



Programming Fundamental (CS111)

Assignment # 03

[CLO-2, Taxonomy Level-C3, PLO-2]

Course: BSCS-1

Semester: 1st (Fall 2023)

Due Date: 29/11/2023

Total Marks: 30

Instructions

1. *Plagiarism, copy & past material will lead to the cancellation of your assignment.*
 2. *Write your Name, Reg# on the first page (title page) of your submission.*
 3. *No late submission*
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Arrays in C++ provide a way to store and manipulate collections of elements of the same data type, offering efficient access and modification.

Q.1 Implement each of the following scenarios in a C++ program by utilizing data types, operators, control structures, and arrays.

(the code must have proper indentation and comments) (Mark: 10+ 10+10)

1. Write a C++ program to perform the following tasks on an array of integers:
 - a. Initialize an array of size 10 with user-input values.
 - b. Display the array elements.
 - c. Find and display the sum of all elements.
 - d. Find and display the maximum and minimum values in the array.
 - e. Sort the array in ascending order and display the sorted array.
2. Write a C++ program to perform operations on a 3x3 matrix:
 - a. Initialize a 3x3 matrix with user-input values.
 - b. Display the matrix.
 - c. Calculate and display the transpose of the matrix.
 - d. Find and display the sum of the main diagonal elements.
 - e. Multiply the matrix by a scalar (user-input) and display the result.

3. Write a C++ program to perform the following tasks on a 2D array:
 - a. Initialize a 3x3 matrix with user-input values.
 - b. Display the matrix.
 - c. Find and display the sum of each row and each column.
 - d. Check and display whether the matrix is a symmetric matrix or not.