**3. Assertions in JUnit**

// File: src/test/java/com/example/AssertionsTest.java

package com.example;

import static org.junit.Assert.\*; // <-- JUnit‑4 assertions

import org.junit.Test;

public class AssertionsTest {

@Test

public void testAllAssertions() {

/\* 1. Equality checks \*/

assertEquals("Sum", 5, 2 + 3);

assertNotEquals("Not equal", 7, 3 \* 3);

assertArrayEquals("Array equal", new int[]{1, 2}, new int[]{1, 2});

/\* 2. Boolean conditions \*/

assertTrue("5 is > 3", 5 > 3);

assertFalse("3 is < 5", 3 > 5);

/\* 3. Null / not‑null \*/

Object nothing = null;

assertNull("Should be null", nothing);

assertNotNull("Should not be null", new Object());

/\* 4. Object identity \*/

String a = "hello";

String b = a; // same reference

String c = new String("hello"); // different object

assertSame("Exact same object", a, b);

assertNotSame("Different objects", a, c);

/\* 5. Exception expectation (manual style) \*/

try {

int x = 10 / 0;

fail("Expected ArithmeticException");

} catch (ArithmeticException ex) {

// test passes

}

}

}