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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 6_Q5

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem statement:

Tim was tasked with developing a grocery shopping app. You have a class hierarchy that includes Item, Produce, and OrganicProduce. Your goal is to calculate the total cost of a shopping list, which may contain a mix of regular produce and organic produce items. Additionally, you need to apply discounts to organic items. Apply a 10% discount on organic produce items

Class Hierarchy:

Item: Base class for all items.

Produce: Subclass of Item for regular produce items.

OrganicProduce: Subclass of Produce for organic produce items.

Input Format

The first line of input consists of an integer, 'n'.

For each 'n' item, the user will provide:

- A string 'type' representing the item type ('Regular' or 'Organic').
- A string 'name' represents the item name.
- A double 'price' represents the item price.

Output Format

The output will display the total cost of the shopping list, including discounts on organic items.

Refer to the sample output for format specifications.

Sample Test Case

Input: 1
Regular Banana 1.99

Output: 1.99

Answer

```
import java.util.Scanner;

// You are using Java
class Item {
    protected String name;
    protected double price;

    public Item(String name, double price) {
        this.name = name;
        this.price = price;
    }

    public double calculateCost() {
        return price;
    }
}
```

```
class Produce extends Item {
    public Produce(String name, double price) {
        super(name, price);
    }

    @Override
    public double calculateCost() {
        return price; // regular produce has no discount
    }
}

class OrganicProduce extends Produce {
    public OrganicProduce(String name, double price) {
        super(name, price);
    }

    @Override
    public double calculateCost() {
        return price * 0.9; // apply 10% discount
    }
}

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        int n = sc.nextInt();
        sc.nextLine(); // Consume newline

        double totalCost = 0.0;

        for (int i = 0; i < n; i++) {
            String type = sc.next();
            String name = sc.next();
            double price = sc.nextDouble();

            if (type.equals("Regular")) {
                Item item = new Produce(name, price);
                totalCost += item.calculateCost();
            } else if (type.equals("Organic")) {
                Item item = new OrganicProduce(name, price);
                totalCost += item.calculateCost();
            }
```

```
        }

        System.out.printf("%.2f%n", totalCost);
    }
}
```

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