

Tarea4-EstructuraDatos-Resuelta

Curso Estadística Descriptiva

2022-10-19

Pregunta 1

```
A = rbind(c(1,2,3,4),c(4,3,2,1), c(0,1,0,2),c(3,0,4,0))
A
```

```
##      [,1] [,2] [,3] [,4]
## [1,]    1    2    3    4
## [2,]    4    3    2    1
## [3,]    0    1    0    2
## [4,]    3    0    4    0
```

```
B <- rbind(c(4,3,2,1),c(0,3,0,4), c(1,2,3,4),c(0,1,0,2))
B
```

```
##      [,1] [,2] [,3] [,4]
## [1,]    4    3    2    1
## [2,]    0    3    0    4
## [3,]    1    2    3    4
## [4,]    0    1    0    2
```

$A \cdot B$

```
A%*%B
```

```
##      [,1] [,2] [,3] [,4]
## [1,]    7   19   11   29
## [2,]   18   26   14   26
## [3,]    0    5    0    8
## [4,]   16   17   18   19
```

$B \cdot A$

```
B%*%A
```

```
##      [,1] [,2] [,3] [,4]
## [1,]   19   19   22   23
## [2,]   24    9   22    3
## [3,]   21   11   23   12
## [4,]   10    3   10    1
```

$$(A \cdot B)^t$$

```
t(A%*%B)
```

```
##      [,1] [,2] [,3] [,4]
## [1,]    7   18    0   16
## [2,]   19   26    5   17
## [3,]   11   14    0   18
## [4,]   29   26    8   19
```

$$B^t \cdot A$$

```
t(B)%*%A
```

```
##      [,1] [,2] [,3] [,4]
## [1,]    4    9   12   18
## [2,]   18   17   19   19
## [3,]    2    7    6   14
## [4,]   23   18   19   16
```

$$(A \cdot B)^{-1}$$

```
solve(A%*%B)
```

```
##      [,1] [,2] [,3] [,4]
## [1,] -1.66 -0.65  4.52  1.52
## [2,]  1.60  0.80 -4.60 -1.60
## [3,]  1.02  0.35 -2.84 -0.84
## [4,] -1.00 -0.50  3.00  1.00
```

$$A^{-1} \cdot B^t$$

```
solve(A)%*%t(B)
```

```
##      [,1] [,2] [,3] [,4]
## [1,]  6.000000e-01  2.4  6.4  1.2
## [2,] -3.330669e-16 -2.0 -7.0 -1.2
## [3,] -2.000000e-01 -0.8 -3.8 -0.4
## [4,]  1.000000e+00  1.0  5.0  0.6
```

Pregunta 2

Definición del vector **dni**:

```
dni = c(8,2,4,3,2,6,0,1)
```

Vector **dni** al cuadrado:

```
dni^2
```

```
## [1] 64  4 16  9  4 36  0  1
```

Raiz cuadrado del vector **dni**:

```
sqrt(dni)
```

```
## [1] 2.828427 1.414214 2.000000 1.732051 1.414214 2.449490 0.000000 1.000000
```

Suma total del vector **dni**

```
sum(dni)
```

```
## [1] 26
```

Pregunta 3

Definición del vector **name**:

```
name <- c("F", "R", "A", "N", "C", "I", "S", "C", "O", "R", "M", "Z")
```

Subvector de **name** con solo el nombre:

```
name[1:(length(name)-3)]
```

```
## [1] "F" "R" "A" "N" "C" "I" "S" "C" "O"
```

Subvector de **name** con solo el apellido:

```
name[10:length(name)]
```

```
## [1] "R" "M" "Z"
```

Vector **name** ordenado alfabéticamente

```
sort(name)
```

```
## [1] "A" "C" "C" "F" "I" "M" "N" "O" "R" "R" "S" "Z"
```

Vector **name** en matriz

```
A = matrix(name, nrow = 4)
A
```

```
##      [,1] [,2] [,3]
## [1,] "F"  "C"  "O"
## [2,] "R"  "I"  "R"
## [3,] "A"  "S"  "M"
## [4,] "N"  "C"  "Z"
```