Exercise – 2 Verifying Interactions

import static org.junit.jupiter.api.Assertions.\*;

import static org.mockito.Mockito.\*;

import org.junit.jupiter.api.Test;

import org.mockito.ArgumentCaptor;

import org.mockito.Mockito;

class OrderServiceTest {

interface PaymentGateway {

boolean processPayment(String orderId, double amount, String currency);

void logTransaction(String orderId);

}

static class OrderService {

private final PaymentGateway paymentGateway;

public OrderService(PaymentGateway paymentGateway) {

this.paymentGateway = paymentGateway;

}

public boolean placeOrder(String orderId, double totalAmount) {

boolean success = paymentGateway.processPayment(orderId, totalAmount, "USD");

if (success) {

paymentGateway.logTransaction(orderId);

}

return success;

}

}

@Test

void testPaymentProcessingInteraction() {

PaymentGateway mockGateway = Mockito.mock(PaymentGateway.class);

when(mockGateway.processPayment(anyString(), anyDouble(), anyString()))

.thenReturn(true);

OrderService service = new OrderService(mockGateway);

boolean result = service.placeOrder("ORDER123", 99.99);

verify(mockGateway).processPayment(anyString(), anyDouble(), anyString());

verify(mockGateway, Mockito.times(1))

.processPayment(anyString(), anyDouble(), anyString());

verify(mockGateway).processPayment("ORDER123", 99.99, "USD");

verify(mockGateway).logTransaction("ORDER123");

verifyNoMoreInteractions(mockGateway);

assertTrue(result);

}

@Test

void testArgumentCapturing() {

PaymentGateway mockGateway = Mockito.mock(PaymentGateway.class);

OrderService service = new OrderService(mockGateway);

service.placeOrder("ORDER456", 149.95);

ArgumentCaptor<String> idCaptor = ArgumentCaptor.forClass(String.class);

ArgumentCaptor<Double> amountCaptor = ArgumentCaptor.forClass(Double.class);

verify(mockGateway).processPayment(

idCaptor.capture(),

amountCaptor.capture(),

eq("USD"));

assertEquals("ORDER456", idCaptor.getValue());

assertEquals(149.95, amountCaptor.getValue(), 0.001);

}

@Test

void testFailedPaymentInteraction() {

PaymentGateway mockGateway = Mockito.mock(PaymentGateway.class);

when(mockGateway.processPayment(anyString(), anyDouble(), anyString()))

.thenReturn(false);

OrderService service = new OrderService(mockGateway);

boolean result = service.placeOrder("ORDER789", 199.99);

verify(mockGateway).processPayment("ORDER789", 199.99, "USD");

verify(mockGateway, Mockito.never()).logTransaction(anyString());

assertFalse(result);

}

}