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.

```
package questionfirst;


import java.util.Scanner;


class BankAccount{
    int accountNumber;
    int Balance;
    int amount;
    Scanner c=new Scanner(System.in);
    public BankAccount() {
            System.out.println("Enter Bank Account Number");
            accountNumber=c.nextInt();
            System.out.println("Enter Account Balance");
            Balance=c.nextInt();
    }
    public int getAccountNumber() {
            return accountNumber;
    }
    public void setAccountNumber(int accountNumber) {
            this.accountNumber = accountNumber;
    }
    public int getBalance() {
            return Balance;
    }
    public void setBalance(int balance) {
            Balance = balance;
```

```
    }
    int deposit(){
            System.out.println("Enter The Amount to be Deposited");
            amount=c.nextInt();
            Balance=Balance+amount;
            System.out.println("Total Balance : "+Balance);
            return Balance;
    }
    int withdraw(){
            System.out.println("Enter The Amount to be withdrawn");
            amount=c.nextInt();
            Balance=Balance-amount;
            System.out.println("Total Balance : "+Balance);
            if(amount>Balance&&amount>0) {
                    Balance=Balance-amount;
            }
            return Balance;
    }
    void resourceClose(){
            c.close();
    }

}
class SavingsAccount extends BankAccount{
    static int limitt=10000;
    public static int getLimit() {
            return limitt;
    }
    public static void setLimit(int limit) {
            SavingsAccount.limitt = limit;
    }
    public int withdraw(){
            if(limitt<=amount) {
```

```
                System.out.println("You cant withdraw more than 10000 in one time");


            }
            else {
                super.withdraw();



            }
            return Balance;

        }

    }
    public class Problem1Bank {
        public static void main(String args[]) {
            SavingsAccount b=new SavingsAccount();
            b.deposit();
            b.withdraw();
            b.resourceClose();



        }


        }
```

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.

```
package questionsecond;

import java.util.Scanner;

class Vehicle{
    String make;
    int year;

    Scanner sc=new Scanner(System.in);
```

```
    public Vehicle() {
        System.out.println("Enter the Manufacturing Company of Vehicle: ");
        make=sc.nextLine();
        System.out.println("Enter the Manufacturing Year of Vehicle: ");
        year=sc.nextInt();
    }
    void PrintRecord() {
        System.out.println("Manufacturing Company of Vehicle: "+make);
        System.out.println("Manufacturing Year of Vehicle:"+year);
    }
    void closeResource(){
        sc.close();
    }
}
class Car extends Vehicle{
    String model;
    Car(){
        super();
        sc.nextLine();
        System.out.println("Enter the Model of Car: ");
        model=sc.nextLine();

    }
    void PrintRecord(){
        super.PrintRecord();
        System.out.println("Model of Vehicle:"+model);

    }
}
public class Provblem2Vehicle {
    public static void main(String args[]) {
        Car c=new Car();
        c.PrintRecord();
        c.closeResource();
    }

}
```

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 questionThird;

import java.util.Scanner;

//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.
```

```
class Animal{
	String name;
	Scanner c=new Scanner(System.in);
	Animal() {
		System.out.println("Enter the name of animal:");
		name=c.nextLine();
	}

	public String getName() {
		return name;
	}

	public void setName(String name) {
		this.name = name;
	}

	void eat() {
		System.out.println(name+" eats food");
	}
	void sleep() {
		System.out.println(name+" sleeps at night");
	}

}
class dog extends Animal{
	void bark() {
		System.out.println(name+" barks");
	}
}
public class ProblemAnimal {

public static void main(String[] args) {

		dog a=new dog();
		a.sleep();
		a.eat();
		a.bark();
	}
	public static void main1(String[] args) {

		Animal a=new Animal();
		a.sleep();
		a.eat();
	}

}
```

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

```
package questionfourth;

import java.util.Scanner;

class Student{
	String Name;
	int age;
	String standard;
	long id;
	String Division;
	Scanner sc=new Scanner(System.in);
	public Student() {
		System.out.println("Enter the name of Studet:");
		Name=sc.nextLine();
		System.out.println("Enter the Age of Studet:");
		age=sc.nextInt();
		System.out.println("Enter the unique ID number of Studet:");
		id=sc.nextLong();
		sc.nextLine();
		System.out.println("Enter the Standard of Studet:");
		Division=sc.nextLine();
	}
	public String getName() {
		return Name;
	}
	public void setName(String name) {
		Name = name;
	}
	public int getAge() {
		return age;
	}
	public void setAge(int age) {
		this.age = age;
	}
	public String getStandard() {
		return standard;
	}
	public void setStandard(String standard) {
		this.standard = standard;
	}

	public long getId() {
		return id;
	}
	public void setId(long id) {
		this.id = id;
	}
	public String getDivision() {
```

```
            return Division;
    }
    public void setDivision(String division) {
            Division = division;
    }
    public Scanner getSc() {
            return sc;
    }
    public void setSc(Scanner sc) {
            this.sc = sc;
    }
    void PrintRecord() {
            System.out.println("Enter the name of Studet:"+Name);
            System.out.println("Enter the Age of Studet:"+age);
            System.out.println( "The unique ID number of Studet is :"+Division      );
            Division=sc.nextLine();
    }
}


public class Problem4 {

    public static void main(String[] args) {

            Student c=new Student();
            c.PrintRecord();
    }

}
```

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.

```
package Problem5;

import java.util.Scanner;

abstract class Vehicle{
    String manufacturerName;
    int year;

    Scanner sc=new Scanner(System.in);
    public Vehicle() {
            System.out.println("Enter the Manufacturing Company of Vehicle: ");
            manufacturerName=sc.nextLine();
            System.out.println("Enter the Manufacturing Year of Vehicle: ");
            year=sc.nextInt();
            }
            abstract void startEngine();
```

```
		abstract void stopEngine();

		void ResoursseClose() {
			sc.close();
		}

}
class Car extends Vehicle{
    Car(){
		super();
    }
    void startEngine() {
		System.out.println("For starting the car press clutch and press start engine button");
    }
    void stopEngine() {
		System.out.println("By pressing start engine button again we can stop engine");
    }


}
class MotorCycle extends Vehicle{
    MotorCycle(){
		super();
    }
    void startEngine() {
		System.out.println("For starting the MotorCycle switch on the keys of MotorCycle &
press powerstart  button");
    }
    void stopEngine() {
		System.out.println("By releasing clutch fully MotorCycle will come to off state");
    }


}
public class ProblemVehicle {

    public static void main(String[] args) {
		Car c=new Car();
		c.startEngine();
		c.stopEngine();

		MotorCycle m=new MotorCycle();
		m.startEngine();
		m.stopEngine();

		m.ResoursseClose();

    }

}
```