

TAREA DE PARTICIPACION SEMANA 6

NOMBRES Y APELLIDOS: JUAN PIERO VINCHA LOZA

1.- EJERCICIO: REALIZAR LA SIGUIENTE OPERACIÓN DE PRODUCTOS ENTRE MATRICES (10 ptos)

$$A = \begin{bmatrix} 2 & 2 \\ 3 & 0 \\ 1 & 7 \end{bmatrix} \quad (m \times n = 3 \times 2)$$

$$B = \begin{bmatrix} 4 & 9 & 0 & 6 \\ 2 & 7 & 9 & 2 \end{bmatrix} \quad (n \times p = 2 \times 4)$$

Hallar

$$C = A \times B$$

Donde C tiene que ser de tamaño $m \times p = (3 \times 4)$

El resultado de $C = A \times B$ es:

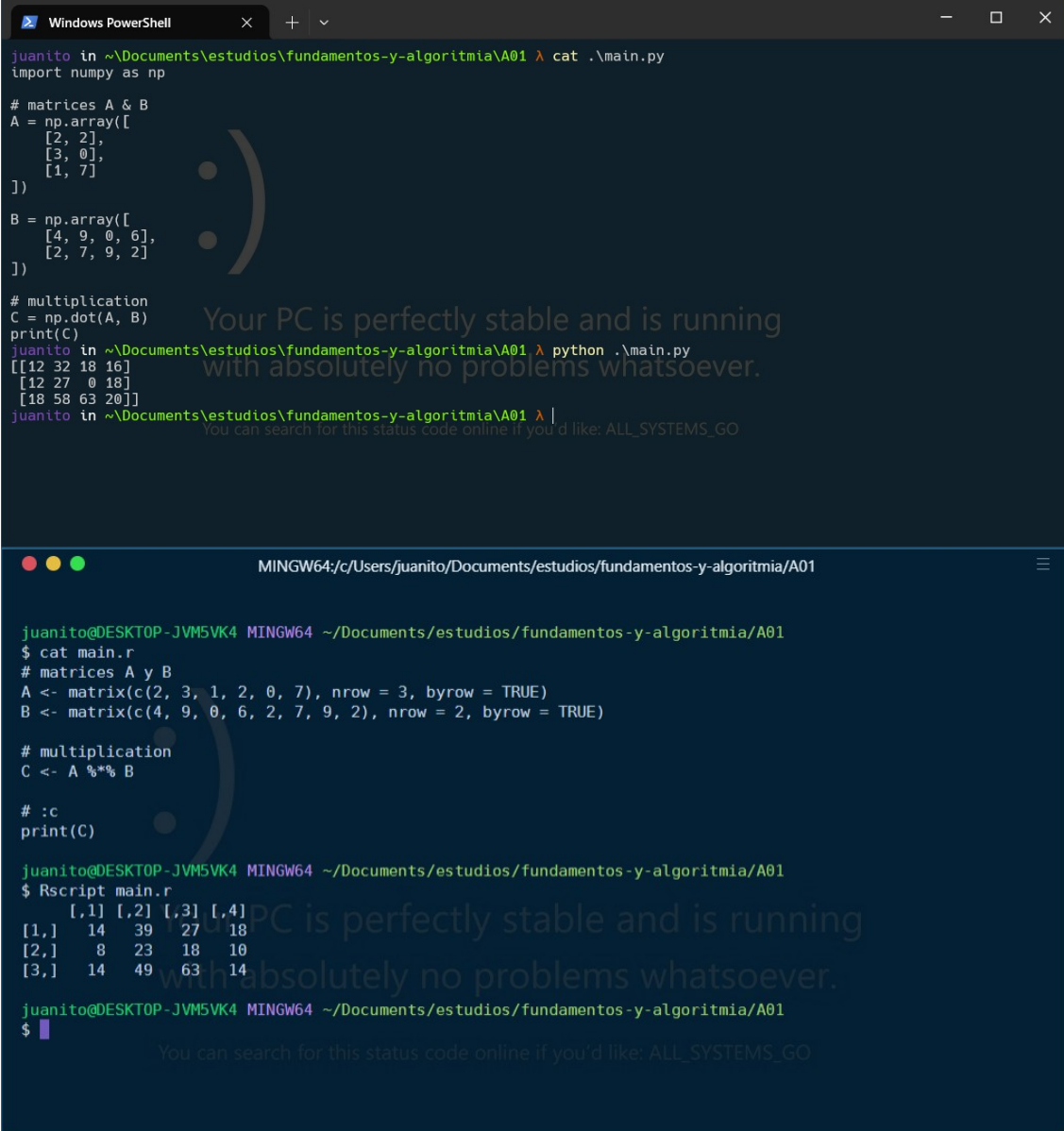
$$C_{ij} = \sum_{k=1}^n A_{ik} \cdot B_{kj}$$

$$C = \begin{bmatrix} (2 \times 4 + 2 \times 2) & (2 \times 9 + 2 \times 7) & (2 \times 0 + 2 \times 9) & (2 \times 6 + 2 \times 2) \\ (3 \times 4 + 0 \times 2) & (3 \times 9 + 0 \times 7) & (3 \times 0 + 0 \times 9) & (3 \times 6 + 0 \times 2) \\ (1 \times 4 + 7 \times 2) & (1 \times 9 + 7 \times 7) & (1 \times 0 + 7 \times 9) & (1 \times 6 + 7 \times 2) \end{bmatrix}$$

$$C = \begin{bmatrix} 12 & 32 & 18 & 16 \\ 12 & 27 & 0 & 18 \\ 18 & 58 & 63 & 20 \end{bmatrix}$$

2.- Realizar esta operación en Python (10 ptos)

Captura de pantalla:



The image shows two terminal windows side-by-side. The top window is a Windows PowerShell window with a dark blue background. It contains Python code to define two matrices, A and B, and calculate their dot product C = np.dot(A, B). The code is as follows:

```
juanito in ~\Documents\estudios\fundamentos-y-algoritmia\A01 > cat .\main.py
import numpy as np

# matrices A & B
A = np.array([
    [2, 2],
    [3, 0],
    [1, 7]
])

B = np.array([
    [4, 9, 0, 6],
    [2, 7, 9, 2]
])

# multiplication
C = np.dot(A, B)
print(C)
```

The output of the Python script is shown below the code:

```
[[12 32 18 16]
 [12 27  0 18]
 [18 58 63 20]]
```

The bottom window is a MINGW64 terminal window with a dark blue background. It contains the same code as the PowerShell window, but using Rscript instead of Python. The code is as follows:

```
juanito@DESKTOP-JVM5VK4 MINGW64 ~/Documents/estudios/fundamentos-y-algoritmia/A01
$ cat main.r
# matrices A y B
A <- matrix(c(2, 3, 1, 2, 0, 7), nrow = 3, byrow = TRUE)
B <- matrix(c(4, 9, 0, 6, 2, 7, 9, 2), nrow = 2, byrow = TRUE)

# multiplication
C <- A %*% B

# :c
print(C)
```

The output of the Rscript command is shown below the code:

```
juanito@DESKTOP-JVM5VK4 MINGW64 ~/Documents/estudios/fundamentos-y-algoritmia/A01
$ Rscript main.r
      [,1] [,2] [,3] [,4]
[1,]  14  39  27  18
[2,]   8  23  18  10
[3,]  14  49  63  14
```