PDF 1

Exercise 1: Setting Up JUnit Scenario: You need to set up JUnit in your Java project to start writing unit tests. Steps: 1. Create a new Java project in your IDE (e.g., IntelliJ IDEA, Eclipse). 2. Add JUnit dependency to your project. If you are using Maven, add the following to your pom.xml: junit junit 4.13.2 test 3. Create a new test class in your project.

Exercise 3: Assertions in JUnit Scenario: You need to use different assertions in JUnit to validate your test results. Steps: 1. Write tests using various JUnit assertions. Solution Code: public class AssertionsTest { @Test public void testAssertions() { // Assert equals assertEquals(5, 2 + 3); // Assert true assertTrue(5 > 3); // Assert false assertFalse(5 < 3); // Assert null assertNull(null); // Assert not null assertNotNull(new Object()); } }

Exercise 4: Arrange-Act-Assert (AAA) Pattern, Test Fixtures, Setup and Teardown Methods in JUnit Scenario: You need to organize your tests using the Arrange-Act-Assert (AAA) pattern and use setup and teardown methods. Steps: 1. Write tests using the AAA pattern. 2. Use @Before and @After annotations for setup and teardown methods.

PDF 3

Exercise 1: Mocking and Stubbing Scenario: You need to test a service that depends on an external API. Use Mockito to mock the external API and stub its methods. Steps: 1. Create a mock object for the external API. 2. Stub the methods to return predefined values. 3. Write a test case that uses the mock object. Solution Code: import static org.mockito.Mockito.\*; import org.junit.jupiter.api.Test; import org.mockito.Mockito; public class MyServiceTest { @Test public void testExternalApi() { ExternalApi mockApi = Mockito.mock(ExternalApi.class); when(mockApi.getData()).thenReturn("Mock Data"); MyService service = new MyService(mockApi); String result = service.fetchData(); assertEquals("Mock Data", result); } }

Exercise 2: Verifying Interactions Scenario: You need to ensure that a method is called with specific arguments. Steps: 1. Create a mock object. 2. Call the method with specific arguments. 3. Verify the interaction. Solution Code: import static org.mockito.Mockito.\*; import org.junit.jupiter.api.Test; import org.mockito.Mockito; public class MyServiceTest { @Test public void testVerifyInteraction() { ExternalApi mockApi = Mockito.mock(ExternalApi.class); MyService service = new MyService(mockApi); service.fetchData(); verify(mockApi).getData(); } }