ASSIGNMENT NO: 02a

Problem Statement:

Develop an object oriented program in C++ to create an abstract base class Employee and derived classes SalariedEmployee, HourlyEmployee and CommisionEmployee.

The class Employee has data members: string Ename, int EmpID and has a default constructor and parameterized constructor. It has two virtual functions accept() to receive data member values from the user and display() to output data member values; and a pure virtual function earnings().

The class SalariedEmployee has a data member: double weeklysalary and has a default constructor and parameterized constructor. The function earnings() displays weekly salary.

The class HourlyEmployee has data members: double wage, double hours and double Hourlysalary; and has a default constructor and parameterized constructor. The function earnings() is defined as

 if(hours<40) {   Hourlysalary= hours*wage; }

 else   {   Hourlysalary=40*wage + ((hours-40)*wage)*1.5; }

The class CommisionEmployee has data members: double grossSales, double commissionRate, double Commisionsalary; and has a default constructor and parameterized constructor. The function earnings() is defined as Commisionsalary = grossSales * commissionRate;

Create objects of derived classes and display their earnings.

Objectives:

1. To learn concepts of inheritance in C++
2. To learn about virtual function and abstract class in C++

Theory:

Explain

- o **Inheritance**

- o **Virtual functions**

- o **Abstract classes**

Algorithm / Implementation:
1. START.
2. Create an abstract base class Employee.
3. The class Employee has data members: string Ename, int EmpID and has a default constructor and parameterized constructor. It has two virtual functions accept() to receive data member values from the user and display() to output data member values; and a pure virtual function earnings().
4. Create derived classes SalariedEmployee, HourlyEmployee and CommisionEmployee.
5. The class SalariedEmployee has a data member: double weeklysalary and has a default constructor and parameterized constructor. The function earnings() displays weekly salary.
6. The class HourlyEmployee has data members: double wage, double hours and double Hourlysalary; and has a default constructor and parameterized constructor. The function earnings() is defined as

if(hours<40) {   Hourlysalary= hours*wage; }

else   {   Hourlysalary=40*wage + ((hours-40)*wage)*1.5; }

7. The   class CommisionEmployee has data members: double grossSales, double commissionRate, double Commisionsalary; and has a default constructor and parameterized constructor. The function earnings() is defined as Commisionsalary = grossSales * commissionRate;

8. Create objects of derived classes and display their earnings.
9. STOP

Platform: 64 –bit Open source Linux
Input: Accept data member values for derived functions

Output: Earning details of employee

Conclusion: Hence, understood about inheritance and abstract classes in C++ successfully.

FAQs:

1) Explain types of inheritance.
2) What is the significance of different access specifiers used for inheritance in C++?
3) What are the benefits of inheritance?