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Subject: OOP LAB

Practical 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 an interface for strategy pattern and give concrete implementation for payment.

```
*****PROGRAM*****
```

```
* package assignment;
```

```
import java.util.Scanner;
```

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

```
interface PaymentProcessor {
```

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

```
}
```

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

//implementing PaymentProcessor interface

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

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("-----"); }

```

}

//===== CLASS PayPal
=====//
//implementing PaymentProcessor interface
class PayPal implements PaymentProcessor {

    //Constructor of PayPal class
    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("-----")
    ; }

}

//===== CLASS BitCoin
=====//
//implementing PaymentProcessor interface
class BitCoin implements PaymentProcessor {

```

```

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

//Constructor of BitCoin class
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("-----");
}

}

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

```
}
```

```
}
```

```
//===== CLASS Main
```

```
=====// public class Design_Pattern {
```

```
  //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 ::");
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 to be Transfer :: ");
    amt = sc.nextInt();//taking amt as input from user
    System.out.println("-----");
}

//switch case
switch(c) {
case 1://for input c ==1
    obj of order class    order = new Order(amt, new CreditCard());//creating

    order.process();//calling process method of order class
    break;
case 2://for input c == 2
    order class    order = new Order(amt, new PayPal());//creating obj of

    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 to be Tranfer :: 350

Card holder Name :: Vaibhav

Card Number :: 785423695628

Card Expire Date :: 12/24

Paying through CreditCard payment: Charging \$350

**** 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 to be Transfer :: 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 !!!!
