Object Oriented Programming

Lab 01

CSF22

Instructions:

- In this Lab, you are NOT allowed to discuss your solution with your colleagues, even not allowed to ask how is s/he doing, this may result in negative marking. You can ONLY discuss with your Teaching Assistants (TAs) or Lab Instructor.
- Follow camelCase notation and give your variables meaningful names.

Task 1: Create a `Student` class with the following attributes and member functions.

Attributes:

- Roll Number
- Name
- Address
- Phone Number
- Grade

All data members will be hidden from user.

Methods:

- Setters for each attribute
- Getters for each attribute
- Function to display details for a student

Demonstrate the usage of this class by creating an instance of the class, setting values using setters, and displaying the student details using the provided member function in the main function.

Task 2: **Implement a `BankAccount` class with the following attributes and member functions.**

Attributes:

- Account Number
- Account Holder's Name
- Balance

All data members will be hidden from user.

Methods:

- Setters for each attribute
- Getters for each attribute
- Function to deposit money into the account
- Function to withdraw money from the account
- Function to display account details

Demonstrate the usage of this class by creating an instance of the class, setting initial values using setters, performing deposit and withdrawal operations, and displaying the account details using the provided member function in the main function. Ensure that the withdrawal operation does not allow the balance to go below zero.

Task 3: Design a `Book` class with the following attributes and member functions.

Attributes:

- Title
- Author
- Genre
- Publication Year
- Price

All data members will be hidden from user.

Methods:

- Setters for each attribute
- Getters for each attribute
- Function to calculate the discounted price (assuming a 10% discount)

Create an instance of the class, set initial values using setters, calculate the discounted price using the provided member function, and display the book details in the main function.

Task 4: Imagine you are building a basic Vehicle Management System for a small car rental company. This system will help them track their fleet of vehicles, manage rentals, and keep records of maintenance and repairs. Identify the possible entities or classes involved in this system. Also define the attributes and member functions for the classes involved.