

# C Programming Basics (Laboratory Session 3)

SDS 322/329

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# Exercise 1

- Write a program for matrix multiplication (assume any valid data type)
  - Declare a 2 X 2 array named `myMatrixA`
  - Declare a 2 X 2 array named `myMatrixB`
  - Declare a 2 X 2 array named `myMatrixC`
  - You can either initialize the array/matrix by reading the values from the keyboard or you can hard-code the values in the program
  - Note the formula:  
$$\text{myMatrixC}[i][j] = \text{myMatrixC}[i][j] + \text{myMatrixA}[i][k] * \text{myMatrixB}[k][j]$$
  - Write nested for-loops to find the product of `myMatrixA` and `myMatrixB` and store it in `myMatrixC`

# Solution for the Exercise-1 (1)

```
1. #include <stdio.h>
2. int main(){
3.     int i, j, k;
4.     int myA[2][2] = {{1, 2}, {3, 4}};
5.     int myB[2][2] = {{5, 6}, {7, 8}};
6.     int myC[2][2] = {{0, 0}, {0, 0}};
7.     for(i=0; i<2; i++){
8.         for(j=0; j<2; j++){
9.             for(k=0; k <2; k++){
10.                 myC[i][j] = myC[i][j] + myA[i][k]*myB[k][j];
11.             }
12.         }
13. }
```

# Solution for the Exercise-1 (2)

```
14.  for(i=0; i<2; i++){  
15.      for(j=0; j<2; j++){  
16.          printf(" %d ", myC[i][j]);  
17.      }  
18.      printf("\n");  
19.  }  
20.  return 0;  
21. }
```