Experiment Number : 05 **Date: 05.02.2026**

INHERITANCE

Aim:

To understand and implement inheritance concepts in Java.

PRE LAB EXERCISE

QUESTIONS

✓ What is inheritance?

Ansd: Inheritance is a feature where a child class gets properties and methods of a parent class.

✓ What is code reusability?

Ans: Using existing code again instead of writing new code.

✓ What is the use of extends keyword?

Ans: extends is used to create a child class from a parent class.

IN LAB EXERCISE

Objective:

To implement all types of inheritance.

PROGRAMS:

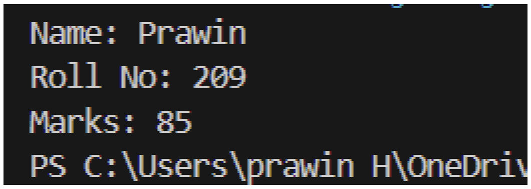
Student Result System (Single Inheritance)

Question:
A school wants to store student details and calculate marks. Create a base class Student and a derived class Result.

Code:

```
class Student {
    String name;
    int rollNo;
    void getDetails() {
        name = "Anitha";
        rollNo = 101;
    }
}

class Result extends Student {
    int marks = 85;

    void display() {
        System.out.println("Name: " + name);
        System.out.println("Roll No: " + rollNo);
        System.out.println("Marks: " + marks);
    }
}

public class Main {
    public static void main(String[] args) {
        Result r = new Result();
        r.getDetails();
        r.display();
    }
}
```

Output:



```
Name: Prawin
Roll No: 209
Marks: 85
PS C:\Users\prawin H\OneDriv
```

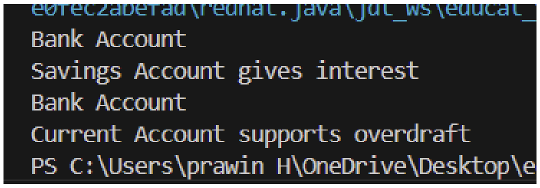
2. Bank Account System (Hierarchical Inheritance)

Question:
A bank has Savings and Current accounts. Both inherit from a common Account class.

Code:

```
class Account {
    void showAccountType() {
        System.out.println("Bank Account");
    }
}

class SavingsAccount extends Account {
    void interest() {
        System.out.println("Savings Account gives interest");
    }
}

class CurrentAccount extends Account {
    void overdraft() {
        System.out.println("Current Account supports overdraft");
    }
}

public class Main {
    public static void main(String[] args) {
        SavingsAccount s = new SavingsAccount();
        CurrentAccount c = new CurrentAccount();

        s.showAccountType();
        s.interest();
        c.showAccountType();

        c.overdraft();

    }

}
```

Output:



```
e0fec2abefad\redhat.java\jdt_ws\educat_
Bank Account
Savings Account gives interest
Bank Account
Current Account supports overdraft
PS C:\Users\prawin H\OneDrive\Desktop\e
```

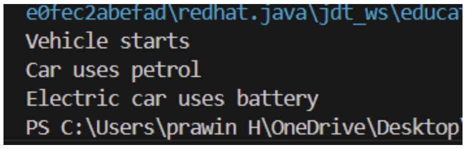
3. Vehicle System (Multilevel Inheritance)

Question:
A company classifies vehicles as Vehicle → Car → ElectricCar.

Code:

```
class Vehicle {

    void start() {

        System.out.println("Vehicle starts");

    }

}


class Car extends Vehicle {

    void fuelType() {

        System.out.println("Car uses petrol");

    }

}


class ElectricCar extends Car {

    void battery() {

        System.out.println("Electric car uses battery");
    }
}

public class Main {
    public static void main(String[] args) {
        ElectricCar e = new ElectricCar();
        e.start();
        e.fuelType();
        e.battery();
    }
}
```

Output:



```
e0fec2abefad\redhat.java\jdt_ws\educa
Vehicle starts
Car uses petrol
Electric car uses battery
PS C:\Users\prawin H\OneDrive\Desktop
```

POST LAB EXERCISE

✓ Why Java does not support multiple inheritance using classes and how it is implemented?

Ans: Java does not support multiple inheritance with classes to avoid ambiguity**.**

Instead, Java supports multiple inheritance using interfaces.

✓ What is the role of the super keyword? Give examples.

Ans: super is used to access parent class variables, methods, and constructor.

Example: super.display();,super.a();

✓ Can a child class access private members of the parent class? Why?

Ans: No.Because private members are only accessible inside the same class.

✓ Explain why hybrid inheritance is not supported in Java.

Ans: Hybrid inheritance can cause method ambiguity.To avoid confusion and errors, Java does not support it with classes.

Result:

Thus the different types of inheritance were implemented and executed successfully.

ASSESSMENT

Description	Max Marks	Marks Awarded
Pre Lab Exercise	**5**	
In Lab Exercise	**10**	
Post Lab Exercise	**5**	
Viva	**10**	
Total	**30**	
Faculty Signature		