Tarea4

Pregunta 1

Sean las matrices:

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

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

Los resultados de los productos son:

$$A \cdot B = \begin{pmatrix} 7 & 19 & 11 & 29 \\ 18 & 26 & 14 & 26 \\ 0 & 5 & 0 & 8 \\ 16 & 17 & 18 & 19 \end{pmatrix}$$

$$B \cdot A = \begin{pmatrix} 19 & 19 & 22 & 23 \\ 24 & 9 & 22 & 3 \\ 21 & 11 & 23 & 12 \\ 10 & 3 & 10 & 1 \end{pmatrix}$$

$$(A \cdot B)^t = \begin{pmatrix} 7 & 18 & 0 & 16 \\ 19 & 26 & 5 & 17 \\ 11 & 14 & 0 & 18 \\ 29 & 26 & 8 & 19 \end{pmatrix}$$

$$B^t \cdot A = \begin{pmatrix} 4 & 9 & 12 & 18 \\ 18 & 17 & 19 & 19 \\ 2 & 7 & 6 & 14 \\ 23 & 18 & 19 & 16 \end{pmatrix}$$

$$(A \cdot B)^{-1} = \begin{pmatrix} -1.66 & -0.65 & 4.52 & 1.52 \\ 1.60 & 0.80 & -4.60 & -1.60 \\ 1.02 & 0.35 & -2.84 & -0.84 \\ -1.00 & -0.50 & 3.00 & 1.00 \end{pmatrix}$$

$$A^{-1} \cdot B^t = \begin{pmatrix} 0.6 & 2.4 & 6.4 & 1.2 \\ 0.0 & -2.0 & -7.0 & -1.2 \\ -0.2 & -0.8 & -3.8 & -0.4 \\ 1.0 & 1.0 & 5.0 & 0.6 \end{pmatrix}$$

Pregunta 2

Dado un vector $dni = (5, 4, 2, 0, 1, 5, 6, 7)$

Calcula:

$$dni^2 = (25, 16, 4, 0, 1, 25, 36, 49)$$

$$\sqrt{dni} = (2.24, 2, 1.41, 0, 1, 2.24, 2.45, 2.65)$$

$$\sum_{1}^{n=8} dni = 30$$

Pregunta 3

Sea el vector $name = (\text{"}J\text{"}, \text{"}O\text{"}, \text{"}S\text{"}, \text{"}E\text{"}, \text{"}M\text{"}, \text{"}A\text{"}, \text{"}N\text{"}, \text{"}U\text{"}, \text{"}E\text{"}, \text{"}L\text{"}, \text{"}F\text{"}, \text{"}L\text{"}, \text{"}O\text{"}, \text{"}R\text{"}, \text{"}E\text{"}, \text{"}S\text{"})$

El subvector con mi nombre es: $fname = (\text{"}J\text{"}, \text{"}O\text{"}, \text{"}S\text{"}, \text{"}E\text{"}, \text{"}M\text{"}, \text{"}A\text{"}, \text{"}N\text{"}, \text{"}U\text{"}, \text{"}E\text{"}, \text{"}L\text{"})$

El subvector con mi apellido es: $lname = (\text{"}F\text{"}, \text{"}L\text{"}, \text{"}O\text{"}, \text{"}R\text{"}, \text{"}E\text{"}, \text{"}S\text{"})$

Ordenado el vector se obtiene $namesorted = (\text{"}A\text{"}, \text{"}E\text{"}, \text{"}E\text{"}, \text{"}E\text{"}, \text{"}F\text{"}, \text{"}J\text{"}, \text{"}L\text{"}, \text{"}L\text{"}, \text{"}M\text{"}, \text{"}N\text{"}, \text{"}O\text{"}, \text{"}O\text{"}, \text{"}R\text{"}, \text{"}S\text{"}, \text{"}S\text{"}, \text{"}U\text{"})$

Y como matriz se obtiene:

$$matriz = \begin{pmatrix} \text{"}J\text{"} & \text{"}M\text{"} & \text{"}E\text{"} & \text{"}O\text{"} \\ \text{"}O\text{"} & \text{"}A\text{"} & \text{"}L\text{"} & \text{"}R\text{"} \\ \text{"}S\text{"} & \text{"}N\text{"} & \text{"}F\text{"} & \text{"}E\text{"} \\ \text{"}E\text{"} & \text{"}U\text{"} & \text{"}L\text{"} & \text{"}S\text{"} \end{pmatrix}$$