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**Assignment No 11**

**Strategy Design Pattern**

**Problem Statement :**

Implement and apply Strategy Design pattern for simple Shopping Cart where three payment strategies are used such as Credit Card, PayPal, BitCoin. Create the interface for strategy pattern and give concrete implementation for payment.

**Source Code:**

PaymentProcessor.java

**package** assignment;

**import** java.util.Scanner;

//======================= INTERFACE PaymentProcessor =======================//

**interface** PaymentProcessor {

**void** pay(**int** amount);//interface method pay

}

CreditCard.java

//======================= CLASS CreditCard =======================//

//implementing PaymentProcessor interface

**package** assignment;

**public class** CreditCard **implements** PaymentProcessor {

Scanner sc =**new** Scanner (System.***in***);//creating object of scanner class

String name,ExpDate;//declaration of name,ExpDate

**double** CardNo;//declaration of CardNo

//Constructor of CreditCard class

**public** CreditCard(){

**super**();//calling parent class constructor

System.***out***.println("----------------------------------------------------------");

System.***out***.print("\tCard holder Name :: ");//printing on console

**this**.name =sc.next();//taking Card holder Name as input from user

System.***out***.print("\tCard Number :: ");//printing on console

**this**.CardNo =sc.nextDouble();//taking Card Number as input from user

System.***out***.print("\tCard Expire Date :: ");//printing on console

**this**.ExpDate =sc.next();//taking Card Expire Date as input from user

System.***out***.println("----------------------------------------------------------");

}

@Override

**public** **void** pay(**int** amount) { //method for payment

System.***out***.println("----------------------------------------------------------");

System.***out***.println("Paying through CreditCard payment: Charging $" + amount);

System.***out***.println("----------------------------------------------------------");

}

}

PayPal.java

//======================= CLASS PayPal =======================//

//implementing PaymentProcessor interface

**package** assignment;

**public class** PayPal **implements** PaymentProcessor {

//Constructor of PayPal class

**public** PayPal(){

**super**();//calling parent class constructor

System.***out***.println("\nChecking Internet Connection........");

}

@Override

**public** **void** pay(**int** amount) { //method for payment

System.***out***.println("----------------------------------------------------------");

System.***out***.println("Paying through PayPal payment: Charging $" + amount);

System.***out***.println("----------------------------------------------------------");

}

}

BitCoin.java

//======================= CLASS BitCoin =======================//

//implementing PaymentProcessor interface

**package** assignment;

**public class** BitCoin **implements** PaymentProcessor {

Scanner sc =**new** Scanner (System.***in***);//creating object of scanner class

String add;//declaration of add

//Constructor of BitCoin class

**public** BitCoin(){

**super**();//calling parent class constructor

System.***out***.print("\nEnter Transaction 'Input Address' :: ");//asking user of address

add= sc.next();//taking 'INPUT ADDRESS' as input from user

}

@Override

**public** **void** pay(**int** amount) { //method for payment

System.***out***.println("----------------------------------------------------------");

System.***out***.println("Paying through BitCoin payment: Charging $" + amount);

System.***out***.println("----------------------------------------------------------");

}

}

Order.java

//======================= CLASS Order =======================//

**package** assignment;

**public class** Order {

**private** **final** PaymentProcessor paymentProcessor;//declaration of paymentProcessor object

**private** **final** **int** amount;//declaration of amount

//Order Method

**public** Order(**int** amount, PaymentProcessor paymentProcessor) {

**this**.amount = amount;//storing value

**this**.paymentProcessor = paymentProcessor;//storing value

}

//process Method

**public** **void** process() {

paymentProcessor.pay(amount);//calling pay method

}

}

StrategyDesign.java

//======================= CLASS StrategyDesign =======================//

**public** **class** StrategyDesign {

//calling static void main method

**public** **static** **void** main(String[] args) {

**int** c,amt=0;//declaration of c, amt

Order order;//reference of order assign to order obj

Scanner sc = **new** Scanner(System.***in***);//creating object of scanner class

**while**(**true**) {//while loop for menu driven

System.***out***.println();

//menu bar

System.***out***.println("\*\*\*\* SHOPING CART \*\*\*\*");

System.***out***.print("1.Credit Card \n2.PayPal \n3.BitCoin \n4.Exit");

System.***out***.print("\n\nEnter the Choice ::"); //asking user for input c=sc.nextInt();//taking input from user

System.***out***.println("----------------------------------------------------------");

**if**(c==1||c==2||c==3) {//check whether 0<c<4

System.***out***.print("\nEnter amount tobe Tranfer :: ");

amt = sc.nextInt();//taking amt as input from user

System.***out***.println("----------------------------------------------------------");

}

//switch case

**switch**(c) {

**case** 1://for input c ==1

order = **new** Order(amt, **new** CreditCard());//creating obj of order class

order.process();//calling process method of order class

**break**;

**case** 2://for input c == 2

order = **new** Order(amt, **new** PayPal());//creating obj of order class

order.process();//calling process method of order class

**break**;

**case** 3://for input c == 3

order = **new** Order(amt, **new** BitCoin());//creating obj of order class

order.process();//calling process method of order class

**break**;

**case** 4:

System.***out***.println("\nThank you For Shopping !!!! ");

//printing on console

System.***out***.println("----------------------------------------------------------");

**return**;//stop execution of program

**default**:

System.***out***.println("Invalid Payment Mode !!!");// default

System.***out***.println("----------------------------------------------------------");

}

}

}

}

**Output :**

\*\*\*\* SHOPING CART \*\*\*\*

1.Credit Card

2.PayPal

3.BitCoin

4.Exit

Enter the Choice ::1

----------------------------------------------------------

Enter amount tobe Tranfer :: 200

----------------------------------------------------------

----------------------------------------------------------

Card holder Name :: Vaibhav

Card Number :: 785423695628

Card Expire Date :: 12/24

----------------------------------------------------------

----------------------------------------------------------

Paying through CreditCard payment: Charging $200

----------------------------------------------------------

\*\*\*\* SHOPING CART \*\*\*\*

1.Credit Card

2.PayPal

3.BitCoin

4.Exit

Enter the Choice ::2

----------------------------------------------------------

Enter amount tobe Tranfer :: 5000

----------------------------------------------------------

Checking Internet Connection........

----------------------------------------------------------

Paying through PayPal payment: Charging $5000

----------------------------------------------------------

\*\*\*\* SHOPING CART \*\*\*\*

1.Credit Card

2.PayPal

3.BitCoin

4.Exit

Enter the Choice ::3

----------------------------------------------------------

Enter amount tobe Tranfer :: 10000

----------------------------------------------------------

Enter Transaction 'Input Address' :: 5342.9324.2671.1354

----------------------------------------------------------

Paying through BitCoin payment: Charging $10000

----------------------------------------------------------

\*\*\*\* SHOPING CART \*\*\*\*

1.Credit Card

2.PayPal

3.BitCoin

4.Exit

Enter the Choice ::5

----------------------------------------------------------

Invalid Payment Mode !!!

----------------------------------------------------------

\*\*\*\* SHOPING CART \*\*\*\*

1.Credit Card

2.PayPal

3.BitCoin

4.Exit

Enter the Choice ::4

----------------------------------------------------------

Thank you For Shopping !!!!

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