# Advanced JUnit Testing Exercises - Solutions

## Exercise 1: Parameterized Tests

Java Class: EvenChecker

public class EvenChecker {  
 public boolean isEven(int number) {  
 return number % 2 == 0;  
 }  
}

JUnit Test Class: EvenCheckerTest

import static org.junit.jupiter.api.Assertions.\*;  
import org.junit.jupiter.params.ParameterizedTest;  
import org.junit.jupiter.params.provider.ValueSource;  
  
public class EvenCheckerTest {  
 @ParameterizedTest  
 @ValueSource(ints = {2, 4, 6, 8, 10})  
 public void testIsEven(int number) {  
 EvenChecker checker = new EvenChecker();  
 assertTrue(checker.isEven(number));  
 }  
}

## Exercise 2: Test Suites and Categories

JUnit Test Suite Class: AllTests

import org.junit.platform.suite.api.SelectClasses;  
import org.junit.platform.suite.api.Suite;  
  
@Suite  
@SelectClasses({EvenCheckerTest.class, AnotherTestClass.class})  
public class AllTests {  
}

## Exercise 3: Test Execution Order

JUnit Test Class: OrderedTests

import org.junit.jupiter.api.\*;  
import org.junit.jupiter.api.MethodOrderer.OrderAnnotation;  
  
@TestMethodOrder(OrderAnnotation.class)  
public class OrderedTests {  
 @Test  
 @Order(1)  
 public void testFirst() {  
 System.out.println("First");  
 }  
  
 @Test  
 @Order(2)  
 public void testSecond() {  
 System.out.println("Second");  
 }  
}

## Exercise 4: Exception Testing

Java Class: ExceptionThrower

public class ExceptionThrower {  
 public void throwException() throws IllegalArgumentException {  
 throw new IllegalArgumentException("Invalid argument");  
 }  
}

JUnit Test Class: ExceptionThrowerTest

import static org.junit.jupiter.api.Assertions.\*;  
import org.junit.jupiter.api.Test;  
  
public class ExceptionThrowerTest {  
 @Test  
 public void testThrowException() {  
 ExceptionThrower thrower = new ExceptionThrower();  
 assertThrows(IllegalArgumentException.class, thrower::throwException);  
 }  
}

## Exercise 5: Timeout and Performance Testing

Java Class: PerformanceTester

public class PerformanceTester {  
 public void performTask() throws InterruptedException {  
 Thread.sleep(100); // simulate delay  
 }  
}

JUnit Test Class: PerformanceTesterTest

import static org.junit.jupiter.api.Assertions.\*;  
import org.junit.jupiter.api.Test;  
import org.junit.jupiter.api.Timeout;  
  
import java.util.concurrent.TimeUnit;  
  
public class PerformanceTesterTest {  
 @Test  
 @Timeout(value = 200, unit = TimeUnit.MILLISECONDS)  
 public void testPerformTask() throws InterruptedException {  
 PerformanceTester tester = new PerformanceTester();  
 tester.performTask();  
 }  
}