

Roll No.
Name of the Student:
Batch:
Date of Submission:

ASSIGNMENT NO: 2

Aim:

Implementation of inheritance using C++ and JAVA (use concept of interfaces).

Problem Statement 1:

Design and develop inheritance for a given case study, identify objects and relationships and implement inheritance wherever applicable using C++.

Employee class has Emp_name, Emp_id, Address, Mail_id, and Mobile_no as data members.

Inherit the classes:

- ✓ Programmer
- ✓ Team Lead
- ✓ Assistant Project Manager and
- ✓ Project Manager from employee class.

Add Basic Pay as the member of all the inherited classes with 97% of Basic Pay as DA, 10 % of Basic Pay as HRA, 12% of Basic Pay as PF, 0.1% of Basic Pay for staff club fund.

Generate pay slips for the employees with their gross and net salary.

Problem Statement 2:

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.

Problem Statement 3:

Write a java program to create two interfaces Motorbike and Cycle.

- ✓ Motorbike interface consists of the attribute speed.
- ✓ The method is totalDistance().
- ✓ Cycle interface consists of the attributes distance and the method speed().
- ✓ These interfaces are implemented by the class TwoWheeler.
- ✓ Calculate total distance travelled and Average Speed maintained by Two Wheeler.

Objectives:

1. To understand the inheritance or is-A relationship concept
2. To understand code-reusability
3. To learn implementation of interfaces in java

Theory:

Explain following concepts with their syntax and appropriate example in C++ and Java

- Concept of Inheritance and its types
- Base class and derived class constructor – syntax with example

Platform:

- Windows / 64-bit Open source Linux or its derivatives.
- Eclipse IDE with C++ and Java Programming tool like Eclipse / Netbeans.

Input:

Students should write input provided

Output:

Students should write output obtained

Conclusion:

Thus, learned to use reusability by applying concept of inheritance, interfaces and implemented solution of the given problem statement using C++ and Java.

FAQs:

- 1) Discuss ambiguity arises in multipath inheritance and how it is to be avoided in C++?
- 2) What's the difference between public, private, and protected?
- 3) Why can't derived class access private things from base class?
- 4) Explain use of '**super**' keyword with suitable example
- 5) Why to use concept of interface in Java
- 6) Write couple of examples/applications suitable to demonstrate use inheritance.

***Attach copy of Implemented C++ and Java Code with snap of output**