**Exercise 4: Implementing the Adapter Pattern**

**Scenario:**

You are developing a payment processing system that needs to integrate with multiple third-party payment gateways with different interfaces. Use the Adapter Pattern to achieve this.

**Steps:**

1. **Create a New Java Project:**
   * Create a new Java project named **AdapterPatternExample**.
2. **Define Target Interface:**
   * Create an interface **PaymentProcessor** with methods like **processPayment()**.
3. **Implement Adaptee Classes:**
   * Create classes for different payment gateways with their own methods.
4. **Implement the Adapter Class:**
   * Create an adapter class for each payment gateway that implements PaymentProcessor and translates the calls to the gateway-specific methods.
5. **Test the Adapter Implementation:**
   * Create a test class to demonstrate the use of different payment gateways through the adapter.

Solution:

1st file: PaymentProcessor.java

public interface PaymentProcessor {

void processPayment(double amount);

}

2nd file: PayPalGateway.java

public class PayPalGateway {

public void sendPayment(double amount) {

System.out.println("Processing payment of $" + amount + " through PayPal.");

}

}

3rd file : StripeGateway.java

public class StripeGateway {

public void makePayment(double amount) {

System.out.println("Processing payment of $" + amount + " through Stripe.");

}

}

4th file: PayPalAdapter.java

public class PayPalAdapter implements PaymentProcessor {

private PayPalGateway payPalGateway;

public PayPalAdapter(PayPalGateway payPalGateway) {

this.payPalGateway = payPalGateway;

}

@Override

public void processPayment(double amount) {

payPalGateway.sendPayment(amount);

}

}

5th file: StripeAdapter.java

public class StripeAdapter implements PaymentProcessor {

private StripeGateway stripeGateway;

public StripeAdapter(StripeGateway stripeGateway) {

this.stripeGateway = stripeGateway;

}

@Override

public void processPayment(double amount) {

stripeGateway.makePayment(amount);

}

}

6th file: AdapterPatternExample.java (Main file)

public class AdapterPatternExample {

public static void main(String[] args) {

PaymentProcessor payPalProcessor = new PayPalAdapter(new PayPalGateway());

PaymentProcessor stripeProcessor = new StripeAdapter(new StripeGateway());

payPalProcessor.processPayment(150.00);

stripeProcessor.processPayment(250.00);

}

}

Output:

A screenshot of a computer

AI-generated content may be incorrect.