Chapter six

6.1 Unit Test

Unit Testing: A software testing method where individual code units (e.g., functions, methods, classes) are validated to ensure they behave as intended.

Key Principles (Short Form):

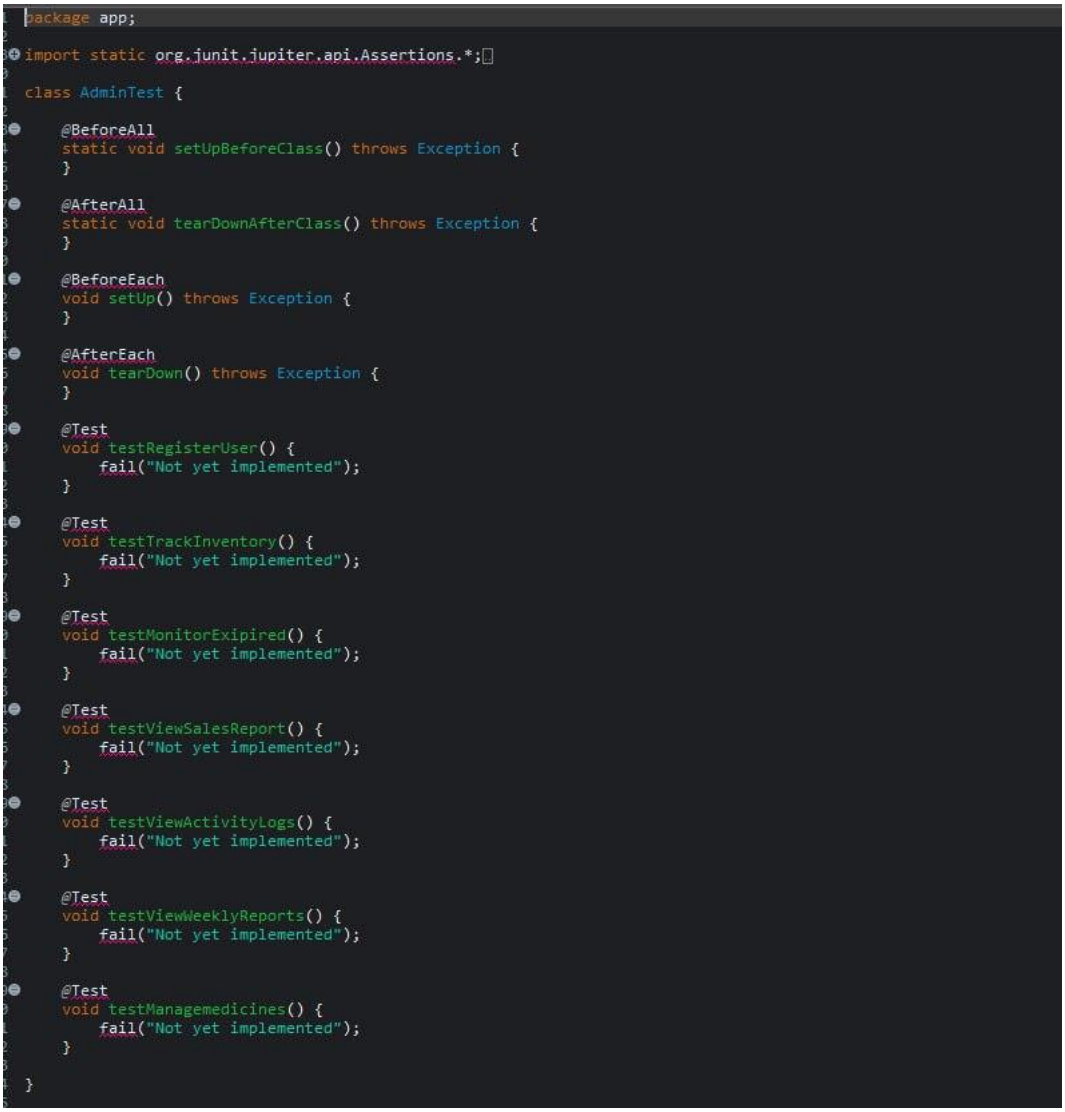
1. **Isolation**: Test one unit at a time; mock external dependencies (e.g., databases).
2. **Automation**: Tests should run automatically without manual intervention.
3. **Fast**: Execute quickly to enable frequent runs during development.
4. **Repeatable**: Produce the same result regardless of environment or execution order.
5. **Self-Validating**: Tests pass/fail without human judgment (e.g., assertions).
6. **FIRST Principle**:
   - **F**ast
   - **I**ndependent (no test depends on another)
   - **R**epeatable
   - **S**elf-Validating
   - **T**imely (written alongside code, not after).
7. **Readability**: Clear names and structure to explain what is being tested.
8. **Coverage**: Aim to test all logical paths (branches, edge cases).

Goal: Catch bugs early, improve code quality, and simplify refactoring.

6.2 Steps and Tools Used in Unit Test

This project utilizes **JUnit**, a widely adopted testing framework for Java. JUnit provides a set of annotations and assertions that enable developers to create and validate test cases effectively, ensuring code correctness and reliability throughout the development process. Additionally, the project is developed using the **Eclipse IDE**, which offers robust features for code writing, debugging, and seamless integration with JUnit.

Admin JU test



```java
package app;

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

class AdminTest {

    @BeforeAll
    static void setUpBeforeClass() throws Exception {
    }

    @AfterAll
    static void tearDownAfterClass() throws Exception {
    }

    @BeforeEach
    void setUp() throws Exception {
    }

    @AfterEach
    void tearDown() throws Exception {
    }

    @Test
    void testRegisterUser() {
        fail("Not yet implemented");
    }

    @Test
    void testTrackInventory() {
        fail("Not yet implemented");
    }

    @Test
    void testMonitorExipired() {
        fail("Not yet implemented");
    }

    @Test
    void testViewSalesReport() {
        fail("Not yet implemented");
    }

    @Test
    void testViewActivityLogs() {
        fail("Not yet implemented");
    }

    @Test
    void testViewWeeklyReports() {
        fail("Not yet implemented");
    }

    @Test
    void testManagemedicines() {
        fail("Not yet implemented");
    }

}
```

Alert JU test

```java
package app;

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

class AlertTest {

    @BeforeAll
    static void setUpBeforeClass() throws Exception {
    }

    @AfterAll
    static void tearDownAfterClass() throws Exception {
    }

    @BeforeEach
    void setUp() throws Exception {
    }

    @AfterEach
    void tearDown() throws Exception {
    }

    @Test
    void testSendAlert() {
        fail("Not yet implemented");
    }

}
```

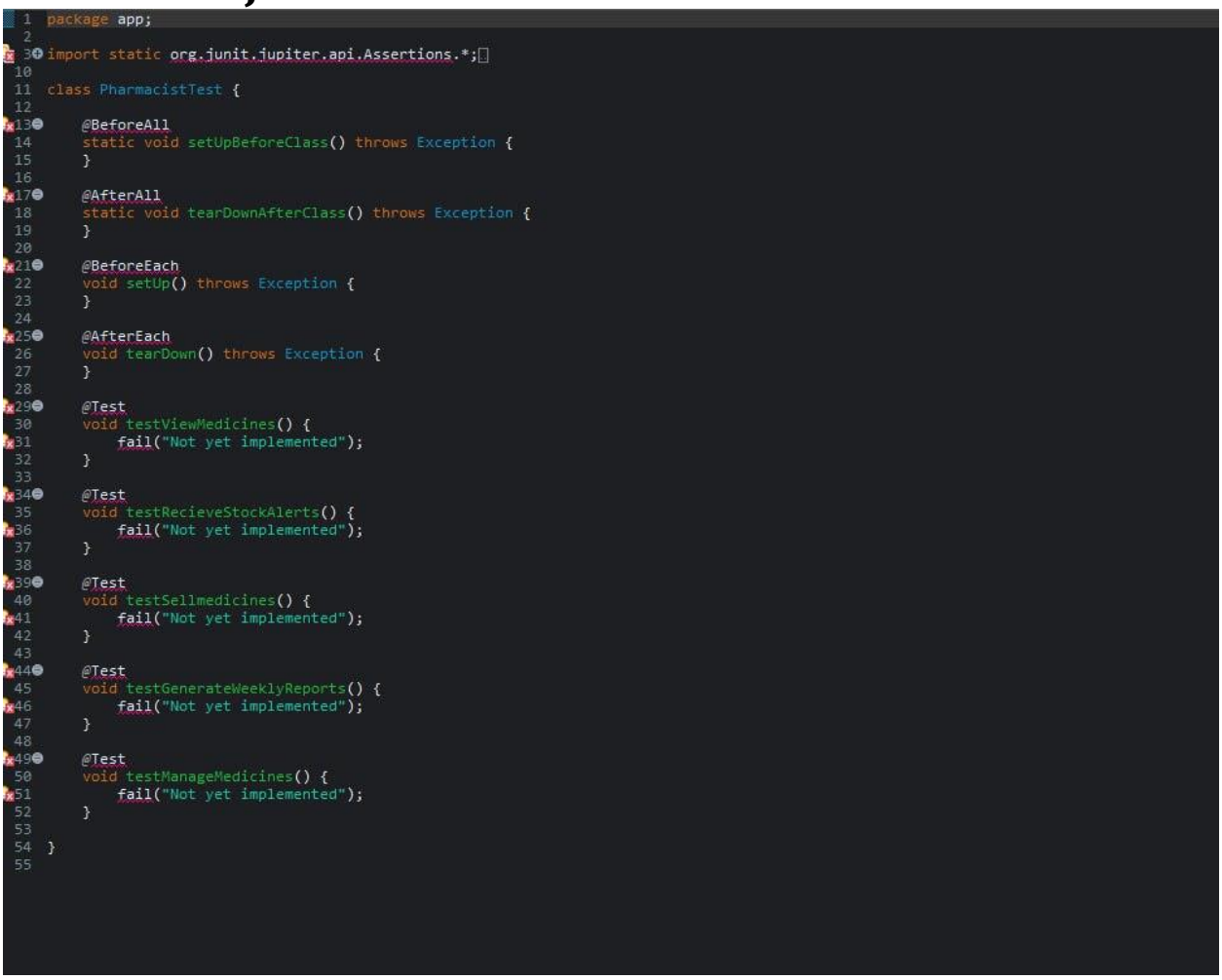
Inventory JU test

```java
package app;

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

class InventoryTest {

    @BeforeAll
    static void setUpBeforeClass() throws Exception {
    }

    @AfterAll
    static void tearDownAfterClass() throws Exception {
    }

    @BeforeEach
    void setUp() throws Exception {
    }

    @AfterEach
    void tearDown() throws Exception {
    }

    @Test
    void testTrackStock() {
        fail("Not yet implemented");
    }

    @Test
    void testUpdateStock() {
        fail("Not yet implemented");
    }

}
```

Medicine JU test

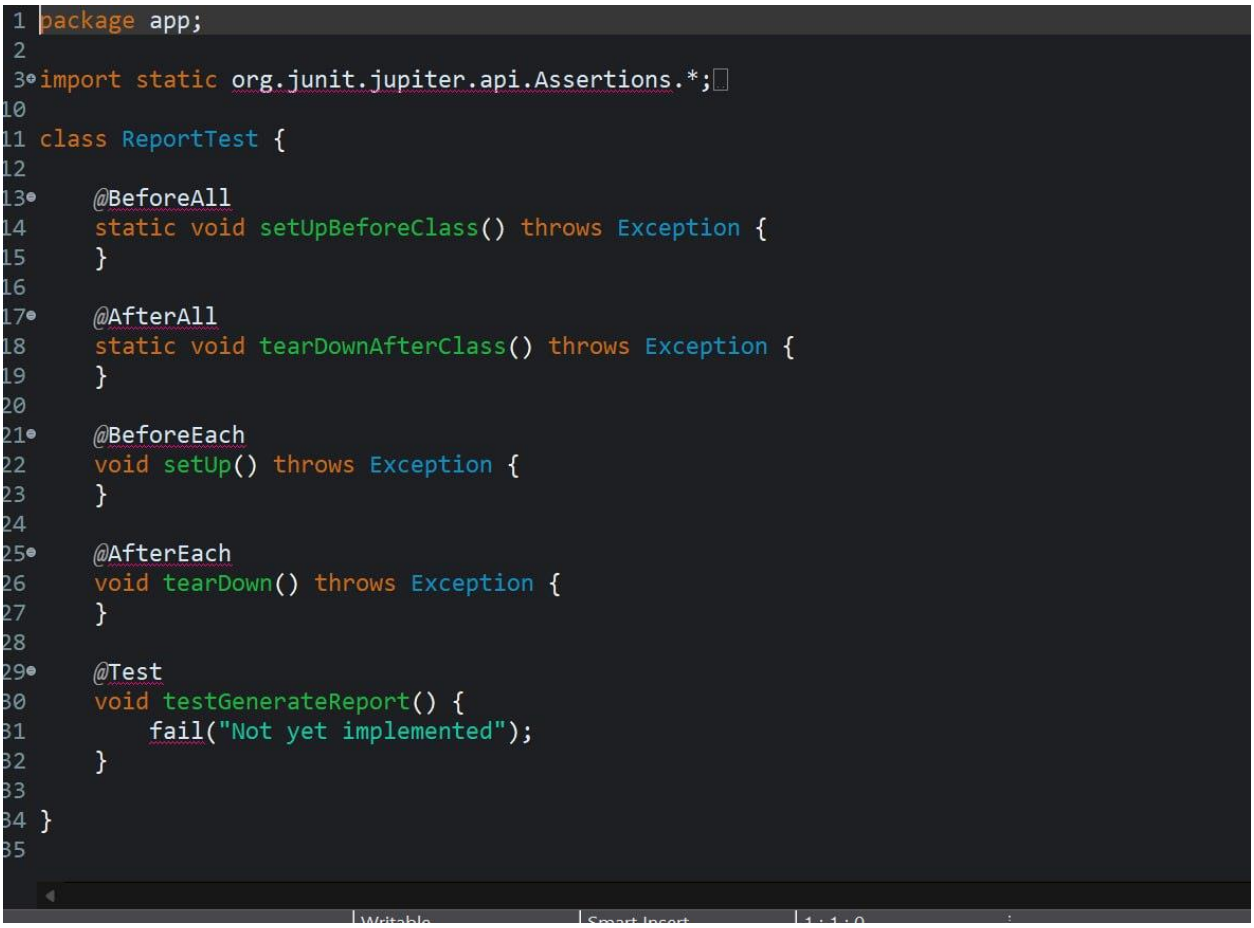
```java
package app;

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

class MedicineTest {

    @BeforeAll
    static void setUpBeforeClass() throws Exception {
    }

    @AfterAll
    static void tearDownAfterClass() throws Exception {
    }

    @BeforeEach
    void setUp() throws Exception {
    }

    @AfterEach
    void tearDown() throws Exception {
    }

    @Test
    void testIsExipired() {
        fail("Not yet implemented");
    }

}
```

Pharmacist JU test



```java
package app;

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

class PharmacistTest {

    @BeforeAll
    static void setUpBeforeClass() throws Exception {
    }

    @AfterAll
    static void tearDownAfterClass() throws Exception {
    }

    @BeforeEach
    void setUp() throws Exception {
    }

    @AfterEach
    void tearDown() throws Exception {
    }

    @Test
    void testViewMedicines() {
        fail("Not yet implemented");
    }

    @Test
    void testRecieveStockAlerts() {
        fail("Not yet implemented");
    }

    @Test
    void testSellmedicines() {
        fail("Not yet implemented");
    }

    @Test
    void testGenerateWeeklyReports() {
        fail("Not yet implemented");
    }

    @Test
    void testManageMedicines() {
        fail("Not yet implemented");
    }

}
```

Report JU test



```java
package app;

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

class ReportTest {

    @BeforeAll
    static void setUpBeforeClass() throws Exception {
    }

    @AfterAll
    static void tearDownAfterClass() throws Exception {
    }

    @BeforeEach
    void setUp() throws Exception {
    }

    @AfterEach
    void tearDown() throws Exception {
    }

    @Test
    void testGenerateReport() {
        fail("Not yet implemented");
    }

}
```

User JU Test

```java
package app;

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

class UserTest {

    @BeforeAll
    static void setUpBeforeClass() throws Exception {
    }

    @AfterAll
    static void tearDownAfterClass() throws Exception {
    }

    @BeforeEach
    void setUp() throws Exception {
    }

    @AfterEach
    void tearDown() throws Exception {
    }

    @Test
    void testLogin() {
        fail("Not yet implemented");
    }

    @Test
    void testLogout() {
        fail("Not yet implemented");
    }

}

```