**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.

**File Structure:**

PaymentProcessor.java : Target interface

StripeGateway.java : Adaptee

PayPalGateway.java : Another Adaptee

StripeAdapter.java : Adapter for Stripe

PayPalAdapter.java : Adapter for PayPal

TestAdapter.java : Test class

**Codes:**

**PaymentProcessor.java — Target Interface**

public interface PaymentProcessor {

void processPayment(double amount);

}

**Adaptee Classes**

// StripeGateway.java

public class StripeGateway {

public void makeStripePayment(double amount) {

System.out.println("Stripe: Paid $" + amount);

}

}

// PayPalGateway.java

public class PayPalGateway {

public void sendPayment(double amount) {

System.out.println("PayPal: Payment of $" + amount + " completed.");

}

}

**Adapter Classes**

// StripeAdapter.java

public class StripeAdapter implements PaymentProcessor {

private StripeGateway stripeGateway;

public StripeAdapter(StripeGateway stripeGateway) {

this.stripeGateway = stripeGateway;

}

public void processPayment(double amount) {

stripeGateway.makeStripePayment(amount);

}

}

// PayPalAdapter.java

public class PayPalAdapter implements PaymentProcessor {

private PayPalGateway payPalGateway;

public PayPalAdapter(PayPalGateway payPalGateway) {

this.payPalGateway = payPalGateway;

}

public void processPayment(double amount) {

payPalGateway.sendPayment(amount);

}

}

**TestAdapter.java**

public class TestAdapter {

public static void main(String[] args) {

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

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

System.out.println("Processing Stripe Payment:");

stripePayment.processPayment(250.00);

System.out.println("Processing PayPal Payment:");

paypalPayment.processPayment(500.00);

}

}

**Compile and Run**

javac \*.java

java TestAdapter

Output:

