

C, C++, DSA in depth

Doubt class assignment-20



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Q.2

$$\begin{matrix} x_1 \\ x_2 \\ x_3 \end{matrix} \begin{bmatrix} 3 & 4 & 1 \\ 2 & 0 & 8 \\ 3 & 5 & 1 \end{bmatrix} \times \begin{matrix} c_1 & c_2 & c_3 \\ \begin{bmatrix} 2 & 1 & -1 \\ 3 & 1 & 0 \\ 5 & 2 & 2 \end{bmatrix} \end{matrix}$$

$$C = \begin{bmatrix} 3 \times 2 + 4 \times 3 + 1 \times 5 & 3 \times 1 + 4 \times 1 + 1 \times 2 & 3 \times -1 + 4 \times 0 + 1 \times 2 \\ - & - & - \\ - & - & - \end{bmatrix}$$

$$C = \begin{matrix} & 0 & 1 & 2 \\ \begin{matrix} 0 \\ 1 \\ 2 \end{matrix} & \begin{bmatrix} 00 & 01 & 02 \\ 10 & 11 & 12 \\ 20 & 21 & 22 \end{bmatrix} \end{matrix}$$

$$C = \begin{bmatrix} 23 & 9 & -1 \\ 44 & 18 & 14 \\ 26 & 10 & -1 \end{bmatrix}$$

$$C[0][0] = A[0][0] * B[0][0] + A[0][1] * B[1][0] + A[0][2] * B[2][0]$$

$$C[0][1] = A[0][0] * B[0][1] + A[0][1] * B[1][1] + A[0][2] * B[2][1]$$

$$C[0][2] = A[0][0] * B[0][2] + A[0][1] * B[1][2] + A[0][2] * B[2][2]$$

$$C[1][0] = A[1][0] * B[0][0] + A[1][1] * B[1][0] + A[1][2] * B[2][0]$$

$$C[1][1] = A[1][0] * B[0][1] + A[1][1] * B[1][1] + A[1][2] * B[2][1]$$

$$C[1][2] = A[1][0] * B[0][2] + A[1][1] * B[1][2] + A[1][2] * B[2][2]$$

$$C[2][0] = A[2][0] * B[0][0] + A[2][1] * B[1][0] + A[2][2] * B[2][0]$$

$$C[2][1] = A[2][0] * B[0][1] + A[2][1] * B[1][1] + A[2][2] * B[2][1]$$

$$C[2][2] = A[2][0] * B[0][2] + A[2][1] * B[1][2] + A[2][2] * B[2][2]$$

$$C[i][j] = A[i][0] * B[0][j] + A[i][1] * B[1][j] + A[i][2] * B[2][j]$$

k = 0 to 2

$$Sum = Sum + A[i][k] * B[k][j]$$

Q.3

$$\begin{bmatrix} 3 & 5 & 2 \\ 1 & 0 & 5 \\ 4 & 7 & 6 \end{bmatrix}$$
$$\begin{bmatrix} 3 & 1 & 4 \\ 5 & 0 & 7 \\ 2 & 5 & 6 \end{bmatrix}$$

$A[i][j]$

$A[j][i]$

$A[0][2]$

$A[2][0]$

$A[1][2]$

$A[2][1]$

Q.4

A B C D

A		2	1	2
B	0		1	0
C	1	1		0
D	0	2	2	

A, B → A win

A, C → Draw

A, D → A win

B, C → Draw

B, D → D win

C, D → D win

A 0
B 1
C 2
D 3

0	1	2	3
5	1	2	4

A	B	C	D
5	4	2	1