National University of Computer and Emerging Sciences

Lab Manual 7

for

Object Oriented Programming (OOP)

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Section	BSE-2A
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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: School Management System

You are tasked with developing a School Management System to manage student and teacher information. Each teacher teaches multiple subjects, and each student has a set of courses they are enrolled in. Implement the classes using aggregation to represent this relationship.

Requirements:

- Create a class Subject with attributes for subject name and teacher name.
- Create a class Teacher with attributes for teacher name and a collection of Subject objects.
- Create a class Course with attributes for course name, course code, and teacher name (associated with the course).
- Create a class Student with attributes for student name, roll number, and a collection of Course objects.
- Implement methods in each class to add, view, and update information.

Question 2: Online Shopping System

You are developing a library management system. A library contains multiple books, and each book has a title, author, and publication year. Implement the classes using aggregation to represent this relationship.

Requirements:

- Create a class Book with attributes for title, author, and publication year.
- Create a class Library that contains a collection of Book objects using aggregation.
- Implement methods in the Library class to add books to the library, display all books, and search for books by title or author.