

JUnit Testing Exercises

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.

Code Solution:

```
package Junit.Junit;
import static org.junit.jupiter.api.Assertions.*;
import org.junit.jupiter.api.*;
public class AppTest {

    private App app;

    @BeforeEach
    void setUp() {
        app = new App();
        System.out.println("☑ Setup completed");
    }

    @AfterEach
    void tearDown() {
        app = null;
        System.out.println("✂ Teardown completed");
    }

    @Test
    void testAddition() {
        int a = 10;
        int b = 15;
        int result = app.add(a, b);
        assertEquals(25, result);
    }
}
```

```
}
```

```
@Test
```

```
void testSubtraction() {
```

```
    int a = 20;
```

```
    int b = 8;
```

```
    int result = app.subtract(a, b);
```

```
    assertEquals(12, result);
```

```
}
```

```
@Test
```

```
void testIsPositive() {
```

```
    int number = -5;
```

```
    boolean result = app.isPositive(number);
```

```
    assertFalse(result);
```

```
}
```

```
}
```

```
1 package Junit.Junit;
2
3 import static org.junit.jupiter.api.Assertions.*;
4 import org.junit.jupiter.api.*;
5
6 public class AppTest {
7
8     private App app;
9
10    @BeforeEach
11    void setUp() {
12        app = new App();
13        System.out.println("Setup completed");
14    }
15
16    @AfterEach
17    void tearDown() {
18        app = null;
19        System.out.println("Teardown completed");
20    }
21
22    @Test
23    void testAddition() {
24
25        int a = 10;
26        int b = 15;
27        int result = app.add(a, b);
28    }
29 }
```

Package Explorer JUnit X

Finished after 0.347 seconds

Runs: 3/3 Errors: 0 Failures: 0

> AppTest [Runner: JUnit 5] (0.074 s)

Failure Trace

Problems Javadoc Declaration Console X

<terminated> AppTest (1) [JUnit] C:\Users\SUBHUNDU\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_21.0.7.v20250...

- Setup completed
- Teardown completed
- Setup completed
- Teardown completed
- Setup completed
- Teardown completed