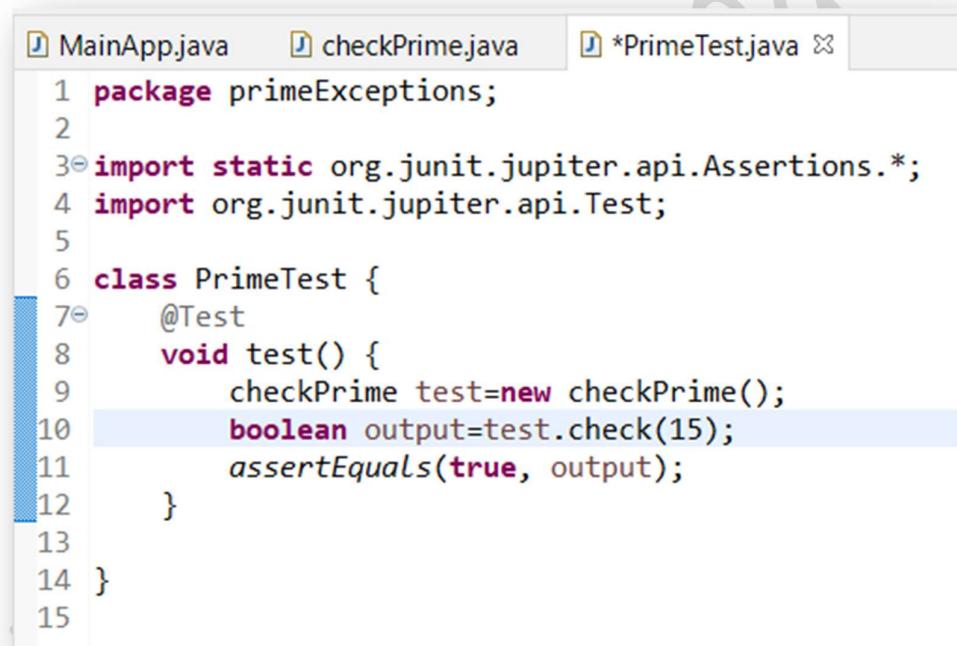


Junit – Mockito – Logging Assignment

1. Junit

Junit Code Snippet:



The screenshot shows a Java code editor with three tabs at the top: 'MainApp.java', 'checkPrime.java', and '*PrimeTest.java'. The '*PrimeTest.java' tab is active and displays the following code:

```
1 package primeExceptions;
2
3 import static org.junit.jupiter.api.Assertions.*;
4 import org.junit.jupiter.api.Test;
5
6 class PrimeTest {
7     @Test
8     void test() {
9         checkPrime test=new checkPrime();
10        boolean output=test.check(15);
11        assertEquals(true, output);
12    }
13
14 }
```

A blue vertical bar on the left indicates the current line of code being edited.

Figure 1 Showing Junit Test Case

Test Results

1. Pass Results (Passing 5 to be checked as Prime)

The screenshot shows the Eclipse IDE interface. On the left, the 'JUnit' view displays the test results: 'Finished after 0.09 seconds', 'Runs: 1/1', 'Errors: 0', and 'Failures: 0'. A green progress bar indicates success. On the right, the code editor shows the `PrimeTest.java` file:

```
1 package primeExceptions;
2
3 import static org.junit.jupiter.api.Assertions.*;
4 import org.junit.jupiter.api.Test;
5
6 class PrimeTest {
7     @Test
8     void test() {
9         checkPrime test=new checkPrime();
10        boolean output=test.check(5);
11        assertEquals(true, output);
12    }
13
14 }
```

Figure 2 Showing Test Cases Passed

2. Fail Results (Passing 15 to be checked as Prime)

The screenshot shows the Eclipse IDE interface. On the left, the 'JUnit' view displays the test results: 'Finished after 0.101 seconds', 'Runs: 1/1', 'Errors: 0', and 'Failures: 1'. A red progress bar indicates failure. The 'Failure Trace' panel at the bottom shows the error message: 'org.opentest4j.AssertionFailedError: expected: <true> but was: <false>' and the stack trace:

```
J| org.opentest4j.AssertionFailedError: expected: <true> but was: <false>
| at primeExceptions.PrimeTest.test(PrimeTest.java:11)
| at java.base/java.util.ArrayList.forEach(Unknown Source)
| at java.base/java.util.ArrayList.forEach(Unknown Source)
```

On the right, the code editor shows the `PrimeTest.java` file with the line `boolean output=test.check(15);` highlighted:

```
1 package primeExceptions;
2
3 import static org.junit.jupiter.api.Assertions.*;
4 import org.junit.jupiter.api.Test;
5
6 class PrimeTest {
7     @Test
8     void test() {
9         checkPrime test=new checkPrime();
10        boolean output=test.check(15);
11        assertEquals(true, output);
12    }
13
14 }
```

Figure 3 Showing failed test case when 15 is being checked as prime

2. Mockito

Mockito Code Snippet:



The screenshot shows a Java code editor with the following code snippet for a Mockito test:

```
1 package AccoliteUniversity.MockitoPrime;
2
3 import static org.mockito.Mockito.mock;
4 import static org.mockito.Mockito.when;
5
6 import org.junit.Before;
7 import org.junit.Test;
8 import org.mockito.Mockito.*;
9
10 import junit.framework.Assert;
11
12 public class CheckServiceTest {
13
14     CheckService chkObj;
15
16     @Before
17     public void setup() {
18         IsPrime i0bj= mock(IsPrime.class);
19         when(i0bj.check(5)).thenReturn(true);
20         chkObj=new CheckService();
21         chkObj.setObj(i0bj);
22     }
23
24     @Test
25     public void testCheckPrime() {
26         Assert.assertEquals(true, chkObj.checkPrime(5));
27     }
28
29 }
```

The code uses Mockito annotations (@Before, @Test) and methods (mock, when, assertEquals) to test the CheckService class. The IDE interface shows tabs for pom.xml, IsPrime.java, CheckService.java, and CheckServiceTest.java.

Figure 4 Showing Mockito Test Code

Pass Test Case:

The screenshot shows the Eclipse IDE interface with the Package Explorer and JUnit view. The JUnit view displays a green bar indicating 'Runs: 1/1', 'Errors: 0', and 'Failures: 0'. Below this, it shows the test class 'AccoliteUniversity.MockitoPrime.CheckServiceTest' running on 'JUnit 4' in 0.393 seconds. The code editor on the right contains the Java code for the test, which includes imports for Mockito and JUnit, a setup method using mockito.when to return true for check(5), and a test method 'testCheckPrime' that asserts the result is true. A red arrow points to the assert statement in the test method.

```
1 package AccoliteUniversity.MockitoPrime;
2
3 import static org.mockito.Mockito.mock;
4 import static org.mockito.Mockito.when;
5
6 import org.junit.Before;
7 import org.junit.Test;
8 import org.mockito.Mockito.*;
9
10 import junit.framework.Assert;
11
12 public class CheckServiceTest {
13
14     CheckService chkObj;
15
16     @Before
17     public void setup() {
18         ISpPrime iObj= mock(IspPrime.class);
19         when(iObj.check(5)).thenReturn(true);
20         chkObj=new CheckService();
21         chkObj.setObj(iObj);
22     }
23
24     @Test
25     public void testCheckPrime() {
26         Assert.assertEquals(true, chkObj.checkPrime(5));
27     }
}
```

Figure 5 Showing passed test case for checking 5 as prime

Failed Test Case:

The screenshot shows the Eclipse IDE interface with the Package Explorer and JUnit view. The JUnit view displays a red bar indicating 'Runs: 1/1', 'Errors: 0', and 'Failures: 1'. Below this, it shows the test class 'AccoliteUniversity.MockitoPrime.CheckServiceTest' running on 'JUnit 4' in 0.386 seconds. The code editor on the right contains the Java code for the test, which includes imports for Mockito and JUnit, a setup method using mockito.when to return false for check(15), and a test method 'testCheckPrime' that asserts the result is true. A red arrow points to the assert statement in the test method. A failure trace is visible at the bottom, showing a 'junit.framework.AssertionFailedError' with the message 'expected:<true> but was:<false>'.

```
1 package AccoliteUniversity.MockitoPrime;
2
3 import static org.mockito.Mockito.mock;
4 import static org.mockito.Mockito.when;
5
6 import org.junit.Before;
7 import org.junit.Test;
8 import org.mockito.Mockito.*;
9
10 import junit.framework.Assert;
11
12 public class CheckServiceTest {
13
14     CheckService chkObj;
15
16     @Before
17     public void setup() {
18         ISpPrime iObj= mock(IspPrime.class);
19         when(iObj.check(15)).thenReturn(false);
20         chkObj=new CheckService();
21         chkObj.setObj(iObj);
22     }
23
24     @Test
25     public void testCheckPrime() {
26         Assert.assertEquals(true, chkObj.checkPrime(15));
27     }
}
```

Figure 6 Showing failed test case which classifies 15 as Prime

3. Logging



```
server - Notepad
File Edit Format View Help
2021-03-01 21:20:21 DEBUG Main:16 - Hello there!
2021-03-01 21:20:21 DEBUG Main:16 - Hello there!
2021-03-01 21:20:21 INFO Main:17 - Hello there!
2021-03-01 21:20:21 INFO Main:17 - Hello there!
2021-03-01 21:20:21 WARN Main:18 - Hello there!
2021-03-01 21:20:21 WARN Main:18 - Hello there!
2021-03-01 21:20:21 ERROR Main:19 - Hello there!
2021-03-01 21:20:21 ERROR Main:19 - Hello there!
2021-03-01 21:20:21 FATAL Main:20 - Hello there!
2021-03-01 21:20:21 FATAL Main:20 - Hello there!
2021-03-01 21:20:21 INFO LoggerEntryPoint:13 - now in org.remad.logging.LoggerEntryPoint
2021-03-01 21:20:21 INFO LoggerEntryPoint:13 - now in org.remad.logging.LoggerEntryPoint
2021-03-01 21:20:21 FATAL Protocol:13 - Fatal error.
2021-03-01 21:20:21 FATAL Protocol:13 - Fatal error.
2021-03-01 21:20:21 ERROR Protocol:14 - Error happened.
2021-03-01 21:20:21 ERROR Protocol:14 - Error happened.
2021-03-01 21:20:21 WARN Protocol:15 - Warning message.
2021-03-01 21:20:21 WARN Protocol:15 - Warning message.
2021-03-01 21:20:21 INFO Protocol:16 - This message informs.
2021-03-01 21:20:21 INFO Protocol:16 - This message informs.
2021-03-01 21:20:21 DEBUG Protocol:17 - Debug message.
2021-03-01 21:20:21 DEBUG Protocol:17 - Debug message.
```

Figure 7 Showing Log Text File



```
2021-03-01 21:20:21 DEBUG Main:16 - Hello there!
2021-03-01 21:20:21 INFO Main:17 - Hello there!
2021-03-01 21:20:21 WARN Main:18 - Hello there!
2021-03-01 21:20:21 ERROR Main:19 - Hello there!
2021-03-01 21:20:21 FATAL Main:20 - Hello there!
2021-03-01 21:20:21 INFO LoggerEntryPoint:13 - now in org.remad.logging.LoggerEntryPoint
2021-03-01 21:20:21 FATAL Protocol:13 - Fatal error.
2021-03-01 21:20:21 ERROR Protocol:14 - Error happened.
2021-03-01 21:20:21 WARN Protocol:15 - Warning message.
2021-03-01 21:20:21 INFO Protocol:16 - This message informs.
2021-03-01 21:20:21 DEBUG Protocol:17 - Debug message.
```

Figure 8 Showing Console Logs