

Lab Work 15

Objectives: This lab work aims to test your understanding of "Two Dimensional Array " and practice on programming some problems using the two dimensional arrays and one dimensional arrays if needed and loop statements in the lab hours during this week.

Q1: Write a program that adds up two [4x4] arrays and stores the sum in a third array.

Q2: Write a C++ program that declares a two dimensional array of size [4x4] and generates the values of its elements *using conditional statements* as the following:

- The main diagonal contains 0 in all its locations
- The upper triangle contains 1 in all its locations
- The lower triangle contains 2 in all its locations

Q3: Write a program that defines a two-dimensional array of integers of size 4*4. The program will fill the array of values using the equation $array_name[i][j] = i+j+2$ (*i refers to the row index, j refers to the column index*). Then, define a one-dimensional array of size 4. The one-dimensional array should be filled with the values along the main diagonal of the two-dimensional array.

For example:

If the two-dimensional array is:

V1	V2	V3	V4
V5	V6	V7	V8
V9	V10	V11	V12
V13	V14	V15	V16

The one-dimensional array will be:

V1	V6	V11	V16
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Home Work:

Q4: Write a program that stores the grades of 5 students in a two-dimensional array. Each student has 3 marks. Each row will represent a student and the last cell in the row will store the calculated average for the student's marks. Finally, display the average of all student averages.

Q5: Write a program that defines a two-dimensional array of integers of size 10*10. The program will fill each location of the array by its index summation ($array[i][j] = i+j$). Then print the summation of the elements on the array circumference as shown below:

