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/*-------------------------------------------------------------------------
problem statement: Solving the given UML diagram and implementing it.

Termwork-2

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Theory:

-> toString: It is a method present in object class. Every class is
initially
extended from the object class, hence we can override the toString
method.
it is used to convert any input to string.

-> 'This': It is used to refer to the current object in a method.
It will differentiate between parameters and variables of present class.
-------------------------------------------------------------------------*/
import java.util.*;
class Customer {

    private String name;
    private boolean member;
    private int memberType;
    private int Id;

    public Customer() {
        this.member = false;
    }

    public Customer(int Id,String name, boolean member, int memberType) {
        this.Id = Id;
        this.name = name;
        this.member = member;
        this.memberType = memberType;
    }

    public String getName() {
        return name;
    }

    public boolean isMember() {
        return member;
    }

    public int getMemberType() {
        return memberType;
    }

    public void setMemberType(int memberType) {
        this.memberType = memberType;
    }

    public int getCustomerId(){
        return Id;
    }
```

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    public String printMemberType(int type){
        if(type==1)
            return "Premium";
        else if(type==2)
            return "Gold";
        else if(type==3)
            return "Silver";
        else{
            return "No Membership";
        }

    }
}

class Visit extends Customer {

    private Customer name;
    private Date date;
    private double serviceExpense;
    private double productExpense;

    public Visit(Customer name, Date date) {
        this.name = name;
        this.date = date;
    }

    public double getServiceExpense() {
        return serviceExpense;
    }

    public void setServiceExpense(double serviceExpense) {
        this.serviceExpense = this.serviceExpense + serviceExpense;
    }

    public double getProductExpense() {
        return productExpense;
    }

    public void setProductExpense(double productExpense) {
        this.productExpense = this.productExpense + productExpense;
    }

    public double getTotalExpense() {
        return  (serviceExpense - (serviceExpense *
Discount.getServiceDiscount(name.getMemberType()))) +
                (productExpense - (productExpense *
Discount.getProductDiscount(name.getMemberType())));

    }



    public String toString() {
        return "\n  customer name: " + name.getName() +"\n  customer
member: " + name.isMember() +
                "\n  customer member type: " +
name.printMemberType(name.getMemberType()) +"\n  date: " + date +
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                "\n  serviceExpense: " + serviceExpense +"\n
productExpense: " + productExpense;
    }
}

class Discount {

    public static double getServiceDiscount(int type) {
        if(type==1)
            return 0.2;         //service discount premium;
        else if(type==2)
            return 0.15;        //service discount gold;
        else if(type==3)
            return 0.1;         //service discount silver;
        else{
            return 0;
        }
    }

    public static double getProductDiscount(int type) {
        if(type==1)
                return 0.1;     //product discount;
        else if(type==2)
                return 0.1;     //product discount;
        else if(type==3)
                return 0.1;     //product discount;
        else{
            return 0;
        }

    }
}
public class termwork_2{
    private static int i=0;
    //variables to hold customer details
    private static int customerId;
    private static String customerName;
    private static boolean ismember;
    private static int membertype;
    private static Customer customerPool[] = new Customer[100];
    static int customerIndex = -1;
    static boolean customerFound = false;
    public static void main(String[] args){
        int menuChoice=0;
        Scanner in = new Scanner(System.in);
        while(menuChoice!=3){
            try{
               System.out.printf("\n\n");
               System.out.println("  MENU    ");
               System.out.println("  --------------------    ");
               System.out.println("  1 to Create Customer");
               System.out.println("  2 to Customer visit");
               System.out.println("  3 to Exit");
               System.out.print("  Enter an your option : ");
               menuChoice = in.nextInt ();
               switch (menuChoice)
                   {
                       case 1 : {
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                            createCustomer();
                            break;
                        }
                        case 2 : {
                            customerVisit();
                            break;
                        }
                    }
                }
                finally{}
        }
    }

    private static void createCustomer(){
        Scanner in1 = new Scanner(System.in);
        System.out.print("\n  Enter customer Id: ");
        customerId = in1.nextInt();
        if(isCustomer(customerId) == true){
            System.out.println("  Customer Id already exist");
        }
        else {
            in1.nextLine();

            System.out.print("  Enter Customer name: ");
            customerName = in1.nextLine();
            System.out.print("  is the customer a member: ");
            ismember = in1.nextBoolean();
            if(ismember){
                System.out.println("\n  1: Premium\n  2: Gold\n  3:
Silver\n  4: No membership\n");
                System.out.print("  Enter the membership type: ");
                membertype = in1.nextInt();
            }
            else{
                membertype = 4;
            }
            customerPool[i] = new
Customer(customerId,customerName,ismember,membertype);
            System.out.println("  the customer created is: " +
customerPool[i].toString());
            i++;
        }

    }

    private static void customerVisit(){
        Scanner in2 = new Scanner(System.in);
        System.out.print("\n  Enter customer Id: ");
        customerId = in2.nextInt();
        if(isCustomer(customerId) == true){
            computeBill(customerPool[customerIndex]);
        }
        else{
            System.out.println("  Customer not Found");
        }
    }

    private static void computeBill(Customer c){
```

```
        double product,service;
        Visit v1 = new Visit(c, new Date());
        Scanner in3 = new Scanner(System.in);
        System.out.print("  Enter the service expense: ");
        service = in3.nextDouble();
        v1.setServiceExpense(service);
        System.out.print("  Enter the product expense: ");
        product = in3.nextDouble();
        v1.setProductExpense(product);
        System.out.println("\n  The details of the customer are: ");
        System.out.println(v1.toString());
        System.out.println("  Total expense made by " + c.getName() + " =
" + v1.getTotalExpense());
    }

    private static boolean isCustomer(int customerId){
        int j=0;
        customerFound=false;
        while((customerFound == false)&&(j<i)){
            if(customerId == customerPool[j].getCustomerId()){
                customerFound = true;
                customerIndex = j;
            }
            j++;
        }
        return customerFound;
    }
}
/* sample input and output:

  MENU
  --------------------
  1 to Create Customer
  2 to Customer visit
  3 to Exit
  Enter an your option : 1

  Enter customer Id: 15
  Enter Customer name: chris
  is the customer a member: true

  1: Premium
  2: Gold
  3: Silver
  4: No membership

  Enter the membership type: 1
  the customer created is: Customer@16b98e56


  MENU
  --------------------
  1 to Create Customer
  2 to Customer visit
  3 to Exit
  Enter an your option : 2

  Enter customer Id: 15
```

```
  Enter the product expense: 6000
  Enter the service expense: 8000

  The details of the customer are:

  customer name: chris
  customer member: true
  customer member type: Premium
  date: Sun May 01 19:30:55 IST 2022
  serviceExpense: 8000.0
  productExpense: 6000.0
  Total expense made by chris = 11800.0
*/
```