

# ASSIGNMENT

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## Example 1

### Test User Login Validation

#### Problem Statement:

Check whether login is successful when username and password are correct.

#### Method Logic:

Returns true if username is "admin" and password is "admin123".

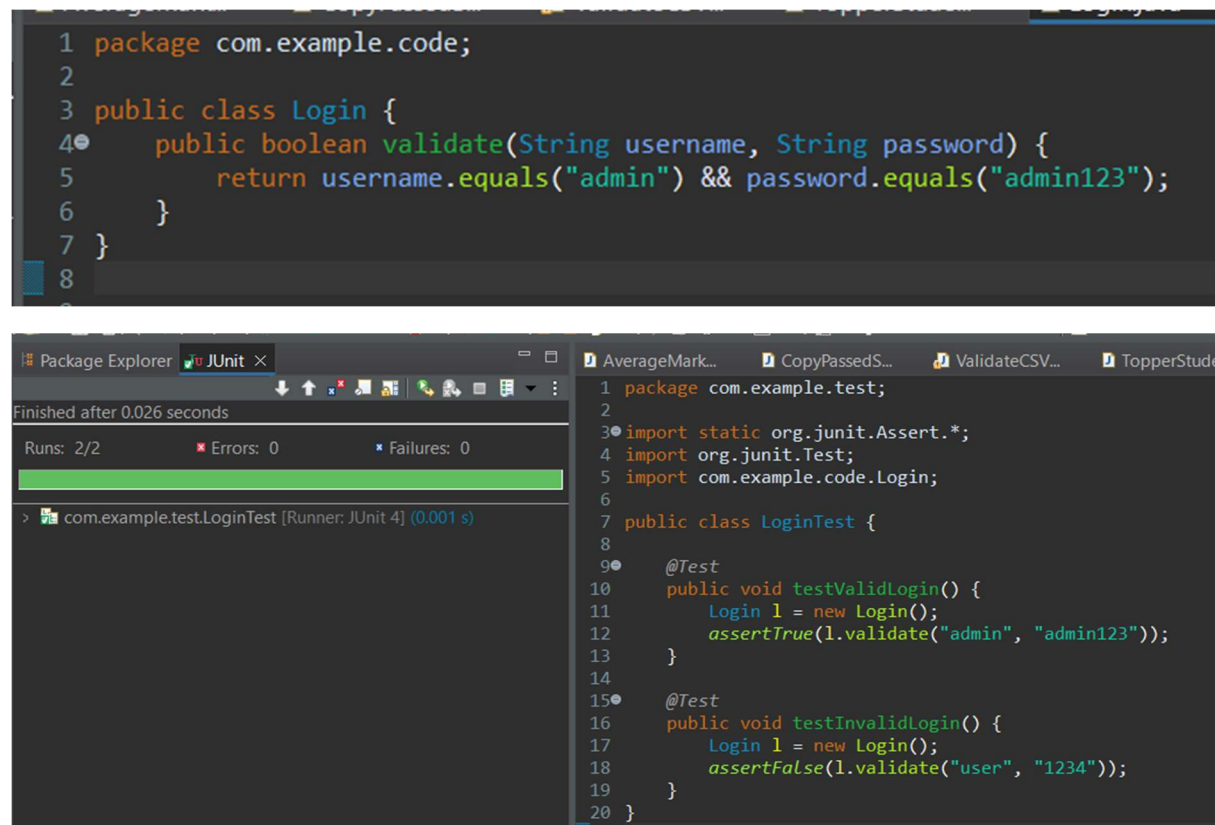
#### Test Focus:

- Boolean result
- assertTrue, assertFalse

#### Expected Outcome:

Valid credentials → pass

Invalid credentials → fail



```
1 package com.example.code;
2
3 public class Login {
4     public boolean validate(String username, String password) {
5         return username.equals("admin") && password.equals("admin123");
6     }
7 }
8
```

```
1 package com.example.test;
2
3 import static org.junit.Assert.*;
4 import org.junit.Test;
5 import com.example.code.Login;
6
7 public class LoginTest {
8
9     @Test
10    public void testValidLogin() {
11        Login l = new Login();
12        assertTrue(l.validate("admin", "admin123"));
13    }
14
15    @Test
16    public void testInvalidLogin() {
17        Login l = new Login();
18        assertFalse(l.validate("user", "1234"));
19    }
20 }
21
```

Package Explorer: JUnit x

Finished after 0.026 seconds

Runs: 2/2    Errors: 0    Failures: 0

> com.example.test.LoginTest [Runner: JUnit 4] (0.001 s)

## Example 2

### Test Age Eligibility

#### Problem Statement:

Verify whether a user is eligible to vote.

#### Method Logic:

Returns true if age  $\geq 18$ .

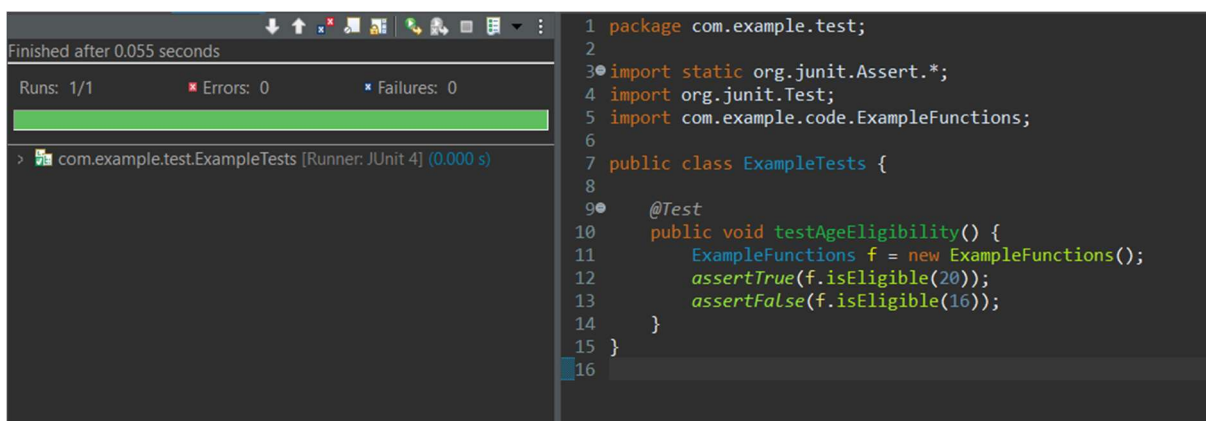
#### Test Focus:

- Conditional logic
- assertTrue, assertFalse

#### Expected Outcome:

Age  $\geq 18 \rightarrow$  eligible

Age  $< 18 \rightarrow$  not eligible



The screenshot shows an IDE with a test runner on the left and source code on the right. The test runner indicates the test 'com.example.test.ExampleTests' passed successfully in 0.000 seconds with 0 errors and 0 failures. The source code on the right shows the test method 'testAgeEligibility' which asserts that 'isEligible(20)' is true and 'isEligible(16)' is false.

```
1 package com.example.test;
2
3 import static org.junit.Assert.*;
4 import org.junit.Test;
5 import com.example.code.ExampleFunctions;
6
7 public class ExampleTests {
8
9     @Test
10    public void testAgeEligibility() {
11        ExampleFunctions f = new ExampleFunctions();
12        assertTrue(f.isEligible(20));
13        assertFalse(f.isEligible(16));
14    }
15 }
16
```

## Example 3

### Test String Uppercase Conversion

#### Problem Statement:

Convert a string to uppercase and test the output.

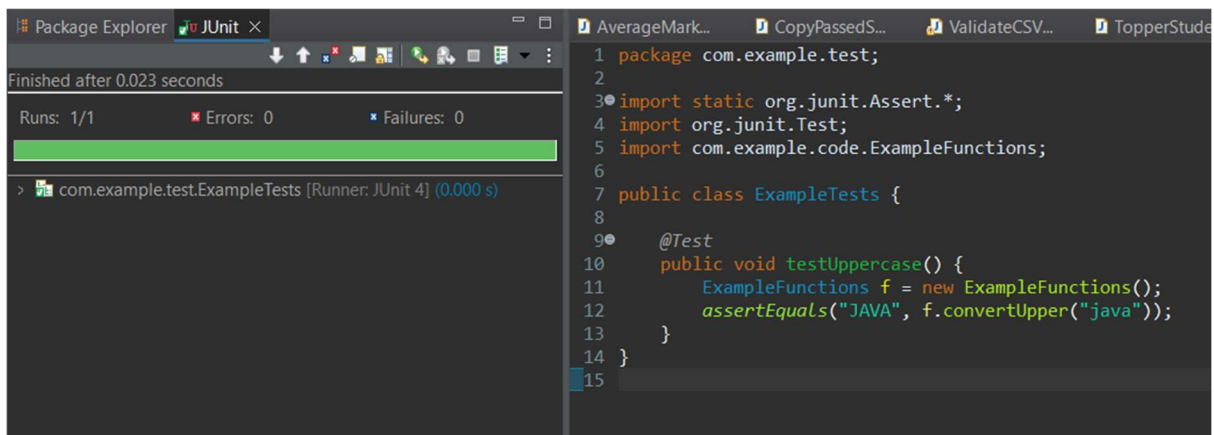
Returns input string in uppercase.

#### Test Focus:

- String comparison
- assertEquals

#### Expected Outcome:

Input "java" → Output "JAVA"



The screenshot shows an IDE with a JUnit test runner on the left and a code editor on the right. The test runner shows 'Finished after 0.023 seconds', 'Runs: 1/1', 'Errors: 0', and 'Failures: 0'. The code editor shows the following Java code:

```
1 package com.example.test;
2
3 import static org.junit.Assert.*;
4 import org.junit.Test;
5 import com.example.code.ExampleFunctions;
6
7 public class ExampleTests {
8
9     @Test
10    public void testUppercase() {
11        ExampleFunctions f = new ExampleFunctions();
12        assertEquals("JAVA", f.convertUpper("java"));
13    }
14 }
15
```

## Example 4

### Test Email Validation

#### Problem Statement:

Check whether an email contains @ symbol.

#### Method Logic:

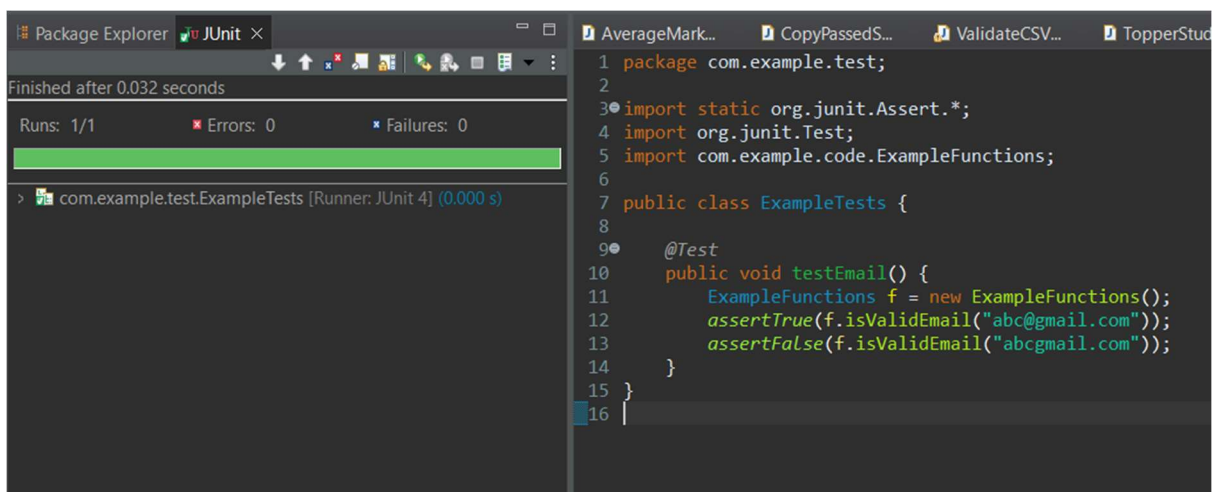
Returns true if email contains "@".

#### Test Focus:

- Basic string check
- assertTrue

#### Expected Outcome:

Valid email passes test.



The screenshot shows an IDE with a JUnit test runner on the left and a code editor on the right. The test runner shows 'Finished after 0.032 seconds', 'Runs: 1/1', 'Errors: 0', and 'Failures: 0'. The code editor shows the following Java code:

```
1 package com.example.test;
2
3 import static org.junit.Assert.*;
4 import org.junit.Test;
5 import com.example.code.ExampleFunctions;
6
7 public class ExampleTests {
8
9     @Test
10    public void testEmail() {
11        ExampleFunctions f = new ExampleFunctions();
12        assertTrue(f.isValidEmail("abc@gmail.com"));
13        assertFalse(f.isValidEmail("abcgmail.com"));
14    }
15 }
16
```

## Example 5

## Test Password Length Rule

### Problem Statement:

Check whether password length is at least 8 characters.

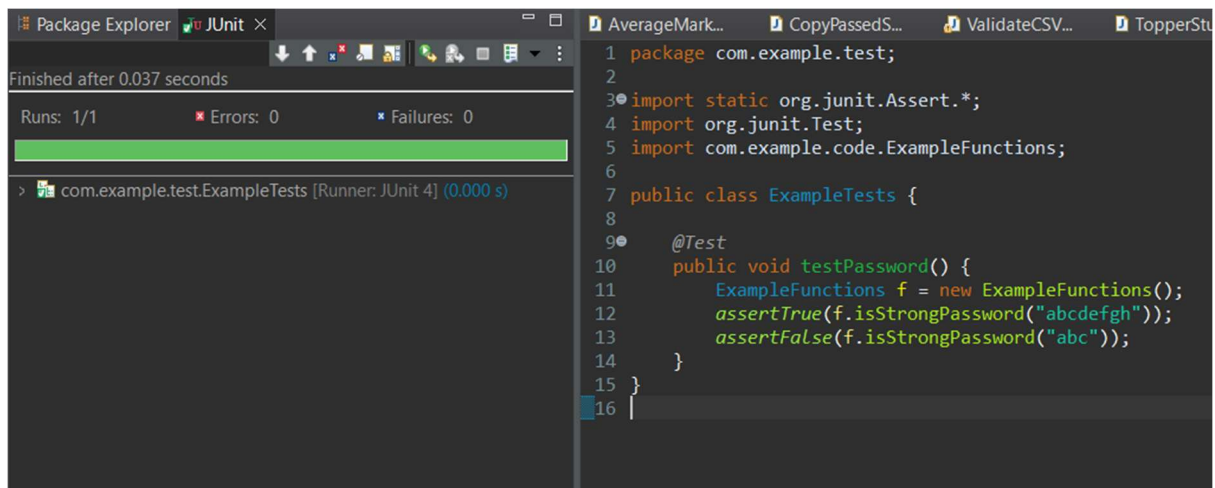
### Method Logic:

Returns true if password length  $\geq 8$ .

### Test Focus:

- Validation logic
  - assertTrue, assertFalse
- Expected Outcome:**

Short password fails.



## Example 6

### Test File Name Extension

### Problem Statement:

Check whether file name ends with .csv.

### Method Logic:

Returns true if file name ends with .csv.

### Test Focus:

- String method testing
- assertTrue

### Expected Outcome:

CSV file passes test.

```
1 package com.example.test;
2
3 import static org.junit.Assert.*;
4 import org.junit.Test;
5 import com.example.code.ExampleFunctions;
6
7 public class ExampleTests {
8
9     @Test
10     public void testCSV() {
11         ExampleFunctions f = new ExampleFunctions();
12         assertTrue(f.isCSV("data.csv"));
13         assertFalse(f.isCSV("data.txt"));
14     }
15 }
16
```

## Example 7

### Test Null Check

#### Problem Statement:

Return a username and ensure it is not null.

#### Method Logic:

Returns hardcoded username.

#### Test Focus:

- Null validation
- assertNotNull

#### Expected Outcome:

Username should not be null.

```
1 package com.example.test;
2
3 import static org.junit.Assert.*;
4 import org.junit.Test;
5 import com.example.code.ExampleFunctions;
6
7 public class ExampleTests {
8
9     @Test
10     public void testNotNull() {
11         ExampleFunctions f = new ExampleFunctions();
12         assertNotNull(f.getUsername());
13     }
14 }
15
```

## Example 8

### Test List SizeProblem Statement:

Add 3 items to a list and verify its size.

**Method Logic:**

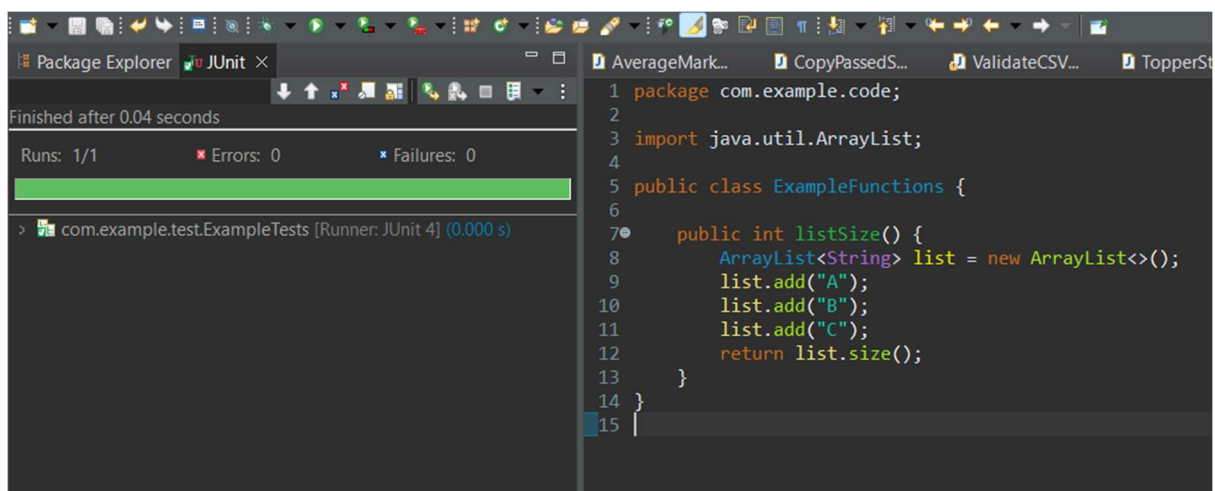
Returns list size.

**Test Focus:**

- Collection size
- assertEquals

**Expected Outcome:**

List size should be 3.



**Example 9**

**Test Array Contains Value**

**Problem Statement:**

Check whether an array contains a specific value.

**Method Logic:**

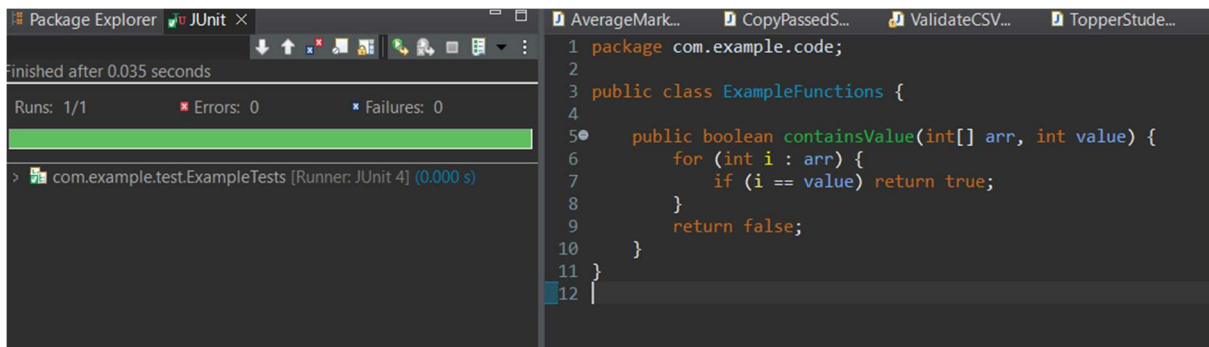
Returns true if value exists.

**Test Focus:**

- Loop-based logic
- assertTrue

**Expected Outcome:**

Value exists in array.



## Example 10

### Test Exception for Invalid Age

#### Problem Statement:

Throw exception if age is negative.

#### Method Logic:

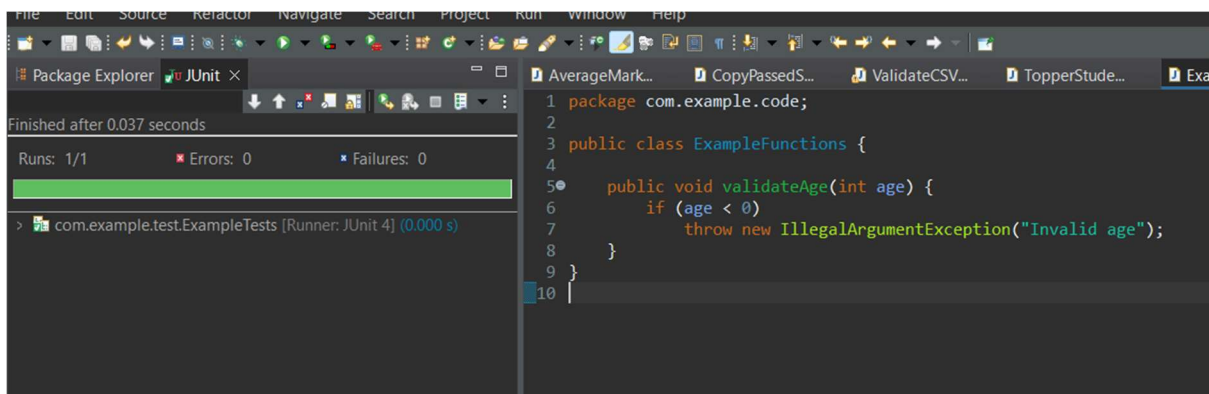
Throws `IllegalArgumentException`.

#### Test Focus:

- Exception testing • `@Test(expected = IllegalArgumentException.class)`

#### Expected Outcome:

Exception should be thrown.



## Example 11

### Test Greeting Message

#### Problem Statement:

Return greeting message based on username.

#### Method Logic:

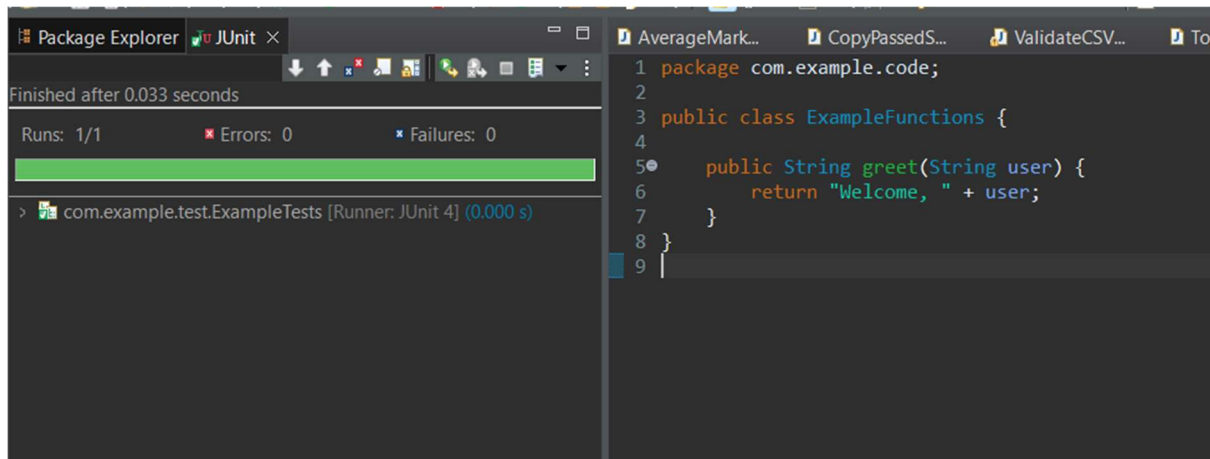
Returns "Welcome, User".

**Test Focus:**

- String comparison
- assertEquals

**Expected Outcome:**

Message should match exactly.

**Example 12****Test Boolean Flag****Problem Statement:**

Return true if user is active.

**Method Logic:**

Returns boolean status.

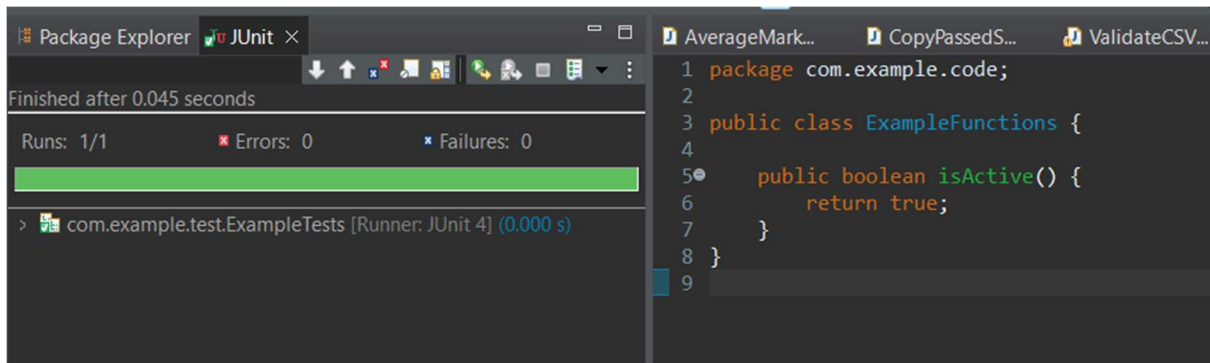
**Test Focus:**

- Boolean assertion
- assertTrue

**Expected Outcome:**

Active user returns true.





### Example 13

#### Test Character CountProblem Statement:

Count characters in a string.

#### Method Logic:

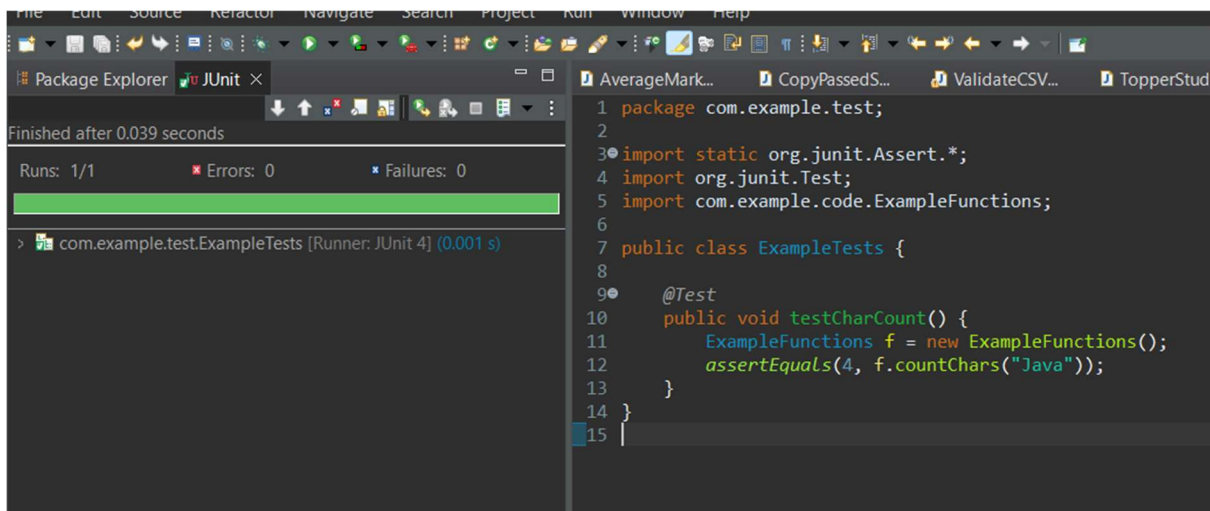
Returns string length.

#### Test Focus:

- Value comparison
- assertEquals

#### Expected Outcome:

Correct character count returned.



### Example 14

#### Test Default Value

#### Problem Statement:

Return default country code.

**Method Logic:**

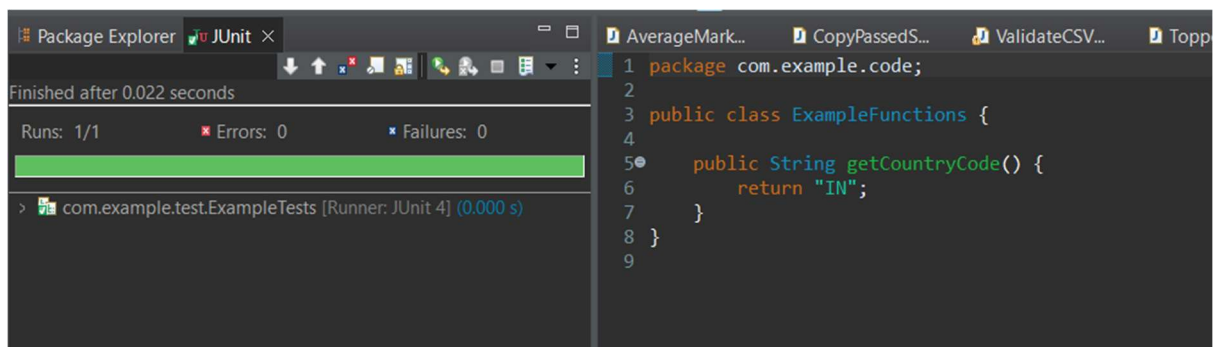
Returns "IN".

**Test Focus:**

- Default value testing
- assertEquals

**Expected Outcome:**

Country code matches.

**Example 15****Test Data Present Flag****Problem Statement:**

Check whether data exists.

**Method Logic:**

Returns true if data is present.

**Test Focus:**

- Simple flag testing • assertTrue

**Expected Outcome:**

Data presence validated.

```
AverageMark... CopyPassedS... ValidateCSV...
1 package com.example.code;
2
3 public class ExampleFunctions {
4
5     public boolean dataExists() {
6         return true;
7     }
8 }
9 |
```

```
Package Explorer JUnit X
Finished after 0.018 seconds
Runs: 1/1 Errors: 0 Failures: 0
> com.example.test.ExampleTests [Runner: JUnit 4] (0.000 s)

AverageMark... CopyPassedS... ValidateCSV... TopperStude...
1 package com.example.test;
2
3 import static org.junit.Assert.*;
4 import org.junit.Test;
5 import com.example.code.ExampleFunctions;
6
7 public class ExampleTests {
8
9     @Test
10    public void testDataExists() {
11        ExampleFunctions f = new ExampleFunctions();
12        assertTrue(f.dataExists());
13    }
14 }
15 |
```