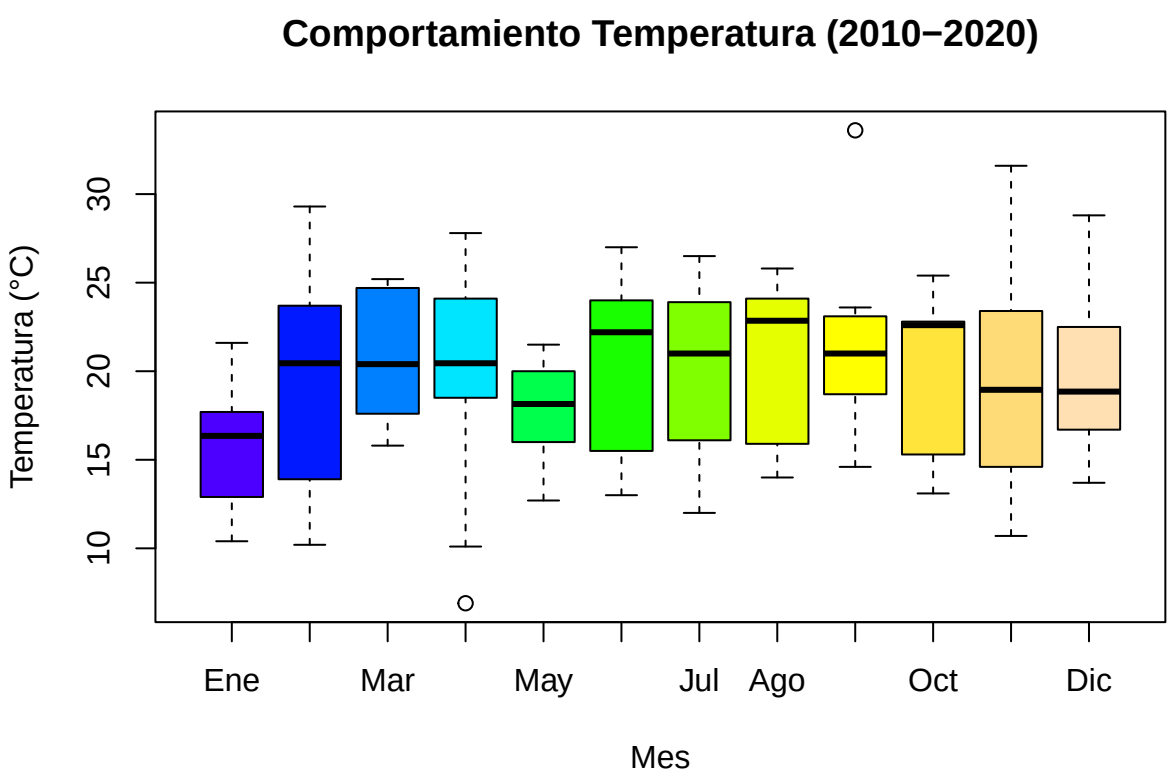
```r
# SEMANA 3

# Graficar con Boxplot

boxplot(temp) # no funciona asi
```



```r
temp1 <- temp[ ,2:13] # dejamos solo las columnas de los meses desde ene-dic

colores <- c("paleturquoise3", "paleturquoise3", "paleturquoise3",
             "seagreen3", "seagreen3","seagreen3",
             "sienna2", "sienna2", "sienna2",
             "violetred2", "violetred2", "violetred2")

boxplot(temp1,
        main= "Comportamiento Temperatura (2000-2021)",
        xlab ="Mes",
        ylab ="Temperatura (°C)",
        col= colores,
        border = "black")
```




```r
temp10 <- temp[11:20 ,2:13]

boxplot(temp10,
        main= "Comportamiento Temperatura (2010-2020)",
        xlab ="Mes",
        ylab ="Temperatura (°C)",
        col= topo.colors(12),
        border = "black")
```




```
write.csv(temp, "temp_final.csv")

# 21/08/2025

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

# Shift+Ctrl+R para agregar una seccion

# Si el csv esta en mi carpeta de proyecto, solo se ocupa leer el nombre del archivo
datos <- read.csv("inspeccionmovilizacion.csv")
View(datos)

# Para abrir una BD desde un link
url <- "https://repodatos.atdt.gob.mx/api_update/senasica/actividades_inspeccion_movilizacion/29_activi
senasica <- read.csv(url, header = T)
# Header = True para que la primera fila la tome como las variables

head(senasica[1:6,2:12])
```

```
##   entidad_federativa     temporalidad  vci   vpi   vli   ci  cai  cpi oci crsr
## 1         Tamaulipas Primer trimestre 1105 10875    41 1105  665  440   0    4
## 2            Chiapas Primer trimestre 3743     0     0 3743    0 3743   0   40
## 3            Chiapas Primer trimestre 8930  7983 11317 8930 7743 1076 111   10
## 4            Chiapas Primer trimestre 2464  2406  4438 2464 2121  246  97    2
## 5           Veracruz Primer trimestre 6733     0     0 6733    0 6733   0   29
```

```
## 6         Nuevo León Primer trimestre 2643   325 12767 2643  974 1669   0   21
##   crsd
## 1   11
## 2    0
## 3    8
## 4    0
## 5    0
## 6    5
```