



UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN
FACULTAD DE CIENCIAS FORESTALES



LABORATORIO CUATRO

HISTOGRAMAS

EMANUEL MOLINA MARCHAN

MATRÍCULA

2134498

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Laboratio04_EmanuelMolina.R

Emanuel

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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"    "Diametros"
## [7] "Altura"
```

```
colnames(inventario)

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

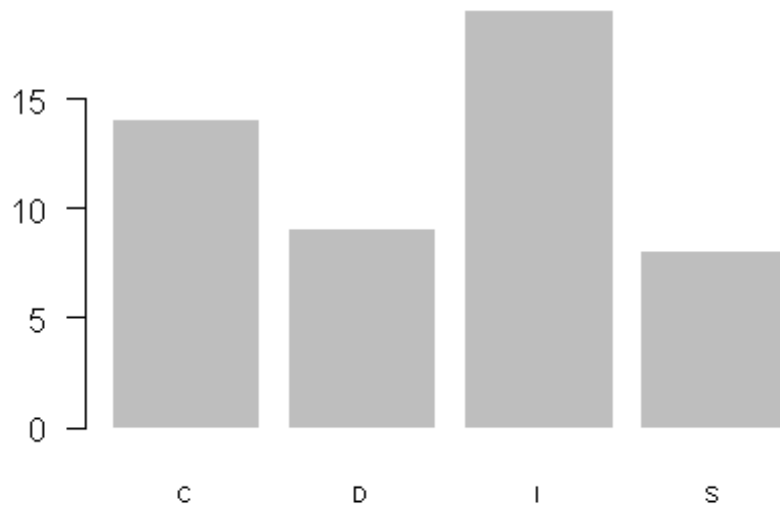
prop_position <- (freq_position/sum(freq_position))
prop_position

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

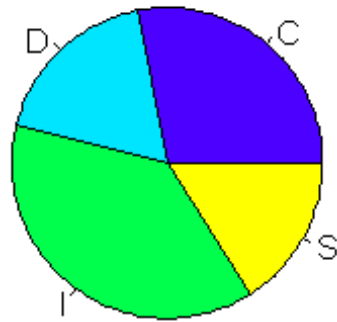
perc_position <- (prop_position*100)
perc_position

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

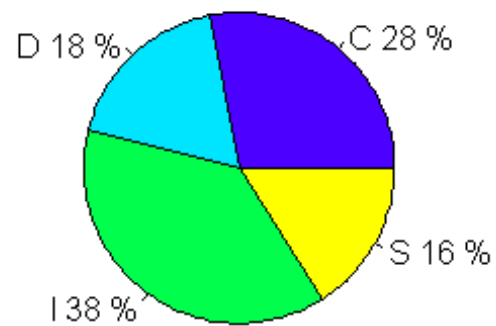
barplot(freq_position, las= 1, border= NA, cex.names=0.7)
```



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



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



```

freq_esp <- table(inventario$Especie)
freq_esp

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

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

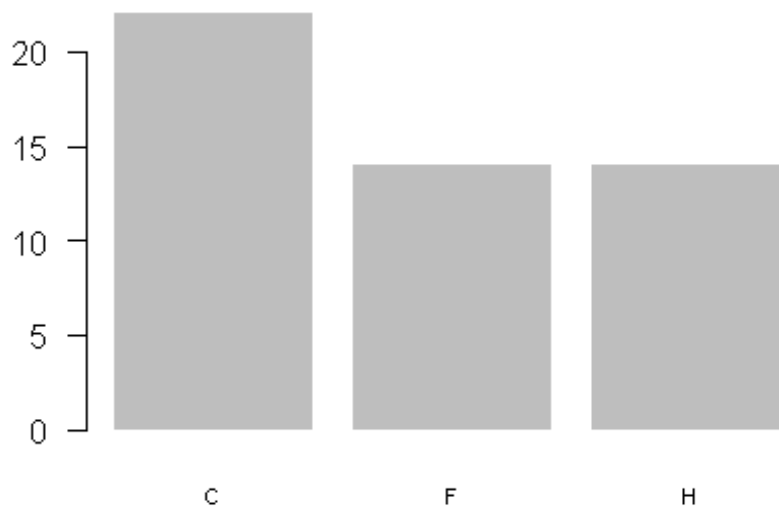
##
##    C    F    H
## 0.44 0.28 0.28

perc_esp <- (prop_esp*100)
perc_esp

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

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

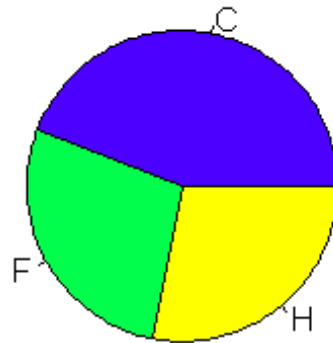
```



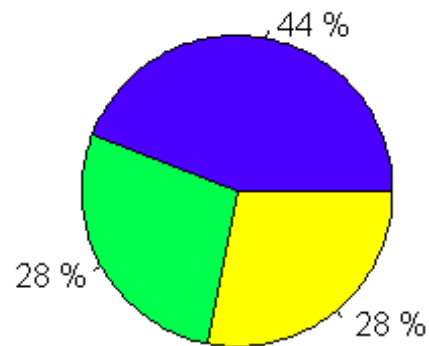
```

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

```

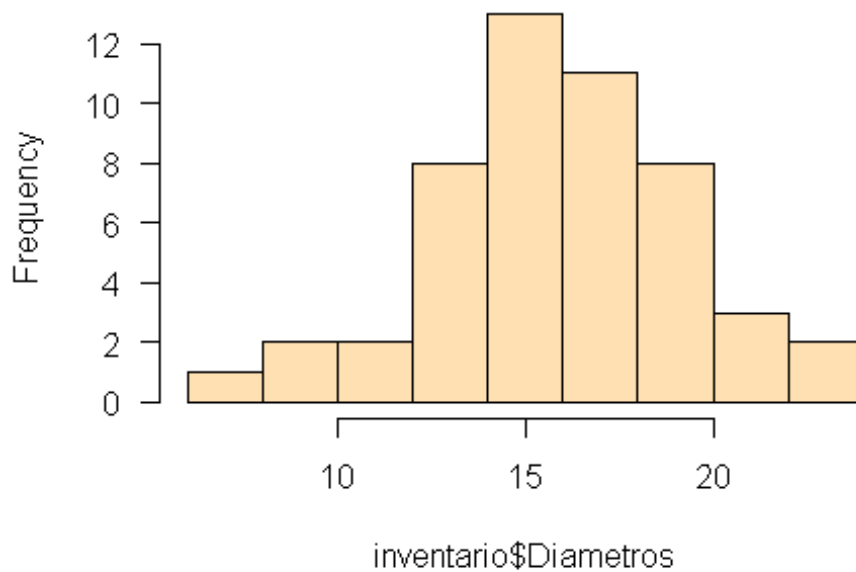


```
pie(freq_esp, col= topo.colors(3),
    labels = paste(levels(inventario$Esp), round(perc_esp, 2), "%"))
```



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

Histogram of inventario\$Diametros



```
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"

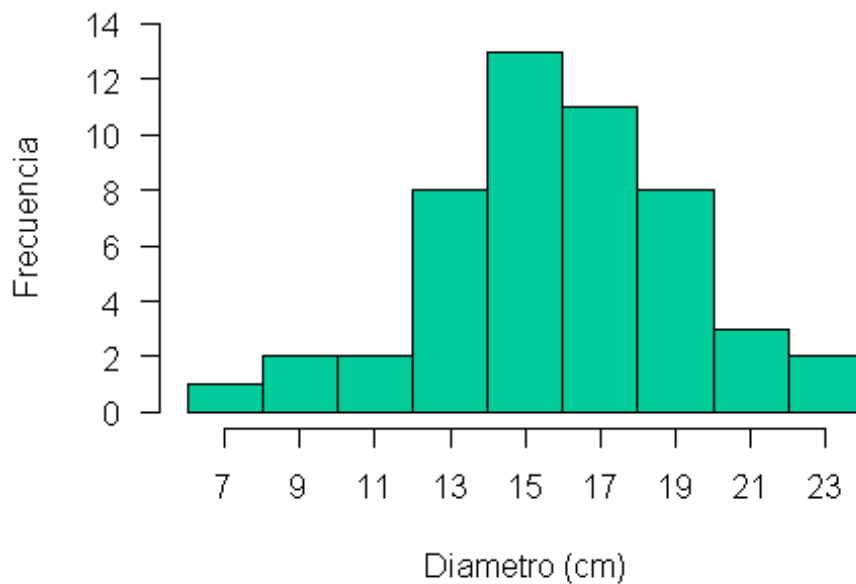
diam_hist$breaks

## [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)
```

