Programming Test Results (With Test Cases)

Result Summary

Field	Value
Test ID	41194
Student ID	29195
Programs (with test cases)	1
Total Test Cases	4
Test Cases Passed	4
Fully Passed Programs	1
Partially Passed Programs	0
Failed Programs	0
Overall % (with test cases)	100.00%
Grade	Outstanding

Programs With Test Cases

#	Program Name	Total TC	Passed	Success Rate	Score /10	Submitted At	Attempts
1	ShoppingMall	4	4	100.0%	10	04/12/2025, 11:32:26	0

Program Details (With Test Cases)

Program 1: ShoppingMall

Languages: java

Score (010):	10 / 10		
Test Case Summary:	Total: 4	Passed: 4	
	Failed: 0	Success: 100.0%	
Attempts:	0		
Submitted At:	04/12/2025, 11:32:26		

Description:

Create a Shopping Mall Application project by using Method Overriding Concept to display

and accept different kinds of discount given to their customers like PrimeCustomer and

VIPCustomer (No discount for General Customer)

Summary :

[Super class : Customer
Subclasses (GeneralCustomer, PrimeCustomer, VIPCustomer)
override the calculateBill method to implement different discount rules.]

Coding Requirements :

Create a BLC class Customer
Fields :
name String Protected

Use a parameterized constructor to initialize the fields, In this constructor provide error message, if name is null or empty (see test cases for more details)

Methods :

1) Method Name   : calculateBill()
   Argument   : One argument of type double var args [double... prices]
   Return Type   : void
   Access modifier   : public
   In this method using var args receive item price, Give an error message and exit, if
   Item price is negative, Calculate the total bill by adding all the item price, print
   all the details of customer like name, total cost, Discount inside this method only.

Create another BLC class GeneralCustomer which is the sub class of Customer

Fields : No fields

Take a parameterized constructor to initialize super class properties.

Method :

1) Method Name   : calculateBill()
   Argument   : One argument of type double var args [double... prices]
   Return Type   : void
   Access modifier   : public
   Override this method from super class, For general customer discount is not
available
   hence call super class method to display customer bill and information without
   discount.

Create another BLC class PrimeCustomer which is the sub class of Customer

Fields :
protected double discountRate = 10.0;

Take a parameterized constructor to initialize super class properties.

1) Method Name   : calculateBill()
   Argument   : One argument of type double var args [double... prices]
   Return Type   : void
   Access modifier   : public
   Override this method from super class, For Prime customer with 10% discount
   in the final bill amount, calculate the total bill and display Prime Customer
   information [See Test cases for more details]

Create another BLC class VIPCustomer which is the sub class of Customer

Fields :
protected double discountRate = 15.0;

Take a parameterized constructor to initialize super class properties.

1) Method Name   : calculateBill()
   Argument   : One argument of type double var args [double... prices]
   Return Type   : void
   Access modifier   : public
   Override this method from super class, For VIP customer with 20% discount
   in the final bill amount, calculate the total bill and display VIP Customer
   information [See Test cases for more details]

Create an ELC class ShoppingMall with main method to test this application.

Method :
 1) Method Name   : generateBill()
    Argument   : Two arguments [Customer cust, double... prices]
    Return Type   : void
    Access modifier : public and static

    This method will receive Customer object and item price using var args and call
    appropriate object overridden method of sub classes to generate the bill.

    For Item price, Take an array variable to store multiple item prices.

Write Switch case with Scanner class in the main method
to Test the application as shown in the below Test Cases.

Test Cases for Output :

Test Case 1 :

Please select the Customer Type to get additional Discount :
     1) General Customer
     2) Prime Customer
     3) VIP Customer

    System.out.println("Please enter Customer type :");
    1
    Please Enter your Name :
    James
    Enter number of Items :
    2
    Please Enter the Item Name and Price :
    1)Item Name :T-Shirt
      Item Price :2300
    2)Item Name :Jeans
      Item Price :4500
    Welcome to Hyderabad Mall :
    Customer: James
    Total cost RS : 6800.0
    Discount: No discount for general customers.

Test Case 2 :

Please select the Customer Type to get additional Discount :

   1) General Customer

   2) Prime Customer

   3) VIP Customer

   System.out.println("Please enter Customer type :");

   2

   Please Enter your Name :

   Mr Scott

   Enter number of Items :

   3

   Please Enter the Item Name and Price :

   1)Item Name :Mobile

    Item Price :12890

   2)Item Name :Laptop

    Item Price :86000

   3)Item Name :Watch

    Item Price :2300

   Welcome to Hyderabad Mall :

   Customer: Mr Scott

   Total cost RS :101190.0

   Discount RS :10119.0

   Final amount RS :91071.0

Test Case 3 :

Please select the Customer Type to get additional Discount :

   1) General Customer

   2) Prime Customer

   3) VIP Customer

   Please enter Customer type :

   3

   Please Enter your Name :

   Mr Alen

   Enter number of Items :

   3

   Please Enter the Item Name and Price :

   1)Item Name :Washing Machine

    Item Price :34000

   2)Item Name :Smart TV

Item Price :90000
            3)Item Name :Laptop
                Item Price :95000
            Welcome to Hyderabad Mall :
            Customer: Mr Alen
            Total cost RS :219000.0
            Discount RS :32850.0
            Final amount RS :186150.0

Test Cases for Input Validation :

Test Case 1:

Please select the Customer Type to get additional Discount :
        1) General Customer
        2) Prime Customer
        3) VIP Customer
Please enter Customer type :
1
Please Enter your Name :

Customer name cannot be empty.

Test Case 2:

Please select the Customer Type to get additional Discount :
        1) General Customer
        2) Prime Customer
        3) VIP Customer
Please enter Customer type :
2
Please Enter your Name :
Mr Scott
Enter number of Items :
1
Please Enter the Item Name and Price :
1)Item Name :Laptop
  Item Price :-90000
Welcome to Hyderabad Mall :
Item price cannot be negative.

Constraints: -

Sample Input: 1 James 2 T-Shirt 2300 Jeans 4500

Sample Output: Welcome to Hyderabad Mall : Customer: James Total cost RS : 6800.0 Discount: No discount for general customers.

Explanation: -

Solution Code

```java
import java.util.*;
class ShoppingMall{
    public static void main(String [] args){
        Scanner sc  =new Scanner(System.in);
int choice = Integer.parseInt(IO.readln());

String name = IO.readln();



 switch(choice){
    case 1->{
        int size = Integer.parseInt(IO.readln());
        String itemName[] = new String[size];
        double itemPrice[] = new double[size];

        for(int i =0;i<size;i++){
            itemName[i]=IO.readln();
            itemPrice[i]=Double.parseDouble(IO.readln());
            }
            Customer general = new GeneralCustomer(name);
            generateBill(general,itemPrice);
    }
    case 2->{
      int size = Integer.parseInt(IO.readln());
      String itemName[] = new String[size];
      double itemPrice[] = new double[size];

      for(int i=0;i<size;i++){
        itemName[i]=IO.readln();
        itemPrice[i]=Double.parseDouble(IO.readln());
            if(itemPrice[i]<=0){
              IO.println("Item price cannot be negative.");
              System.exit(0);
            }
```

```java
        }
        Customer cust = new VipCustomer(name);
        generateBill(cust,itemPrice);


    }
    case 3->{
        int size = Integer.parseInt(IO.readln());
        String itemName[] = new String[size];
        double itemPrice[] = new double[size];

        for(int i =0 ;i<size;i++){
            itemName[i]=IO.readln();
            itemPrice[i]=Double.parseDouble(IO.readln());
        }
        Customer cust = new PrimeCustomer(name);
        generateBill(cust,itemPrice);



    }

 }


}
 public static void generateBill(Customer cust,double price[]){

    IO.println("Welcome to Hyderabad Mall :");
    cust.calculateBill(price);

 }
}

class Customer{
protected String name;

Customer(String name){
    this.name=name;
}

public void calculateBill(double...itemPrice){
double totalBill=0;
    for(double total :itemPrice){
```

```java
            totalBill+=total;
        }


        IO.println("Customer: "+this.name);
        IO.println("Total cost RS : "+totalBill);
        IO.println("Discount: No discount for general customers.");
    }
}
class GeneralCustomer extends Customer{
    GeneralCustomer(String name){
        super(name);


    }
    public void calculateBoublill(double...itemPrice){
        double totalBill=0;
        for(double total:itemPrice){
            totalBill+=total;


        }
        IO.println("Customer: "+this.name);
        IO.println("Total cost RS : "+totalBill);
        IO.println("Discount: No discount for general customers.");


    }


}
class PrimeCustomer extends Customer{
    protected double discountRate =10.0;


    PrimeCustomer(String name){
        super(name);


    }
    public void calculateBill(double...itemPrice){
        double discount = 0;
        double totalBill=0;
        for(double total:itemPrice){
            totalBill+=total;
        }
        discount = (totalBill*0.15);
```

```java
        IO.println("Customer: "+this.name);

        IO.println("Total cost RS : "+totalBill);

        totalBill-=discount;

        IO.println("Discount RS : "+discount);

        IO.println("Final amount RS : "+totalBill);


    }
}
class VipCustomer extends Customer{
protected double discountRate=10.0;

  VipCustomer(String name){
    super(name);


  }
  public void calculateBill(double...itemPrice){
     double discount = 0;
     double totalBill = 0;
     for(double total : itemPrice){
        totalBill+=total;
     }
     discount = (totalBill*0.10);


    IO.println("Customer: "+this.name);
    IO.println("Total cost RS : "+totalBill);
    IO.println("Discount RS : "+discount);
    IO.println("Final amount RS : "+(totalBill-=discount));
  }
}
```