

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

Example 2

Test Age Eligibility

Problem Statement:

Verify whether a user is eligible to vote.

Method Logic:

Returns true if age ≥ 18 .

Test Focus:

- Conditional logic
- assertTrue, assertFalse

Expected Outcome:

Age $\geq 18 \rightarrow$ eligible

Age $< 18 \rightarrow$ not eligible

Example 3

Test String Uppercase Conversion

Problem Statement:

Convert a string to uppercase and test the output.

Method Logic:

Returns input string in uppercase.

Test Focus:

- String comparison
- assertEquals

Expected Outcome:

Input "java" → Output "JAVA"

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.

Example 5**Test Password Length Rule****Problem Statement:**

Check whether password length is at least 8 characters.

Method Logic:

Returns true if password length ≥ 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.

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.

Example 8**Test List Size**

Problem 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 Count

Problem 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.