

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 = (C,H,R,I,S,T,I,A,N,C,A,D,E,N,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
```