MATRIKS

$$A_{3\times3} = \begin{bmatrix}1 & 2 & 3\\ 4 & 5 & 6\\ 7 & 8 & 9\end{bmatrix}$$

ORDO

DIAGONAL UTAMA

a_{ij}

$a_{23} = 6$

a_{11} $\qquad\qquad\qquad\qquad$ b_{11}

$$A_{2\times3} = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}, \quad B_{2\times3} = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$$

$$\longrightarrow \boxed{A = B}$$

PERKALIAN DUA MATRIKS

$$C(I,J) = C(I,J) + A(I,K) * B(K,J)$$

$$C_{2\times 2} = A_{2\times 3} * B_{3\times 2}$$

$$A_{2\times 3} = \begin{bmatrix} A(1,1) & A(1,2) & A(1,3) \\ A(2,1) & A(2,2) & A(2,3) \end{bmatrix}$$

$$B_{3\times 2} = \begin{bmatrix} B(1,1) & B(1,2) \\ B(2,1) & B(2,2) \\ B(3,1) & B(3,2) \end{bmatrix}$$

$$C_{2\times 2} = A_{2\times 3} * B_{3\times 2}$$

$$\begin{bmatrix} C(1,1) & C(1,2) \\ C(2,1) & C(2,2) \end{bmatrix} = \begin{bmatrix} A(1,1) & A(1,2) & A(1,3) \\ A(2,1) & A(2,2) & A(2,3) \end{bmatrix} * \begin{bmatrix} B(1,1) & B(1,2) \\ B(2,1) & B(2,2) \\ B(3,1) & B(3,2) \end{bmatrix}$$

$$= \begin{bmatrix} A(\overset{I}{1},\underbrace{1) * B(1}_{K=1},\overset{J}{1}) + A(\overset{I}{1},\underbrace{2) * B(2}_{K=2},\overset{J}{1}) + A(\overset{I}{1},\underbrace{3) * B(3}_{K=3},\overset{J}{1}) & A(\overset{I}{1},\underbrace{1) * B(1}_{K=1},\overset{J}{2}) + A(\overset{I}{1},\underbrace{2) * B(2}_{K=2},\overset{J}{2}) + A(\overset{I}{1},\underbrace{3) * B(3}_{K=3},\overset{J}{2}) \\ A(2,\underbrace{1) * B(1}_{},1) * A(2,\underbrace{2) * B(2}_{},1) + A(2,\underbrace{3) * B(3}_{},1) & A(2,\underbrace{1) * B(1}_{},2) + A(2,\underbrace{2) * B(2}_{},2) + A(2,\underbrace{3) * B(3}_{},2) \end{bmatrix}$$

$$C(\overset{I}{1},\overset{J}{2}) = A(\overset{I}{1},\underbrace{1) * B(1}_{K=1},\overset{J}{2}) + A(\overset{I}{1},\underbrace{2) * B(2}_{K=2},\overset{J}{2}) + A(\overset{I}{1},\underbrace{3) * B(3}_{K=3},\overset{J}{2})$$

PERKALIAN DUA MATRIKS

$$C(I,J) = C(I,J) + A(I,K) * B(K,J)$$

$$C_{2\times2} = A_{2\times3} * B_{3\times2}$$

$$A_{2\times3} = \begin{bmatrix} A(1,1) & A(1,2) & A(1,3) \\ A(2,1) & A(2,2) & A(2,3) \end{bmatrix}$$

$$B_{3\times2} = \begin{bmatrix} B(1,1) & B(1,2) \\ B(2,1) & B(2,2) \\ B(3,1) & B(3,2) \end{bmatrix}$$

$$C_{2\times 2} = A_{2\times 3} * B_{3\times 2}$$

$$\begin{bmatrix} C(1,1) & C(1,2) \\ C(2,1) & C(2,2) \end{bmatrix} = \begin{bmatrix} A(1,1) & A(1,2) & A(1,3) \\ A(2,1) & A(2,2) & A(2,3) \end{bmatrix} * \begin{bmatrix} B(1,1) & B(1,2) \\ B(2,1) & B(2,2) \\ B(3,1) & B(3,2) \end{bmatrix}$$

$$= \begin{bmatrix} A(\overset{}{\underset{I}{1}},\underbrace{1) * B(1}_{K=1},\underset{J}{1}) + A(\underset{I}{1},\underbrace{2) * B(2}_{K=2},\underset{J}{1}) + A(\underset{I}{1},\underbrace{3) * B(3}_{K=3},\underset{J}{1}) & A(\overset{I}{1},\underbrace{1) * B(1}_{K=1},\overset{J}{2}) + A(\overset{I}{1},\underbrace{2) * B(2}_{K=2},\overset{J}{2}) + A(\overset{I}{1},\underbrace{3) * B(3}_{K=3},\overset{J}{2}) \\ A(2,\underbrace{1) * B(1}_{},1) + A(2,\underbrace{2) * B(2}_{},1) + A(2,\underbrace{3) * B(3}_{},1) & A(2,\underbrace{1) * B(1}_{},2) + A(2,\underbrace{2) * B(2}_{},2) + A(2,\underbrace{3) * B(3}_{},2) \end{bmatrix}$$

$$C(\overset{I,J}{1,2}) = A(\overset{I}{1},\underbrace{1) * B(1}_{K=1},\overset{J}{2}) + A(\overset{I}{1},\underbrace{2) * B(2}_{K=2},\overset{J}{2}) + A(\overset{I}{1},\underbrace{3) * B(3}_{K=3},\overset{J}{2})$$

$$B(K, J)$$

$$C(I,J) = \phi$$

$$\boxed{K=1} \rightarrow C(I,J) = \phi + A(I,1) * B(1,J)$$

$$\boxed{K=2} \rightarrow C(I,J) = A(I,1) * B(1,J) + A(I,2) * B(2,J)$$

$$\boxed{K=3}$$

$$\rightarrow C(I,J) = A(I,1) * B(1,J) + A(I,2) * B(2,J) + A(I,3) * B(3,J)$$

BINU

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$$A \cdot B = \begin{bmatrix} 1 & 1 \\ 0 & 0 \end{bmatrix} \cdot \begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 0+0 & 1+1 \\ 0+0 & 0+0 \end{bmatrix} = \begin{bmatrix} 0 & 2 \\ 0 & 0 \end{bmatrix}$$

$$B \cdot A = \begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} 1 & 1 \\ 0 & 0 \end{bmatrix} = \begin{bmatrix} 0+0 & 0+0 \\ 0+0 & 0+0 \end{bmatrix} = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$$

$\cancel{a}b = \cancel{a}c$

$b = c$

$$A \cdot B \neq B \cdot A$$

$$A \cdot B = A \cdot C$$

$$\longrightarrow \boxed{B \neq C}$$

MATRIKS TRANSPOSE

$$A_{2\times3} = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$$

$$\longrightarrow A^t_{3\times2} = \begin{bmatrix} 1 & 4 \\ 2 & 5 \\ 3 & 6 \end{bmatrix}$$

$\boxed{A^t = A}$ → MATRIKS SIMETRIS

$A^2 = A$ → MATRIKS IDEMPOTENT

$A^3 = 0$ → MATRIKS NIL POTENT

e found
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A is
30

UA MATRIKS

$J)) + A(I, K) * B(K, J))$

$* \; B_{3 \times 2}$

$A(1,3)$

$A(2,3)$

$C(I,J) = \phi$

$\boxed{K=1} \rightarrow C(I,J) = \phi + A(I,1) * B(1,J)$

$\boxed{K=2} \rightarrow C(I,J) = A(I,1) * B(1,J) + A(I,2) * B(2,J)$

$\boxed{K=3}$

$\rightarrow C(I,J) = A(I,1) * B(1,J) + A(I,2) * B(2,J) + A(I,3) * B(3,J)$

$A_{3\times 4} * B_{4\times 7} = (A * B)_{3\times 7}$

$\left[(A * B)_{3\times 7} * C_{7\times 3} \right]_{3\times 3}$

BINUS UNIVERSIT

If A is a square

such that AB =

an inverse of

said to be si

The matrix

since

and

Bina Nusantara Univers

MATRIKS INVERS

① $A \cdot A^{-1} = I$

② $(A \mid I) \xrightarrow{\text{OBE}} (I \mid A^{-1})$

③ $A^{-1} = \dfrac{1}{|A|} \cdot \text{adj}(A)$

$$\text{adj}(A) = K^{t}$$

$$A \circ \underset{\substack{\parallel \\ A^{-1}}}{B} = B \circ \underset{\substack{\parallel \\ B^{-1}}}{A} = I$$

$$A \circ A^{-1} = I \quad , \quad B \cdot B^{-1} = I$$