Rajalakshmi Engineering College

Name: shobbika T
Email: 240701502@rajalakshmi.edu.in
Roll no: 240701502
Phone: 7305423247
Branch: REC
Department: CSE - Section 10
Batch: 2028
Degree: B.E - CSE

2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 5_Q3

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Neha is working as a developer for CityElectricity Board, which wants to build a household electricity billing system.

Each customer's electricity account has:

A Customer ID (integer)A Customer Name (string)Units Consumed (double)

The electricity bill is calculated based on these rules:

For the first 100 units   5 units charge per unitFor the next 100 units (101–200)   7 units charge per unitFor units above 200   10 units charge per unitIf the total bill exceeds 2000 units, a 5% discount is applied on the final bill.

Neha has been asked to implement this system using:

A class with attributes for customer details.A constructor to initialize customer details.Setter methods to update details if needed.Getter methods to retrieve details.Objects of the class to represent customers.

Finally, display each customer's details and final bill amount.

Input Format

The first line of input contains an integer N, representing the number of customers.

For each customer:

- The next line contains the Customer ID (integer).
- The following line contains the Customer Name (string).
- The next line contains the Units Consumed (double).

Output Format

For each customer, print the details in the following format:

Customer ID: <customer_id>

Customer Name: <customer_name>

Final Bill: <final_bill> (rounded to one decimal place)

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 1
1001
Ravi Kumar
80
Output: Customer ID: 1001
Customer Name: Ravi Kumar
Final Bill: 400.0

Answer

// You are using Java

```java
import java.util.*;

class ElectricityCustomer {
    private int customerID;
    private String customerName;
    private double unitsConsumed;

    // Constructor
    public ElectricityCustomer(int customerID, String customerName, double
unitsConsumed) {
        this.customerID = customerID;
        this.customerName = customerName;
        this.unitsConsumed = unitsConsumed;
    }

    // Method to calculate final bill
    public double calculateBill() {
        double bill = 0.0;
        double units = unitsConsumed;

        if (units <= 100) {
            bill = units * 5;
        } else if (units <= 200) {
            bill = 100 * 5 + (units - 100) * 7;
        } else {
            bill = 100 * 5 + 100 * 7 + (units - 200) * 10;
        }

        // Apply 5% discount if bill exceeds 2000
        if (bill > 2000) {
            bill = bill * 0.95;
        }

        return bill;
    }

    // Getter methods
    public int getCustomerID() {
        return customerID;
    }

    public String getCustomerName() {
```

```java
        return customerName;
    }
}

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

        for (int i = 0; i < N; i++) {
            int id = Integer.parseInt(sc.nextLine());
            String name = sc.nextLine();
            double units = Double.parseDouble(sc.nextLine());

            ElectricityCustomer customer = new ElectricityCustomer(id, name, units);
            double finalBill = customer.calculateBill();

            System.out.println("Customer ID: " + customer.getCustomerID());
            System.out.println("Customer Name: " + customer.getCustomerName());
            System.out.println("Final Bill: " + String.format("%.1f", finalBill));
        }
    }
}
```

Status : Correct   *Marks : 10/10*