VIT - Vellore

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BCSE102P_Structured and Object Oriented Programming Lab_VL2024250502365

VIT V_Structured and OOP_Lab 6_COD_Medium_Multipath Inheritance

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Create a program for an online store that sells electronics and clothing. Calculate the total cost of an order, applying discounts for bulk purchases.

class Product:

Attributes: string name, double price, int quantityMethod: double calculateCost() - Returns total cost (price * quantity)

class Electronics (Derived from class Product):

Method: double calculateEleccost() - Calculates electronics cost with a 10% discount for 3 or more items.

class Clothing (Derived from class Product):

Method: double calculateClothCost() - Calculates clothing cost with a 5% discount for 5 or more items.

class OrderCalculator (Derived from Electronics and Clothing classes):

Method: double calculateTotalCost() - Calculates total order cost.

Refer to the below class diagram:

Implement the program to take user input and display the total order cost using hybrid inheritance.

Answer

```
// You are using GCC
#include <iostream>
#include <iomanip>
using namespace std;

class Product {
protected:
    string name;
    double price;
    int quantity;

public:
    Product(string n, double p, int q) : name(n), price(p), quantity(q) {}
    double calculateCost() {
        return price * quantity;
    }
};

class Electronics : public Product {
public:
    Electronics(string n, double p, int q) : Product(n, p, q) {}
    double calculateElecCost() {
        double total = calculateCost();
        if (quantity >= 3) {
            total *= 0.90;
        }
        return total;
    }
};
```

```
class Clothing : public Product {
public:
    Clothing(string n, double p, int q) : Product(n, p, q) {}
    double calculateClothCost() {
        double total = calculateCost();
        if (quantity >= 5) {
            total *= 0.95;
        }
        return total;
    }
};

class OrderCalculator : public Electronics, public Clothing {
public:
    OrderCalculator(string elecName, double elecPrice, int elecQty, string
clothName, double clothPrice, int clothQty)
        : Electronics(elecName, elecPrice, elecQty), Clothing(clothName, clothPrice,
clothQty) {}

    double calculateTotalCost() {
        return calculateElecCost() + calculateClothCost();
    }
};

int main() {
    string elecName, clothName;
    double elecPrice, clothPrice;
    int elecQty, clothQty;

    cin >> elecName >> elecPrice >> elecQty;
    cin >> clothName >> clothPrice >> clothQty;

    OrderCalculator order(elecName, elecPrice, elecQty, clothName, clothPrice,
clothQty);

    cout << fixed << setprecision(2) << "Total Order Cost: Rs. " <<
order.calculateTotalCost() << endl;
    return 0;
}
```

Status : Correct **Marks : 10/10**