

HW23

Warm-up / Dry run

Write the following program that multiplies the elements in 2d arrays (aka as Matrix multiplication):

1. Declare a 2D array, integer type, of size 2 (rows) by 3(columns). Call it Mat1
2. Declare a 2D array, integer type, of size 3 (rows) by 2(columns). Call it Mat2
3. Declare a 2D array, integer type, of size 2 (rows) by 2(columns). Call it Mat3
4. #define the following constants VAL1 =1, VAL2 = 3, VAL3=3, VAL4=4 .
5. Initialize Mat1 so it's values are:
VAL1 VAL1+1 VAL1+2
VAL2 VAL2+1 VAL2+2
6. Initialize Mat2 so it's values are:
VAL3 VAL4
VAL3+1 VAL4+1
VAL3+2 VAL4+2
7. Calculate the elements of Mat3 as follows:
$$\text{Mat3}[i][j] = \text{sum_of_elemnt_wise_product_of } \{ (\text{Mat1 row } i) \text{ times } (\text{Mat2 col } j) \}$$

For example: $\text{Mat2}[0][1] = (\text{Mat1_row}_0) \times (\text{Mat2_col}_1) =$
 $= \text{Mat1}[0][0]*\text{Mat2}[0][1] + \text{Mat1}[0][1]*\text{Mat2}[1][1] + \text{Mat1}[0][2]*\text{Mat2}[2][1]$
 $= (\text{VAL1}*\text{VAL4}) + (\text{VAL1}+1)*(\text{Val4}+1) + (\text{VAL1}+2)*(\text{Val4}+2)$

8. Print the matrix Mat3.

In the above case, the printout should look like:

Mat3!!

26		32	
38		47	

9. Now, change VAL1 to 53, and VAL2 to 64. What is the value of Mat3[0][1] ? of the other elements?