

## CDAC Mumbai PG-DAC August 24

### Assignment No- 5

- 1) Create a base class BankAccount with methods like deposit() and withdraw(). Derive a class SavingsAccount that overrides the withdraw() method to impose a limit on the withdrawal amount. Write a program that demonstrates the use of overridden methods and proper access modifiers & return the details.
- 2) Create a base class Vehicle with attributes like make and year. Provide a constructor in Vehicle to initialize these attributes. Derive a class Car that has an additional attribute model and write a constructor that initializes make, year, and model. Write a program to create a Car object and display its details.

```
public class prob2 {  
    public static void main(String[] args) {  
        Car myCar = new Car("Toyota", 2020, "Corolla");  
        myCar.displayDetails();  
    }  
}  
  
class Vehicle {  
    String make;  
    int year;  
  
    Vehicle(String make, int year) {  
        this.make = make;  
        this.year = year;  
    }  
  
    public void displayDetails() {  
        System.out.println("Make: " + make);  
        System.out.println("Year: " + year);  
    }  
}  
  
class Car extends Vehicle {  
    String model;
```

```

    public Car(String make, int year, String model) {
        super(make, year);
        this.model = model;
    }
    @Override
    public void displayDetails() {
        super.displayDetails(); // Call the method from the base class
        System.out.println("Model: " + model);
    }
}

```

- 3) Create a base class Animal with attributes like name, and methods like eat() and sleep(). Create a subclass Dog that inherits from Animal and has an additional method bark(). Write a program to demonstrate the use of inheritance by creating objects of Animal and Dog and calling their methods.

```

package Assignment5;

public class prob3 {
    public static void main(String[] args) {
        Animal a = new Animal();
        a.eat();
        a.sleep();
        Dog d = new Dog();
        d.eat();
        d.bark();
        d.sleep();
    }
}

class Animal {
    String name;

    public void eat() {
        System.out.println("animal is eating");
    }
    public void sleep() {
        System.out.println("animal is sleeping");
    }
}

class Dog extends Animal {

```

```

public void bark() {

    System.out.println("dog is barking");
}
public void eat() {
    System.out.println("dog is eating");
}
    public void sleep() {
        System.out.println("dog is sleeping");
    }
}

```

- 4) Build a class Student which contains details about the Student and compile and run its instance.

```

package Assignment5;

public class prob4 {
    public static void main(String[] args) {
        Student data = new Student();
        System.out.println(data.name);
        System.out.println(data.rollNum);
    }
}

class Student {
    String name;
    int rollNum;

    Student() {
        name = "anchal";
        rollNum = 8;
    }
}

```

- 5) Write a Java program to create a base class Vehicle with methods startEngine() and stopEngine(). Create two subclasses Car and Motorcycle. Override the startEngine() and stopEngine() methods in each subclass to start and stop the engines differently.

```

public class prob5 {

```

```
public static void main(String[] args) {
    Vehicle v = new Vehicle();
    v.startEngine();
    v.stopEngine();
    Car c = new Car();
    c.startEngine();
    c.stopEngine();
    Motorcycle m = new Motorcycle();
    m.startEngine();
    m.stopEngine();
}
}

class Vehicle {

    Vehicle() {

    }

    public void startEngine() {
        System.out.println("Started Vehicle engine");
    }
    public void stopEngine() {
        System.out.println("Stopped Vehicle engine");
    }
}

class Car extends Vehicle {

    Car() {

    }

    public void startEngine() {

        System.out.println("Started Car engine");
    }
    public void stopEngine() {

        System.out.println("Stopped Car engine");
    }
}
```

```
}  
  
class Motorcycle extends Vehicle {  
    Motorcycle() {  
  
    }  
    @Override  
    public void startEngine() {  
        System.out.println("Started Motorcycle engine");  
    }  
    @Override  
    public void stopEngine() {  
        System.out.println("Stopped Motorcycle engine");  
    }  
}
```