Behavioral Pattern Implementation
Strategy Pattern

A java implementation of strategy design pattern has been done for the Payment application in our project. This implementation takes into consideration the various payment methods used by the clients. Strategy lets the algorithm vary independently from clients that use the application.

Classes Implemented:

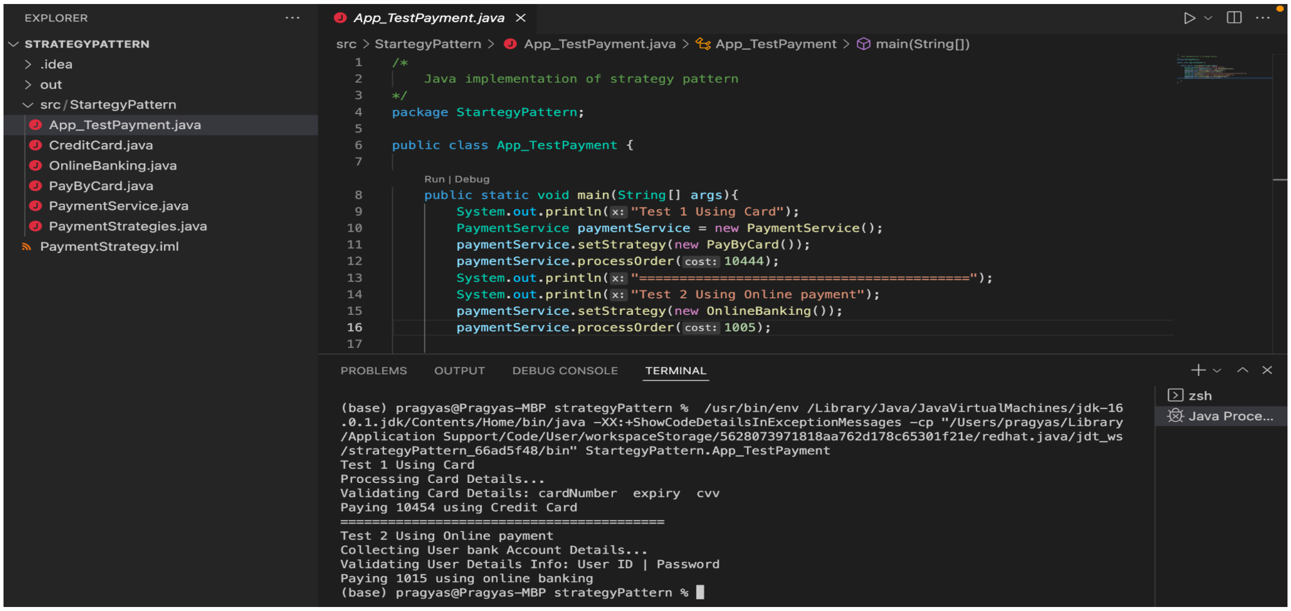
1. App_TestPayment (main() method class)
2. CreditCard
3. OnlineBanking
4. PayByCard
5. PaymentService
6. PaymentStrategies

When the App_TestPayment.java file is run, the output displays the payment details for two test cases. One is when the payment is done through credit card and other is when the payment is done through online banking. The total cost that is to be paid is also displayed. This cost includes the cost of the product and the delivery charges ($10).

Steps to compile and run the code:

1. javac App_TestPayment.java
2. java App_TestPayment

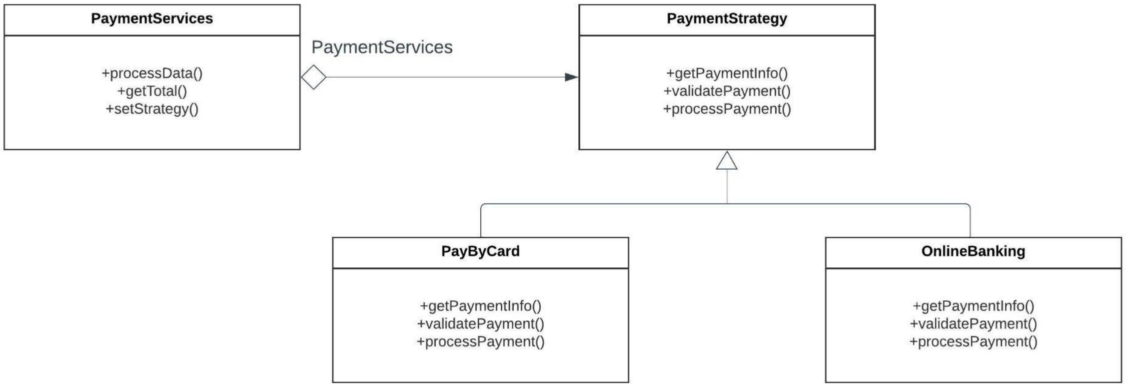
Output Screenshot:



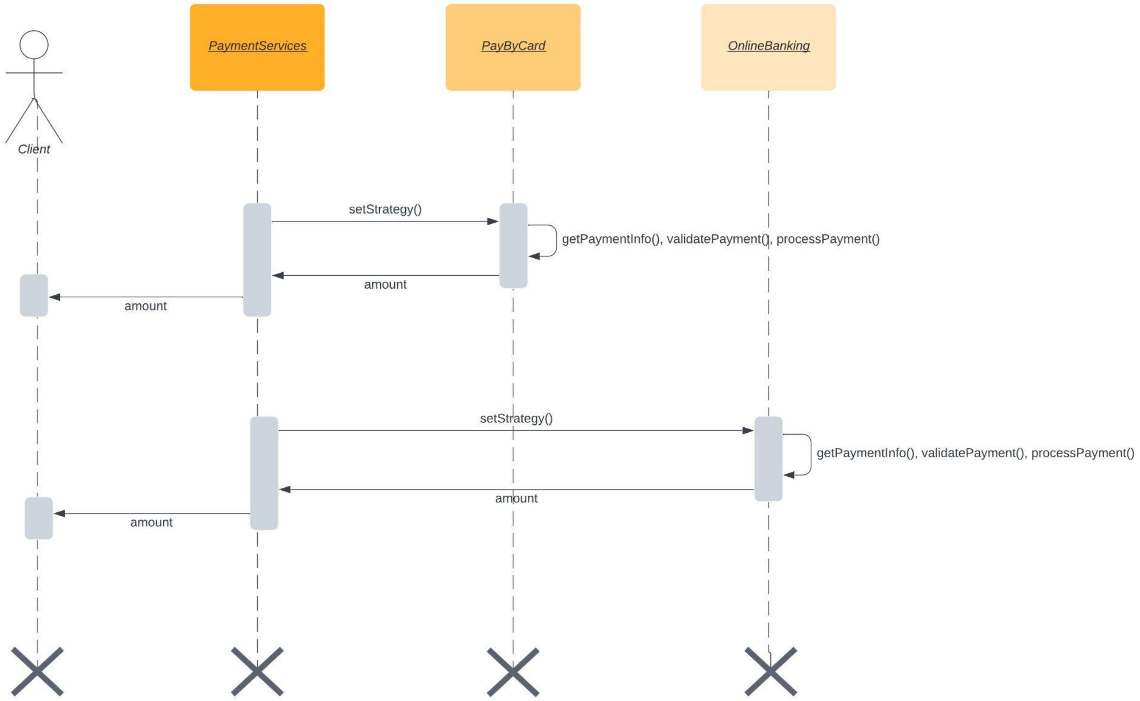
```java
/*
    Java implementation of strategy pattern
*/
package StartegyPattern;

public class App_TestPayment {

    public static void main(String[] args){
        System.out.println(x: "Test 1 Using Card");
        PaymentService paymentService = new PaymentService();
        paymentService.setStrategy(new PayByCard());
        paymentService.processOrder(cost: 10444);
        System.out.println(x: "========================================");
        System.out.println(x: "Test 2 Using Online payment");
        paymentService.setStrategy(new OnlineBanking());
        paymentService.processOrder(cost: 1005);

```

```
(base) pragyas@Pragyas-MBP strategyPattern %  /usr/bin/env /Library/Java/JavaVirtualMachines/jdk-16
.0.1.jdk/Contents/Home/bin/java -XX:+ShowCodeDetailsInExceptionMessages -cp "/Users/pragyas/Library
/Application Support/Code/User/workspaceStorage/5628073971818aa762d178c65301f21e/redhat.java/jdt_ws
/strategyPattern_66ad5f48/bin" StartegyPattern.App_TestPayment
Test 1 Using Card
Processing Card Details...
Validating Card Details: cardNumber  expiry  cvv
Paying 10454 using Credit Card
========================================
Test 2 Using Online payment
Collecting User bank Account Details...
Validating User Details Info: User ID | Password
Paying 1015 using online banking
(base) pragyas@Pragyas-MBP strategyPattern % █
```

Class Diagram - Strategy Pattern:



Sequence Diagram - Strategy Pattern:


PaymentServices
PayByCard
OnlineBanking
Client
setStrategy()
getPaymentInfo(), validatePayment(), processPayment()
amount
amount
setStrategy()
getPaymentInfo(), validatePayment(), processPayment()
amount
amount