Name : Raghav Maheshwari
Roll No: 53
Date of Submission: 04/04/22
Panel: A
Batch: A4

Lab Assignment - 3 (JP)

PROBLEM STATEMENT:
Write a java program to demonstrate inheritance in java.

OBJECTIVES:
→ To study inheritance in java.
→ To study types of inheritance and use.

THEORY

Q1 What is inheritance in Java?

Ans Inheritance is a mechanism by which one class is allowed to inherit features (fields and methods) of another class.

Q2 Why to use inheritance.

Ans Most important use of inheritance in Java is code reusability. The code that is present in parent class can be directly used by child class.

→ By using inheritance, redundancy of code is reduced so that we get consistent results in less execution time and storage cost.

★ Types of inheritance.

1) Single: subclass inherit features of one superclass.

2) Multilevel: a derived class inherits a base class and also acts as a base class to another class.

3) Hierarchial: One class serves as a superclass for more than one subclass.

4) Multiple: One class can have more than one superclass and inherit features from all parent classes.
→ Java does not support multiple inheritance with classes, it can be achieved using interfaces.

→ Hybrid:
mix of two or more of above types.
→ achieved using interfaces.

CONCLUSION:
Thus, we have successfully implemented usage of inheritance in Java.

DATE : / /

FAQ

Q1 Is multiple inheritance supported in Java? How is it achieved?

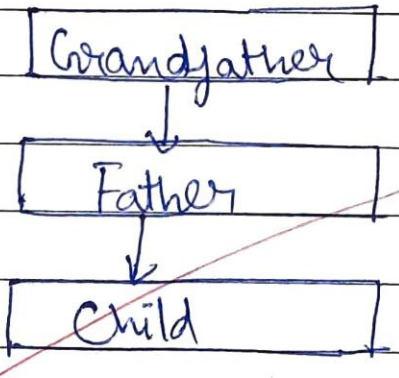
Ans → Java does not support multiple inheritance with classes.

→ We can achieve multiple inheritance only through interfaces.

Q2 What is Is-A relationship in Java?

Ans Is-A relationship in Java represents inheritance. It is implemented in Java through keywords 'extends' (for class inheritance) and 'implements' (for interface implementation.

Eg



Q3 Are Constructor and instance initialization block inherited to Subclass?

Ans Constructors are not members, so they are not inherited by subclasses, but constructor of superclass can be invoked from subclass.

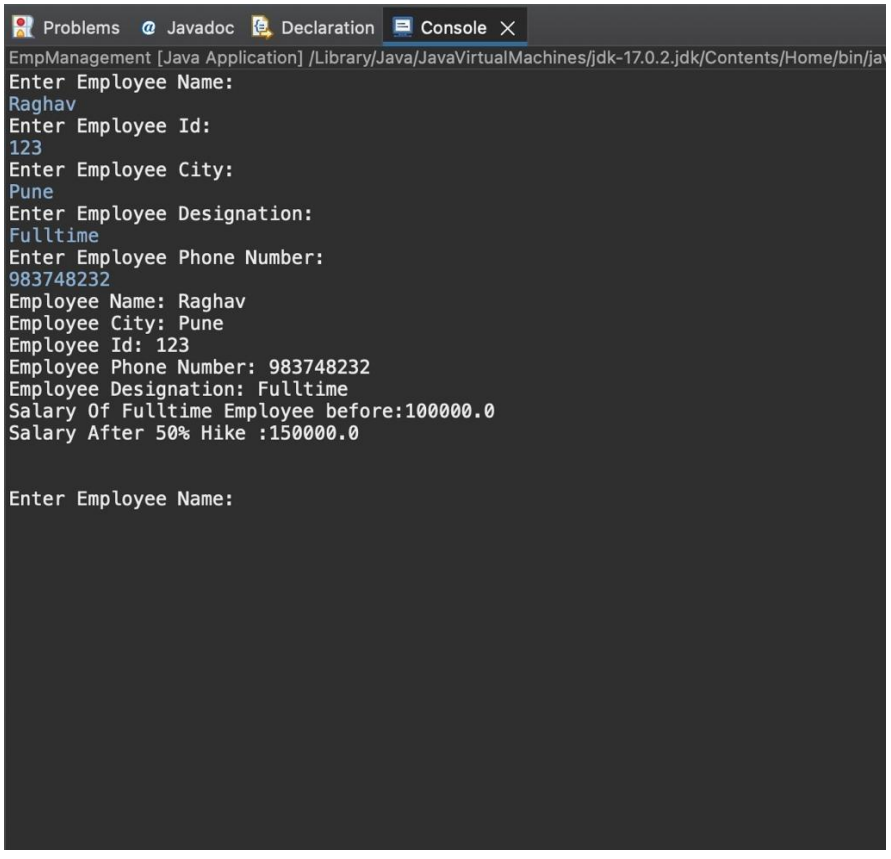
CODE:

Helloworld.java | LabAssign2.java | EmpManagement.java

```java
/*Write a Java Program for demonstrating Inheritance in Java
 * Write a program in Java showing hierarchical inheritance with base
class as Employee and derived classes as FullTimeEmployee and
InternEmployee with methods DisplaySalary in base class and
CalculateSalary in derived classes.
Calculate salary method will calculate as per increment given to
fulltime and intern Employees. Fulltime employee- 50% hike,
Intern employee-25% hike. Display salary before and after hike.
 * Name Raghav Maheshwari
 * Panel A
 * Roll no 53
 */



import java.util.*;

class Employee
{

public String name;
public String city;
public long no;
public String desig;
public int id;

Scanner sc=new Scanner(System.in);
public double newsal;
void Accept(){
System.out.println("Enter Employee Name:");
name=sc.nextLine();
System.out.println("Enter Employee Id:");
id=sc.nextInt();
System.out.println("Enter Employee City:");
city=sc.next();
System.out.println("Enter Employee Designation:");
desig=sc.next();
System.out.println("Enter Employee Phone Number:");
no=sc.nextLong();


}
void DisplaySalary(){
System.out.println("Employee Name: "+ name);
System.out.println("Employee City: "+ city);
System.out.println("Employee Id: "+ id);
System.out.println("Employee Phone Number: "+ no);
System.out.println("Employee Designation: "+ desig);

}

}
```

```
53
54  class FulltimeEmployee extends Employee {
55  void CalculateSalary(){
56  float s=100000;
57  System.out.println("Salary Of Fulltime Employee before:"+ s);
58  newsal=s+s*(0.5);
59  System.out.println("Salary After 50% Hike :"+ newsal);
60  }
61  }
62  class InternEmployee extends Employee {
63  void CalculateSalary(){
64  float s1=80000;
65  System.out.println("Salary Of Intern Employee before:"+ s1);
66  newsal=s1+s1*(0.25);
67  System.out.println("Salary After 25% Hike :"+ newsal);
68  }
69  }
70  public class EmpManagement {
71
72  public static void main(String[] args) {
73
74  FulltimeEmployee fe =new FulltimeEmployee();
75  fe.Accept();
76  fe.DisplaySalary();
77  fe.CalculateSalary();
78
79  System.out.println("\n");
80  InternEmployee ie =new InternEmployee();
81  ie.Accept();
82  ie.DisplaySalary();
83  ie.CalculateSalary();
84
85  }
86
87  }
```

OUTPUT:


Problems
Javadoc
Declaration
Console
EmpManagement [Java Application] /Library/Java/JavaVirtualMachines/jdk-17.0.2.jdk/Contents/Home/bin/jav
Enter Employee Name:
Raghav
Enter Employee Id:
123
Enter Employee City:
Pune
Enter Employee Designation:
Fulltime
Enter Employee Phone Number:
983748232
Employee Name: Raghav
Employee City: Pune
Employee Id: 123
Employee Phone Number: 983748232
Employee Designation: Fulltime
Salary Of Fulltime Employee before:100000.0
Salary After 50% Hike :150000.0
Enter Employee Name: