Laboratorio-2.R

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```r
temperatura <- read.csv("temperatura.csv")
View(temperatura)

head(temperatura) #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
```

```r
dim(temperatura) #numero de filas y columnas
```

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

```r
names(temperatura) #nombres de las colunas
```

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

```r
str(temperatura) #estructura del objeto
```

```
## '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 ...
```

```r
#Resumen estadisttico
summary(temperatura)
```

```
##       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
```

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


names(temperatura)
```

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

```
#crear columna Media_anualcon temperatura media anual
temperatura$Ene
```

```
##  [1] 22.5 19.3 23.2 27.6 18.8 18.8 27.9 23.8 17.7 22.7 17.7 17.7 21.2
10.4 11.4
## [16] 17.2 14.9 21.6 15.5 12.9 27.3
```

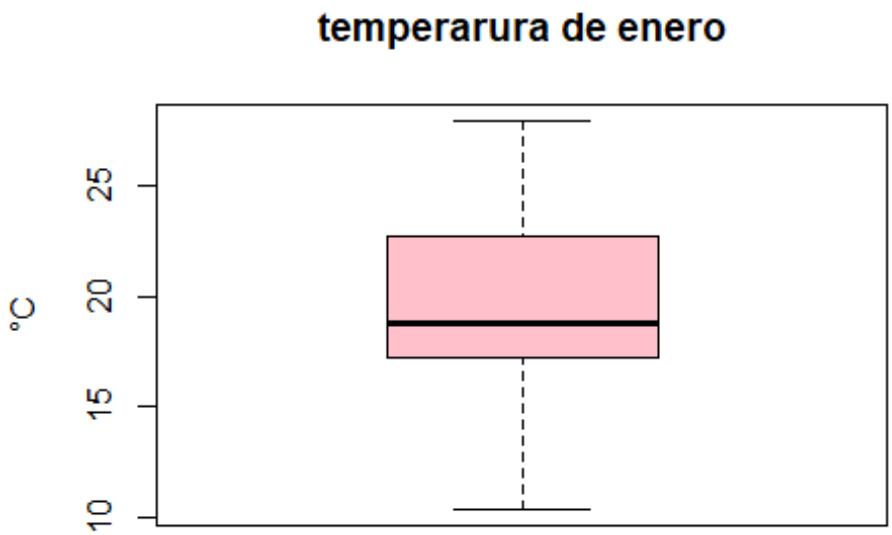
```r
temperatura$Media_anual <- rowMeans(temperatura[,2:13])
head(temperatura)
```

```
##   anio  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
```

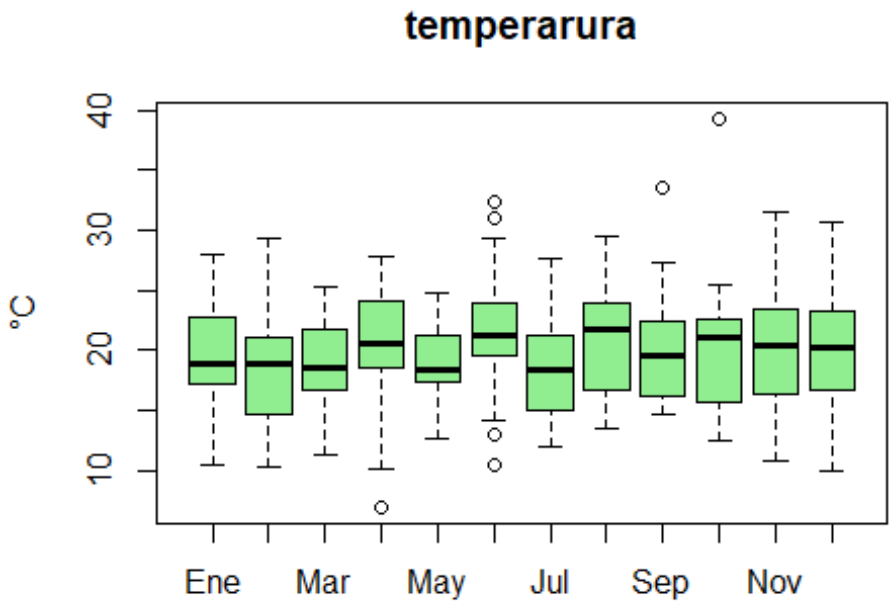
```r
#crear objeto con medias mensuales de temperatura
media_mensuales <-colMeans(temperatura[,2:13])
media_mensuales
```

```
##      Ene      Feb      Mar      Abr      May      Jun      Jul
Ago
## 19.52857 18.60476 19.24762 20.53333 18.88095 21.59524 18.80000
21.25714
##      Sep      Oct      Nov      Dic
## 20.43333 20.66667 20.16190 20.07619
```

```r
boxplot(temperatura$Ene,
        main="temperarura de enero",
        ylab="°C",
        col="pink")
```




```r
datos_meses <- temperatura[,2:13]
boxplot(datos_meses,
        main="temperarura",
        ylab="°C",
        col="lightgreen",
        names = c("Ene","Feb","Mar","Abr","May",
                  "Jun","Jul","Ago","Sep","Oct",
                  "Nov","Dic"))
```


temperarura
°C
10
20
30
40
Ene
Mar
May
Jul
Sep
Nov