UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN

FACULTAD DE CIENCIAS FORESTALES

LABORATORIO CUATRO

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MATRÍCULA

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AGOSTO 2022

Laboratio04_EmanuelMolina.R

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```
esp.url <- paste0("https://raw.githubusercontent.com/mgtagle/",
                  "PrincipiosEstadistica2021/main/cuadro1.csv")
inventario <- read.csv(esp.url)

str(inventario)

## 'data.frame':    50 obs. of  7 variables:
##  $ Arbol    : int  1 2 3 4 5 6 7 8 9 10 ...
##  $ Fecha    : int  12 12 9 9 7 10 10 12 16 14 ...
##  $ Especie  : chr  "F" "F" "C" "H" ...
##  $ Posicion : chr  "C" "D" "D" "S" ...
##  $ Vecinos  : int  4 3 5 4 6 3 2 2 4 5 ...
##  $ Diametros: num  15.3 17.8 18.2 9.7 10.8 14.1 17.1 20.6 18.2 16.1 ..
.
##  $ Altura   : num  14.78 17.07 18.28 8.79 10.18 ...

dim(inventario)

## [1] 50  7

head(inventario)

##   Arbol Fecha Especie Posicion Vecinos Diametros Altura
## 1     1    12       F        C       4      15.3  14.78
## 2     2    12       F        D       3      17.8  17.07
## 3     3     9       C        D       5      18.2  18.28
## 4     4     9       H        S       4       9.7   8.79
## 5     5     7       H        I       6      10.8  10.18
## 6     6    10       C        I       3      14.1  14.90

tail(inventario)

##    Arbol Fecha Especie Posicion Vecinos Diametros Altura
## 45    45    24       C        I       4      10.2  13.93
## 46    46    23       F        I       3      14.4  12.68
## 47    47    24       C        S       6       7.7  10.00
## 48    48    25       C        S       5       9.9   8.69
## 49    49    25       H        D       1      20.4  16.73
## 50    50    24       H        D       3      20.9  16.25

names(inventario)

## [1] "Arbol"     "Fecha"     "Especie"   "Posicion"  "Vecinos"   "Diame
tros"
## [7] "Altura"
```

```
colnames(inventario)
```

```
## [1] "Arbol"     "Fecha"     "Especie"   "Posicion"  "Vecinos"   "Diame
tros"
## [7] "Altura"
```

```
summary(inventario)
```

```
##      Arbol           Fecha         Especie            Posicion
##  Min.   : 1.00   Min.   : 2.00   Length:50          Length:50
##  1st Qu.:13.25   1st Qu.:12.00   Class :character   Class :character
##  Median :25.50   Median :16.00   Mode  :character   Mode  :character
##  Mean   :25.48   Mean   :15.94
##  3rd Qu.:37.75   3rd Qu.:20.75
##  Max.   :50.00   Max.   :25.00
##     Vecinos       Diametros         Altura
##  Min.   :0.00   Min.   : 7.70   Min.   : 8.47
##  1st Qu.:2.25   1st Qu.:13.88   1st Qu.:11.78
##  Median :3.00   Median :15.70   Median :14.24
##  Mean   :3.34   Mean   :15.79   Mean   :13.94
##  3rd Qu.:4.00   3rd Qu.:18.10   3rd Qu.:16.05
##  Max.   :6.00   Max.   :22.70   Max.   :21.46
```

```
names(inventario[1:5])
```

```
## [1] "Arbol"    "Fecha"    "Especie"  "Posicion" "Vecinos"
```

```
summary(inventario[3:5])
```

```
##    Especie            Posicion           Vecinos
##  Length:50          Length:50          Min.   :0.00
##  Class :character   Class :character   1st Qu.:2.25
##  Mode  :character   Mode  :character   Median :3.00
##                                        Mean   :3.34
##                                        3rd Qu.:4.00
##                                        Max.   :6.00
```

```
is.factor(inventario$Posicion)
```

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

```
inventario$Posicion <- factor(inventario$Posicion)
is.factor(inventario$Posicion)
```

```
## [1] TRUE
```

```
summary(inventario[3:5])
```

```
##    Especie          Posicion    Vecinos
##  Length:50          C:14     Min.   :0.00
##  Class :character   D: 9     1st Qu.:2.25
##  Mode  :character   I:19     Median :3.00
##                     S: 8     Mean   :3.34
```

```
##                                3rd Qu.:4.00
##                                Max.   :6.00
```

```
freq_position <- table(inventario$Posicion)
freq_position
```

```
##
##  C  D  I  S
## 14  9 19  8
```

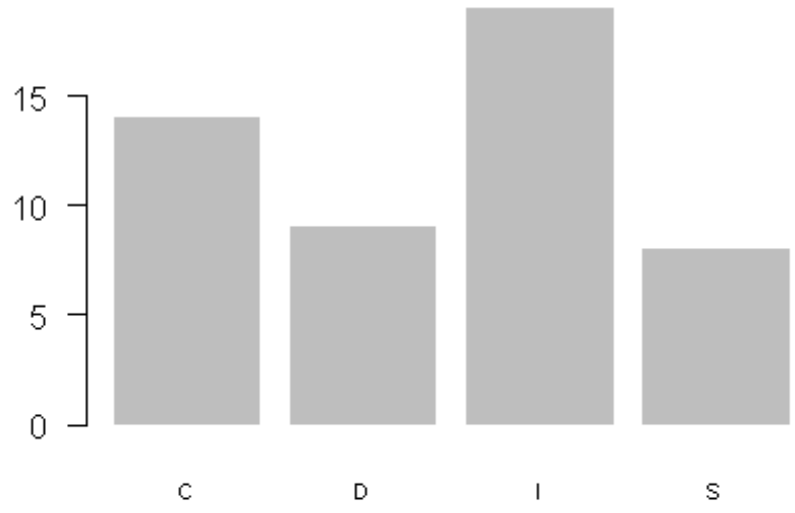
```
prop_position <- (freq_position/sum(freq_position))
prop_position
```

```
##
##    C    D    I    S
## 0.28 0.18 0.38 0.16
```

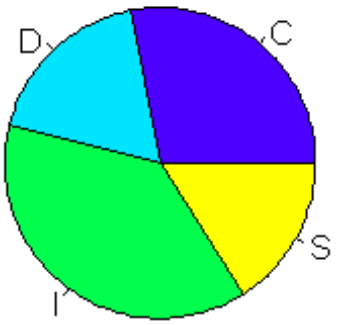
```
perc_position <- (prop_position*100)
perc_position
```

```
##
##  C  D  I  S
## 28 18 38 16
```

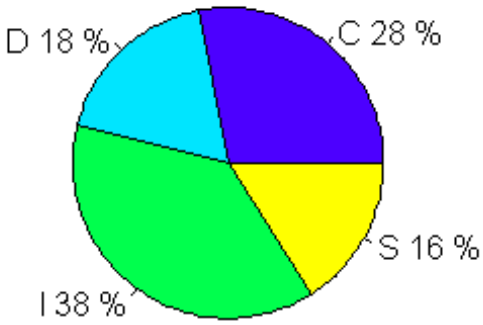
```
barplot(freq_position, las= 1, border= NA, cex.names=0.7)
```




```
pie(freq_position, col= topo.colors(4))
```




```
pie(freq_position, col= topo.colors(4),
    labels = paste(levels(inventario$Posicion), round(perc_position, 2),
"%"))
```



```r
freq_esp <- table(inventario$Especie)
freq_esp
```

```
##
##  C  F  H
## 22 14 14
```

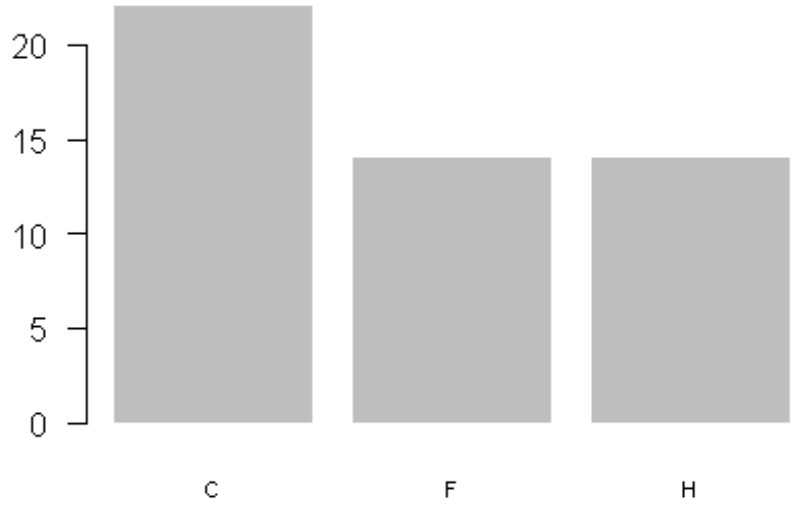
```r
prop_esp <- (freq_esp/sum(freq_esp))
prop_esp
```

```
##
##    C    F    H
## 0.44 0.28 0.28
```

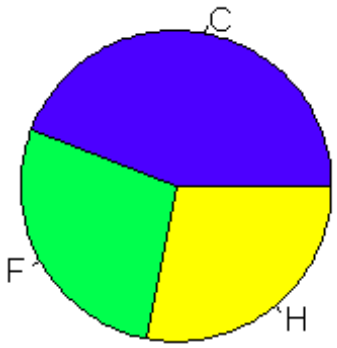
```r
perc_esp <- (prop_esp*100)
perc_esp
```

```
##
##  C  F  H
## 44 28 28
```

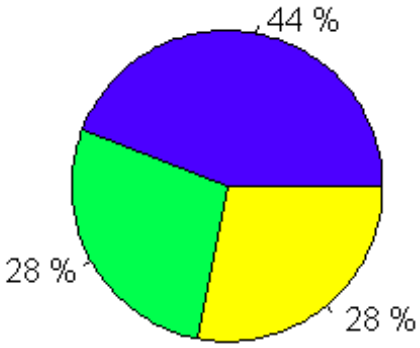
```r
barplot(freq_esp, las= 1, border= NA, cex.names=0.7)
```



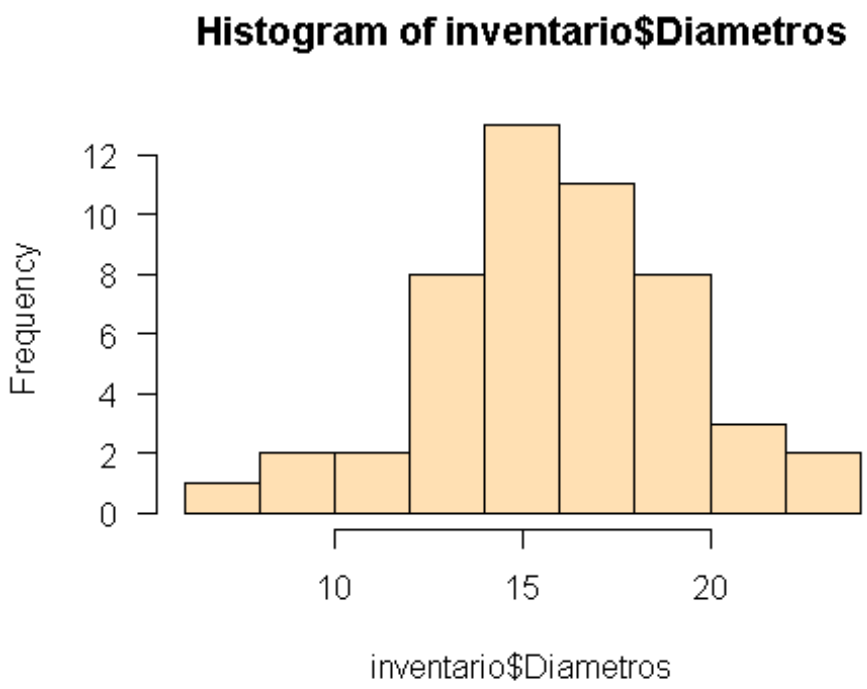

```r
pie(freq_esp, col= topo.colors(3))
```




```
pie(freq_esp, col= topo.colors(3),
    labels = paste(levels(inventario$Esp), round(perc_esp, 2), "%"))
```




```
diam_hist <- hist(inventario$Diametros, las = 1, col = '#ffe0b3')
```




```
diam_hist
```

```
## $breaks
##  [1]  6  8 10 12 14 16 18 20 22 24
##
## $counts
## [1]  1  2  2  8 13 11  8  3  2
##
## $density
## [1] 0.01 0.02 0.02 0.08 0.13 0.11 0.08 0.03 0.02
##
## $mids
## [1]  7  9 11 13 15 17 19 21 23
##
## $xname
## [1] "inventario$Diametros"
##
## $equidist
## [1] TRUE
##
## attr(,"class")
## [1] "histogram"
```

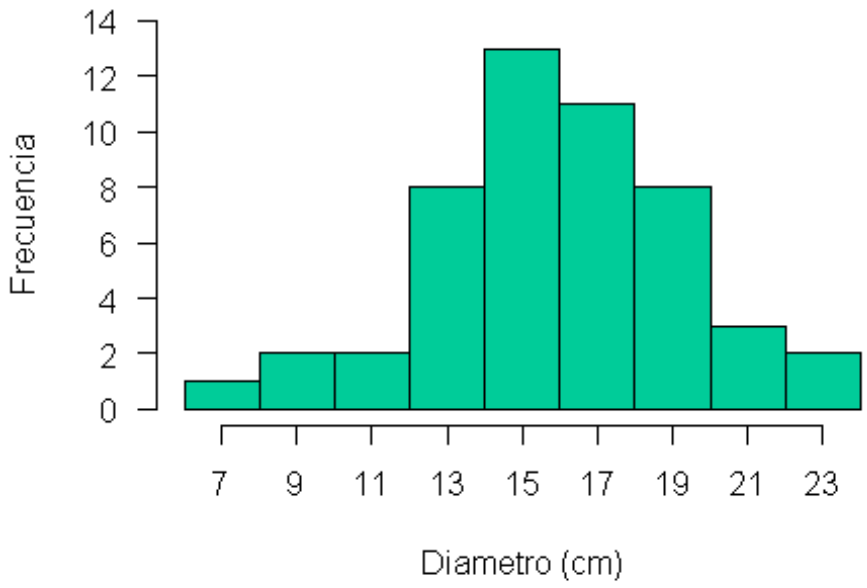
```
diam_hist$breaks
```

```
##  [1]  6  8 10 12 14 16 18 20 22 24
```

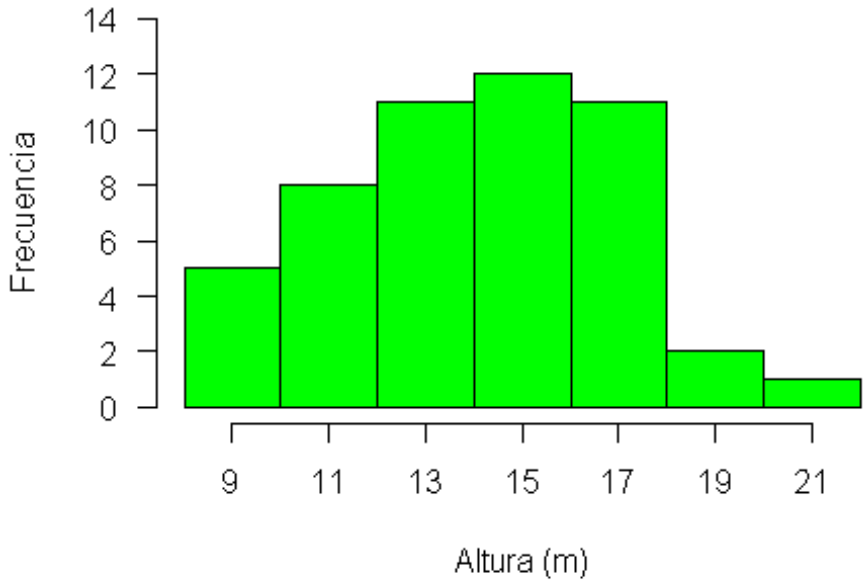
```
diam_hist$mids
```

```
## [1]  7  9 11 13 15 17 19 21 23
```

```
h1 <- hist(inventario$Diametros, xaxt= "n",
           breaks = c(6, 8, 10, 12, 14, 16, 18, 20, 22,24),
           col= "#00cc99", xlab= "Diametro (cm)",
           ylab= "Frecuencia",
           main= "",
           las= 1,
           ylim= c(0,14))
axis(1, h1$mids)
```




```
h1 <- hist(inventario$Altura, xaxt= "n",
           breaks = c(8, 10, 12, 14, 16, 18, 20, 22),
           col= "green", xlab= "Altura (m)",
           ylab= "Frecuencia",
           main= "",
           las= 1,
           ylim= c(0,14))
axis(1, h1$mids)
```


Frecuencia
14
12
10
8
6
4
2
0
9
11
13
15
17
19
21
Altura (m)