National University of Computer and Emerging Sciences



Lab Manual 2

for

Object Oriented Programming (OOP)

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# Lab Manual 2

## Instructions:

* If someone is caught using the internet in this lab without permission, their marks will be reduced to zero, and if caught in two labs in this manner, they will not be allowed to sit for a quiz.
* In case of Plagiarism, Straight Zero in particular lab and report this case to DC.
* Solve this Question in Sequence.
* Late Submission is not allowed. If someone evaluates his/her code, he/she will submit the code in google classroom and then leave the class.

### Question 1: Dynamic 2D Integer Array Creation and Sum Calculation

Write a C++ program that dynamically creates a 2D integer array based on user input for rows and columns. Implement a function to initialize the array with random values. Then, create another function to calculate and return the sum of all elements in the array.

**For Example:**

| Enter number of rows: 3  Enter number of columns: 3  2D Array:  3 5 7  1 4 6  8 9 2  Sum of all elements: 45 |
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### Question 2: Dynamic 2D Integer Array Transposition

Write a C++ program that dynamically creates a 2D integer array and fills it with user-provided values. Implement a function to transpose the array (convert rows into columns and vice versa) and print the transposed array.

**For Example:**

| Enter number of rows: 3  Enter number of columns: 2  Enter elements of the array:  1 2  3 4  5 6  Original Array:  1 2  3 4  5 6  Transposed Array:  1 3 5  2 4 6 |
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