National University of Computer and Emerging Sciences



Lab Manual 3

*for*

Object Oriented Programming (OOP)

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| Section | B |
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# Lab Manual 3

## 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: Managing a Classroom Seating Chart**

Imagine you're developing a classroom management system where the seating chart is stored as a 2D array of characters. Each character represents the first letter of a student's name. You want to create a function to find a specific student and display his/her seating position.

### **Question 2: Counting the Number of Times a Product Appears in a Warehouse Inventory**

### Consider a warehouse system where the product IDs are stored in a 2d array. You need to create a function to find how often a specific product appears in the inventory.

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### **Question 3: Multiplication of Matrices**

### Create a function to multiply 2 matrices The function should be dynamic to handle any size arrays and should also determine whether the 2 matrices are compatible for multiplication.

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### **Question 4: 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.