GuÃas prÃ¡cticas

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PrÃ¡ctica 03 - Tipos de objetos: factores, listas y hojas de datos, operadores y funciones que operan sobre ellos

1.FACTORES NOMINALES Y ORDINALES.

FACTORES NOMINALES.

```
sexo <- c("M", "F", "F", "M", "F", "F", "M"); sexo

## [1] "M" "F" "F" "M" "F" "F" "M"

edad <- c(19, 20, 19, 22, 20, 21, 19); edad

## [1] 19 20 19 22 20 21 19

FactorSexo = factor(sexo); FactorSexo

## [1] M F F M F F M
## Levels: F M

levels(FactorSexo)

## [1] "F" "M"

mediaEdad <- tapply(edad, FactorSexo, mean); mediaEdad

##  F  M
## 20 20

is.vector(mediaEdad); is.matrix(mediaEdad); is.list(mediaEdad)

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

is.table(mediaEdad); is.array(mediaEdad)

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

FACTORES ORDINALES

```
lista1<-list(padre="Pedro", madre="MarÃa", no.hijos=3, edad.hijos=c(4,7,9))
is.matrix(lista1);  is.vector(lista1$edad.hijos)

## [1] FALSE
## [1] TRUE

lista1[1]

## $padre
## [1] "Pedro"

lista1["padre"]
```

```
## $padre
## [1] "Pedro"
```

```
lista1[[2]]
```

```
## [1] "MarÃa"
```

```
lista1["madre"]
```

```
## $madre
## [1] "MarÃa"
```

```
lista1[[1]]
```

```
## [1] "Pedro"
```

```
lista1[[4]][2]
```

```
## [1] 7
```

```
lista1$padre
```

```
## [1] "Pedro"
```

```
lista1[["madre"]]
```

```
## [1] "MarÃa"
```

```
x <- "no.hijos";  lista1[x]
```

```
## $no.hijos
## [1] 3
```

```
subLista <- lista1[4]; subLista
```

```
## $edad.hijos
## [1] 4 7 9
```

```
lista1[5] <- list(sexo.hijos=c("F", "M", "F")); lista1
```

```
## $padre
## [1] "Pedro"
##
## $madre
## [1] "MarÃa"
##
## $no.hijos
## [1] 3
##
## $edad.hijos
## [1] 4 7 9
##
## [[5]]
## [1] "F" "M" "F"
```

```r
log <- sample(c(TRUE, FALSE), size = 20, replace = T); log
```

```
##  [1] FALSE  TRUE FALSE  TRUE FALSE  TRUE FALSE FALSE  TRUE  TRUE FALSE
## [12]  TRUE FALSE FALSE  TRUE FALSE  TRUE  TRUE  TRUE FALSE
```

```r
comp <- rnorm(20) + runif(20) * (1i); comp
```

```
##  [1]  0.4344153+0.4337077i  0.5297603+0.9836932i -0.2102496+0.0353868i
##  [4] -0.1949769+0.5753777i -1.7337444+0.5206788i  0.4269203+0.7592105i
##  [7]  0.1404589+0.3162022i  0.0715976+0.6588535i -0.7929020+0.7531206i
## [10] -0.9651952+0.4558095i -1.6504156+0.3563471i -0.5276197+0.4598750i
## [13]  0.2405137+0.1131998i  0.3153615+0.5153649i -0.3704944+0.5903157i
## [16] -0.5002129+0.1390098i  0.0070405+0.9029966i -0.8122194+0.8234176i
## [19]  0.8144405+0.2172228i  0.8620707+0.5754079i
```

```r
num <- rnorm(20, mean=0, sd=1); num
```

```
##  [1] -0.63039938 -1.03520947 -1.38425185  1.77152746 -0.16913687
##  [6] -1.22087040 -0.04279595 -0.07959942  0.18032243  1.36613873
## [11] -1.45828374  0.45508319  0.81501005 -0.13964572 -1.81089166
## [16]  0.20873084  0.19088195 -1.19828824 -1.51144242  0.17564040
```

```r
df1 <- data.frame(log, comp, num); df1
```

```
##      log                  comp         num
## 1  FALSE  0.4344153+0.4337077i -0.63039938
## 2   TRUE  0.5297603+0.9836932i -1.03520947
## 3  FALSE -0.2102496+0.0353868i -1.38425185
## 4   TRUE -0.1949769+0.5753777i  1.77152746
## 5  FALSE -1.7337444+0.5206788i -0.16913687
## 6   TRUE  0.4269203+0.7592105i -1.22087040
## 7  FALSE  0.1404589+0.3162022i -0.04279595
## 8  FALSE  0.0715976+0.6588535i -0.07959942
## 9   TRUE -0.7929020+0.7531206i  0.18032243
## 10  TRUE -0.9651952+0.4558095i  1.36613873
## 11 FALSE -1.6504156+0.3563471i -1.45828374
## 12  TRUE -0.5276197+0.4598750i  0.45508319
## 13 FALSE  0.2405137+0.1131998i  0.81501005
## 14 FALSE  0.3153615+0.5153649i -0.13964572
## 15  TRUE -0.3704944+0.5903157i -1.81089166
## 16 FALSE -0.5002129+0.1390098i  0.20873084
## 17  TRUE  0.0070405+0.9029966i  0.19088195
## 18  TRUE -0.8122194+0.8234176i -1.19828824
## 19  TRUE  0.8144405+0.2172228i -1.51144242
## 20 FALSE  0.8620707+0.5754079i  0.17564040
```

```r
nombres <- c("logico", "complejo", "numerico")
names(df1) <- nombres; df1
```

```
##    logico              complejo    numerico
## 1   FALSE  0.4344153+0.4337077i -0.63039938
```

```
## 2    TRUE  0.5297603+0.9836932i -1.03520947
## 3   FALSE -0.2102496+0.0353868i -1.38425185
## 4    TRUE -0.1949769+0.5753777i  1.77152746
## 5   FALSE -1.7337444+0.5206788i -0.16913687
## 6    TRUE  0.4269203+0.7592105i -1.22087040
## 7   FALSE  0.1404589+0.3162022i -0.04279595
## 8   FALSE  0.0715976+0.6588535i -0.07959942
## 9    TRUE -0.7929020+0.7531206i  0.18032243
## 10   TRUE -0.9651952+0.4558095i  1.36613873
## 11  FALSE -1.6504156+0.3563471i -1.45828374
## 12   TRUE -0.5276197+0.4598750i  0.45508319
## 13  FALSE  0.2405137+0.1131998i  0.81501005
## 14  FALSE  0.3153615+0.5153649i -0.13964572
## 15   TRUE -0.3704944+0.5903157i -1.81089166
## 16  FALSE -0.5002129+0.1390098i  0.20873084
## 17   TRUE  0.0070405+0.9029966i  0.19088195
## 18   TRUE -0.8122194+0.8234176i -1.19828824
## 19   TRUE  0.8144405+0.2172228i -1.51144242
## 20  FALSE  0.8620707+0.5754079i  0.17564040

row.names(df1) <- letters[1:20]; df1

##   logico              complejo    numerico
## a  FALSE  0.4344153+0.4337077i -0.63039938
## b   TRUE  0.5297603+0.9836932i -1.03520947
## c  FALSE -0.2102496+0.0353868i -1.38425185
## d   TRUE -0.1949769+0.5753777i  1.77152746
## e  FALSE -1.7337444+0.5206788i -0.16913687
## f   TRUE  0.4269203+0.7592105i -1.22087040
## g  FALSE  0.1404589+0.3162022i -0.04279595
## h  FALSE  0.0715976+0.6588535i -0.07959942
## i   TRUE -0.7929020+0.7531206i  0.18032243
## j   TRUE -0.9651952+0.4558095i  1.36613873
## k  FALSE -1.6504156+0.3563471i -1.45828374
## l   TRUE -0.5276197+0.4598750i  0.45508319
## m  FALSE  0.2405137+0.1131998i  0.81501005
## n  FALSE  0.3153615+0.5153649i -0.13964572
## o   TRUE -0.3704944+0.5903157i -1.81089166
## p  FALSE -0.5002129+0.1390098i  0.20873084
## q   TRUE  0.0070405+0.9029966i  0.19088195
## r   TRUE -0.8122194+0.8234176i -1.19828824
## s   TRUE  0.8144405+0.2172228i -1.51144242
## t  FALSE  0.8620707+0.5754079i  0.17564040

edad <- c(18, 21, 45, 54); edad

## [1] 18 21 45 54

datos <- matrix(c(150, 160, 180, 205, 65, 68, 65, 69), ncol=2, dimnames=list(c(), c("Estat
```

```
##      Estatura Peso
## [1,]      150   65
## [2,]      160   68
## [3,]      180   65
## [4,]      205   69
```

```
sexo <- c("F", "M", "M", "M"); sexo
```

```
## [1] "F" "M" "M" "M"
```

```
hoja1$Edad
```

```
## Error in eval(expr, envir, enclos):  objeto 'hoja1' no encontrado
```

```
search()
```

```
##  [1] ".GlobalEnv"        "package:knitr"     "package:stats"
##  [4] "package:graphics"  "package:grDevices" "package:utils"
##  [7] "package:datasets"  "package:methods"   "Autoloads"
## [10] "package:base"
```