

Rajalakshmi Engineering College

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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;  
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;  
    }  
}
```

```
240701362 class Produce extends Item {  
240701362     public Produce(String name, double price) {  
240701362         super(name, price);  
240701362     }  
240701362 }
```

```
240701362     public double calculateCost() {  
240701362         return price;  
240701362     }  
240701362 }
```

```
240701362 class OrganicProduce extends Produce {  
240701362     public OrganicProduce(String name, double price) {  
240701362         super(name, price);  
240701362     }  
240701362 }
```

```
240701362     public double calculateCost() {  
240701362         return price * 0.9;  
240701362     }  
240701362 }
```

```
240701362 public class Main {  
240701362     public static void main(String[] args) {  
240701362         Scanner sc = new Scanner(System.in);
```

```
240701362         int n = sc.nextInt();  
240701362         sc.nextLine(); // Consume newline
```

```
240701362         double totalCost = 0.0;
```

```
240701362         for (int i = 0; i < n; i++) {  
240701362             String type = sc.next();  
240701362             String name = sc.next();  
240701362             double price = sc.nextDouble();
```

```
240701362             if (type.equals("Regular")) {  
240701362                 Item item = new Produce(name, price);  
240701362                 totalCost += item.calculateCost();  
240701362             } else if (type.equals("Organic")) {  
240701362                 Item item = new OrganicProduce(name, price);  
240701362                 totalCost += item.calculateCost();  
240701362 }
```

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

Status : Correct

Marks : 10/10