মেট্রোপলিটন ইউনিভার্সিটি
Metropolitan University

Department of Computer Science and Engineering

Course Code: CSE222	Credits: 1.5
Course Name: Object Oriented Programming Lab	Faculty: FRS

Lab 04 – Inheritance and Abstract

Task 1: Create an abstract class called "Shape" with abstract methods calculateArea() and calculatePerimeter(). Create two subclasses, "Rectangle" and "Circle," that inherit from the Shape class. Implement the calculateArea() and calculatePerimeter() methods for each subclass.

Task 2: Create an abstract class called "Animal" with abstract methods makeSound() and move(). Create two subclasses, "Dog" and "Bird," that inherit from the Animal class. Implement the makeSound() and move() methods in each subclass.

Task 3: Create an abstract class called "Vehicle" with attributes "make" and "year," and an abstract method start(). Create two subclasses, "Car" and "Motorcycle," that inherit from the Vehicle class. Implement the start() method for each subclass.

Task 4: Create an abstract class called "Person" with attributes "name" and "age," and an abstract method displayDetails(). Create two subclasses, "Student" and "Teacher," that inherit from the Person class. Implement the displayDetails() method to display the details of a student and a teacher.

Task 5: Create an abstract class called "Employee" with attributes "name," "employeeId," and "salary," and an abstract method calculateSalary(). Create two subclasses, "HourlyEmployee" and "SalariedEmployee," that inherit from the Employee class. Implement the calculateSalary() method for each subclass.

Task 6: Create an abstract class called "BankAccount" with attributes "accountNumber" and "balance," and abstract methods deposit(double amount) and withdraw(double amount). Create two subclasses, "SavingsAccount" and "CheckingAccount," that inherit from the BankAccount class. Implement the deposit() and withdraw() methods for each subclass. Also, before withdrawing check for the sufficient balance.