

```

#GUIA 3

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)

## [1] FALSE

is.matrix(mediaEdad)

## [1] FALSE

is.list(mediaEdad)

## [1] FALSE

is.table(mediaEdad)

## [1] FALSE

is.array(mediaEdad)

## [1] TRUE

lista1<-list(padre="Pedro", madre="Mara", no.hijos=3, edad.hijos=c(4,7,9));lista1

```

```

## $padre
## [1] "Pedro"
##
## $madre
## [1] "Mara"
##
## $no.hijos
## [1] 3
##
## $edad.hijos
## [1] 4 7 9

is.matrix(lista1)

## [1] FALSE

is.vector(lista1$edad.hijos)

## [1] TRUE

lista1[1]

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

lista1[2]

## $madre
## [1] "Mara"

lista1[4]

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

lista1[[2]]

## [1] "Mara"

lista1["padre"]

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

lista1["madre"]

## $madre
## [1] "Mara"

```

```

lista1[[4]][2]

## [1] 7

lista1$padre

## [1] "Pedro"

x <- "nombre"; lista1[x]

## $<NA>
## NULL

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] "Mara"
##
## $no.hijos
## [1] 3
##
## $edad.hijos
## [1] 4 7 9
##
## [[5]]
## [1] "F" "M" "F"

lista1 <- edit(lista1)
lista1[5]

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

S <- matrix(c(3, -sqrt(2), -sqrt(2), 2), nrow=2, ncol=2); S

##           [,1]      [,2]
## [1,]  3.000000 -1.414214
## [2,] -1.414214  2.000000

autovS <- eigen(S); autovS

```

```

## $values
## [1] 4 1
##
## $vectors
##           [,1]      [,2]
## [1,] -0.8164966 -0.5773503
## [2,]  0.5773503 -0.8164966

evals <- eigen(S)$values; evals

## [1] 4 1

Notas <- matrix(c(2, 5, 7, 6, 8, 2, 4, 9, 10), ncol=3,dimnames=list(c("Matemtica","lgebra",

##           Juan Jos Ren
## Matemtica      2      6      4
## lgebra         5      8      9
## Geometra       7      2     10

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

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

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

## [1] 0.96398260+0.96292141i 0.21267302+0.70884088i
## [3] 0.21952928+0.85813813i 0.88441842+0.87966848i
## [5] 0.54086888+0.32261623i -0.41659964+0.32306315i
## [7] -0.07170685+0.11650594i 0.03328457+0.54362654i
## [9] -0.40288589+0.35509025i 0.36660605+0.12420057i
## [11] -0.13841294+0.69810787i -0.00960619+0.02173094i
## [13] -0.80550798+0.64124942i -1.57741583+0.00784983i
## [15] 0.87827195+0.57774310i -0.50831634+0.39745094i
## [17] 1.41993848+0.10024773i 0.66584132+0.74769157i
## [19] 1.77523557+0.70659749i -0.60903305+0.78768565i

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

## [1] 1.1919050 0.8734501 -2.4452087 0.6334359 -0.7709603 -0.8252430
## [7] 0.9281459 -1.3015194 -0.8678214 -1.0852498 -1.2272123 -0.1346940
## [13] -0.5525445 -0.4815168 -0.9144788 -0.4132464 -0.3901678 0.0797854
## [19] -0.5985619 1.6729334

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

```

```
##      log      comp      num
## 1 FALSE 0.96398260+0.96292141i 1.1919050
## 2 FALSE 0.21267302+0.70884088i 0.8734501
## 3  TRUE 0.21952928+0.85813813i -2.4452087
## 4 FALSE 0.88441842+0.87966848i 0.6334359
## 5 FALSE 0.54086888+0.32261623i -0.7709603
## 6 FALSE -0.41659964+0.32306315i -0.8252430
## 7  TRUE -0.07170685+0.11650594i 0.9281459
## 8 FALSE 0.03328457+0.54362654i -1.3015194
## 9 FALSE -0.40288589+0.35509025i -0.8678214
## 10 FALSE 0.36660605+0.12420057i -1.0852498
## 11 FALSE -0.13841294+0.69810787i -1.2272123
## 12  TRUE -0.00960619+0.02173094i -0.1346940
## 13 FALSE -0.80550798+0.64124942i -0.5525445
## 14 FALSE -1.57741583+0.00784983i -0.4815168
## 15 FALSE 0.87827195+0.57774310i -0.9144788
## 16 FALSE -0.50831634+0.39745094i -0.4132464
## 17 FALSE 1.41993848+0.10024773i -0.3901678
## 18  TRUE 0.66584132+0.74769157i 0.0797854
## 19 FALSE 1.77523557+0.70659749i -0.5985619
## 20  TRUE -0.60903305+0.78768565i 1.6729334
```

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

```
##      logico      complejo      numerico
## 1 FALSE 0.96398260+0.96292141i 1.1919050
## 2 FALSE 0.21267302+0.70884088i 0.8734501
## 3  TRUE 0.21952928+0.85813813i -2.4452087
## 4 FALSE 0.88441842+0.87966848i 0.6334359
## 5 FALSE 0.54086888+0.32261623i -0.7709603
## 6 FALSE -0.41659964+0.32306315i -0.8252430
## 7  TRUE -0.07170685+0.11650594i 0.9281459
## 8 FALSE 0.03328457+0.54362654i -1.3015194
## 9 FALSE -0.40288589+0.35509025i -0.8678214
## 10 FALSE 0.36660605+0.12420057i -1.0852498
## 11 FALSE -0.13841294+0.69810787i -1.2272123
## 12  TRUE -0.00960619+0.02173094i -0.1346940
## 13 FALSE -0.80550798+0.64124942i -0.5525445
## 14 FALSE -1.57741583+0.00784983i -0.4815168
## 15 FALSE 0.87827195+0.57774310i -0.9144788
## 16 FALSE -0.50831634+0.39745094i -0.4132464
## 17 FALSE 1.41993848+0.10024773i -0.3901678
## 18  TRUE 0.66584132+0.74769157i 0.0797854
## 19 FALSE 1.77523557+0.70659749i -0.5985619
## 20  TRUE -0.60903305+0.78768565i 1.6729334
```

```

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

##      logico      complejo      numerico
## a FALSE 0.96398260+0.96292141i 1.1919050
## b FALSE 0.21267302+0.70884088i 0.8734501
## c TRUE 0.21952928+0.85813813i -2.4452087
## d FALSE 0.88441842+0.87966848i 0.6334359
## e FALSE 0.54086888+0.32261623i -0.7709603
## f FALSE -0.41659964+0.32306315i -0.8252430
## g TRUE -0.07170685+0.11650594i 0.9281459
## h FALSE 0.03328457+0.54362654i -1.3015194
## i FALSE -0.40288589+0.35509025i -0.8678214
## j FALSE 0.36660605+0.12420057i -1.0852498
## k FALSE -0.13841294+0.69810787i -1.2272123
## l TRUE -0.00960619+0.02173094i -0.1346940
## m FALSE -0.80550798+0.64124942i -0.5525445
## n FALSE -1.57741583+0.00784983i -0.4815168
## o FALSE 0.87827195+0.57774310i -0.9144788
## p FALSE -0.50831634+0.39745094i -0.4132464
## q FALSE 1.41993848+0.10024773i -0.3901678
## r TRUE 0.66584132+0.74769157i 0.0797854
## s FALSE 1.77523557+0.70659749i -0.5985619
## t TRUE -0.60903305+0.78768565i 1.6729334

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("Estatura", "Peso")))

##      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 <- data.frame(Edad=edad, datos, Sexo=sexo); hoja1

##      Edad Estatura Peso Sexo
## 1     18      150   65    F
## 2     21      160   68    M
## 3     45      180   65    M
## 4     54      205   69    M

```

```

as.data.frame(hoja1)

##   Edad Estatura Peso Sexo
## 1   18      150   65    F
## 2   21      160   68    M
## 3   45      180   65    M
## 4   54      205   69    M

search()

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

attach(hoja1)
search()

## [1] ".GlobalEnv"      "hoja1"              "package:knitr"
## [4] "package:stats"    "package:graphics"   "package:grDevices"
## [7] "package:utils"    "package:datasets"   "package:methods"
## [10] "Autoloads"        "package:base"

Edad

## [1] 18 21 45 54

hoja1$Peso <- Peso+1; hoja1

##   Edad Estatura Peso Sexo
## 1   18      150   66    F
## 2   21      160   69    M
## 3   45      180   66    M
## 4   54      205   70    M

Edad

## [1] 18 21 45 54

```