

# EJERCICIOS TEMA 3

Christian Cadena

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## EJERCICIOS TEMA 3.2

### Pregunta 1:

Sea la matriz A y B :

$$A = \begin{pmatrix} 1 & 2 & 3 & 4 \\ 4 & 3 & 2 & 1 \\ 0 & 1 & 0 & 2 \\ 3 & 0 & 4 & 0 \end{pmatrix}$$

$$B = \begin{pmatrix} 4 & 3 & 2 & 1 \\ 0 & 3 & 0 & 4 \\ 1 & 2 & 3 & 4 \\ 0 & 1 & 0 & 2 \end{pmatrix}$$

Respuesta en R de la pregunta 1:

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

```
C=A%*%B
C
```

```
##      [,1] [,2] [,3] [,4]
## [1,]     7   19   11   25
## [2,]    18   26   14   25
## [3,]     0     5     0     6
## [4,]    16   17   18   19
```

```
D=B%*%A
D
```

```
##      [,1] [,2] [,3] [,4]
## [1,]    19   19   22   23
## [2,]    24     9   22     3
## [3,]    21   11   23   12
## [4,]     7     3     6     1
```

**Respuesta en Latex:**

$$C = A * B = \begin{pmatrix} 1 & 2 & 3 & 4 \\ 4 & 3 & 2 & 1 \\ 0 & 1 & 0 & 2 \\ 3 & 0 & 4 & 0 \end{pmatrix} * \begin{pmatrix} 4 & 3 & 2 & 1 \\ 0 & 3 & 0 & 4 \\ 1 & 2 & 3 & 4 \\ 0 & 1 & 0 & 2 \end{pmatrix} = \begin{pmatrix} 7 & 19 & 11 & 25 \\ 18 & 26 & 14 & 25 \\ 0 & 5 & 0 & 6 \\ 16 & 17 & 18 & 19 \end{pmatrix}$$
$$D = B * A = \begin{pmatrix} 4 & 3 & 2 & 1 \\ 0 & 3 & 0 & 4 \\ 1 & 2 & 3 & 4 \\ 0 & 1 & 0 & 2 \end{pmatrix} * \begin{pmatrix} 1 & 2 & 3 & 4 \\ 4 & 3 & 2 & 1 \\ 0 & 1 & 0 & 2 \\ 3 & 0 & 4 & 0 \end{pmatrix} = \begin{pmatrix} 19 & 19 & 22 & 23 \\ 24 & 9 & 22 & 3 \\ 21 & 11 & 23 & 12 \\ 7 & 3 & 6 & 1 \end{pmatrix}$$

**PREGUNTA 2:**

Sea:  $dni = (1,7,1,6,1,8,6,5,3,4)$

**Respuesta en R:**

```
dni = c(1,7,1,6,1,8,6,5,3,4)
dni

## [1] 1 7 1 6 1 8 6 5 3 4

dni2 = dni^2
dni2

## [1] 1 49 1 36 1 64 36 25 9 16

cumsum(dni)

## [1] 1 8 9 15 16 24 30 35 38 42
```

**Respuestas en Latex:**

$$dni2 = dni^2 = (1 \ 7 \ 1 \ 6 \ 1 \ 8 \ 6 \ 5 \ 3 \ 4)^2 = (1 \ 7 \ 1 \ 6 \ 1 \ 8 \ 6 \ 5 \ 3 \ 4)$$

**PREGUNTA 3:**

Sea:  $nombre = (\text{C},\text{H},\text{R},\text{I},\text{S},\text{T},\text{I},\text{A},\text{N},\text{C},\text{A},\text{D},\text{E},\text{N},\text{A})$

**En R:**

```
nombre = c("C", "H", "R", "I", "S", "T", "I", "A", "N", "C", "A", "D", "E", "N", "A")
nombre

## [1] "C" "H" "R" "I" "S" "T" "I" "A" "N" "C" "A" "D" "E" "N" "A"
```

```
nombre1 = nombre[c(10,11,12,13,14,15)]
nombre1

## [1] "C" "A" "D" "E" "N" "A"

order1 = ordered(nombre1)
order1

## [1] C A D E N A
## Levels: A < C < D < E < N

#v=1:26
#order2 = ordered(c(1,3,8,9,9,14,18,19,20), levels = v, labels = #c("A", "B", "C", "D", "E", "F", "G", "H", "I",
#order
```