

Assignment 2

Cherukupalli Sai Malini Mouktika

AI21BTECH11007

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question(iv):

Show that $\mathbf{A} + \mathbf{A}'$ is symmetric matrix.if

$$\mathbf{A} = \begin{pmatrix} 2 & 4 \\ 3 & 5 \end{pmatrix} \quad (1)$$

solution:

given,

$$\mathbf{A} = \begin{pmatrix} 2 & 4 \\ 3 & 5 \end{pmatrix} \quad (2)$$

$$\Rightarrow \mathbf{A}' = \begin{pmatrix} 2 & 3 \\ 4 & 5 \end{pmatrix} \quad (3)$$

$$\mathbf{A} + \mathbf{A}' = \begin{pmatrix} 2 & 4 \\ 3 & 5 \end{pmatrix} + \begin{pmatrix} 2 & 3 \\ 4 & 5 \end{pmatrix} \quad (4)$$

$$\Rightarrow \mathbf{A} + \mathbf{A}' = \begin{pmatrix} 2+2 & 4+3 \\ 3+4 & 5+5 \end{pmatrix} \quad (5)$$

$$\Rightarrow \mathbf{A} + \mathbf{A}' = \begin{pmatrix} 4 & 7 \\ 7 & 10 \end{pmatrix} \quad (6)$$

$\therefore \mathbf{A} + \mathbf{A}'$ is symmetric matrix