

## Laboratory Practical Assessment

**Topic : Functional Testing – Software Testing**

**Course : TESTQUA 31**

**Type : Laboratory Practical Assessment**

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### I. Instructions

1. Read each task carefully.
  2. Perform the required activities using any tool (manual, spreadsheet, or simple code).
  3. Submit:
    - PDF of your answers
    - Screenshots of executed tests (if applicable)
    - Completed test case table
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### II. Laboratory Scenario

You are assigned as a **QA Tester** for a new web application: “**UC Student Portal Login Page**”.

The login page has the following requirements:

1. A user must enter a valid **username** and **password**.
2. If the username or password is incorrect, the system must display:  
**“Invalid login credentials.”**
3. If fields are empty, the system must display:  
**“All fields are required.”**
4. For security, passwords must be at least **8 characters** long.
5. After 3 failed attempts, the system must show:  
**“Your account is locked. Contact administrator.”**

Using the Functional Testing concepts from the document , perform the tasks below.

### III. Practical Task

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#### Task 1: Identify What to Test (10 points)

Using the “What to Test in Functional Testing” section (Basic Usability, Main Functions, Accessibility, Error Handling) , list **at least 5 functional components** you will test in the login page.

- Verify that the login page accepts valid username and password.
  - Verify that an error message appears when username or password is incorrect.
  - Verify that system displays an error message when fields are empty.
  - Verify that password input requires at least 8 characters.
  - Verify that the system locks the account after 3 failed login attempts.
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#### Task 2: Functional Testing Process Application (20 points)

Apply the 4-step functional testing process from the document (Identify input → Expected outcomes → Execute test → Compare output) .

Complete the table below for **3 test cases**:

| Step                   | Test Case 1                  | Test Case 2                  | Test Case 3                                  |
|------------------------|------------------------------|------------------------------|--|
| Identify Inputs        | Valid username and password. | Invalid username or password | Empty username and password                  |
| Expected Output        | User successfully logs in    | Invalid login credentials    | Please enter your ID (or Email) and password |
| Actual Output          | User successfully logs in    | Invalid login credentials    | Please enter your ID (or Email) and password |
| Comparison (Pass/Fail) | Pass                         | Pass                         | Pass   |

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**Task 3: Create Detailed Functional Test Cases (30 points)**

Create **at least 5 functional test cases** using the following format:

Your test cases should cover:

- ✓ Valid login
- ✓ Invalid login
- ✓ Empty fields
- ✓ Short password
- ✓ Account lock after 3 attempts

| Test Case ID | Test Scenario                        | Test Steps   | Test Data  | Expected Result                                     | Actual Result                                | Status |
|--------------|--------------------------------------|--|--|---|--|--------|
| TC-001       | Valid login                          | 1. Enter valid username and password.<br>2. Click Login.       | Username:<br>56739484<br>Password:<br>validPass123 | Directly opens dashboard                            | Directly opens dashboard                     | Pass   |
| TC-002       | Invalid login                        | 1. Enter invalid username and password<br>.2. Click Login.     | Username:<br>56739484<br>Password:<br>wrong        | Invalid login credentials                           | Invalid login credentials                    | Pass   |
| TC-003       | Empty fields                         | 1. Leave both fields empty.<br>2. Click Login.                 | Username:<br>empty<br>Password:<br>empty           | Please enter your ID (or Email) and password        | Please enter your ID (or Email) and password | Pass   |
| TC-004       | Short password                       | 1. Enter valid username and Short password.<br>2. Click Login. | Username:<br>56739484<br>Password:<br>123          | Gives a message displaying "Password is too short". | Invalid login credentials                    | Fail   |
| TC-005       | Account lock after 3 failed attempts | 1. Enter invalid username and password.<br>2. Repeat thrice.   | Username:<br>56739484<br>Password:<br>wrong        | Account is locked                                   | Invalid login credentials                    | Fail   |

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**Task 4: Identify the Functional Testing Techniques Used (10 points)**

For each of your test cases in Task 3, classify them under appropriate techniques such as:

- Unit Testing
- Integration Testing
- System Testing
- Regression Testing
- Smoke Testing
- Sanity Testing
- User Acceptance Testing (UAT)

Use definitions from the document to justify your answers.

| Test Case                              | Technique Used      | Justification   |
|--|---------------------|---|
| Valid Login                            | System Testing      | Tests if the system accepts valid credentials.  |
| Invalid Login                          | System Testing      | Checks if the system gives an error message if encounters invalid credentials.                      |
| Empty Fields                           | System Testing      | Checks if the system gives an error message if it has empty fields.                                 |
| Short Password                         | Integration Testing | This test verifies the interaction between the login UI and the backend password validation module. |
| Account locked after 3 failed attempts | Integration Testing | Used when verifying interaction between multiple components.  |

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**Task 5: Compare Functional vs Non-Functional Tests (10 points)**

Using the comparison table in the document , list **3 functional** and **3 non-functional** tests applicable to the login page.

| Functional                             | Non - Functional |
|--|------------------|
| Valid Login                            | Empty Fields     |
| Invalid Login                          | Short Password   |
| Account locked after 3 failed attempts | Time Response    |

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**Task 6: Benefits & Limitations Analysis (10 points)**

Based on the “Benefits” and “Limitations of Functional Testing” sections of the document , answer the following:

1. How does functional testing improve software quality in the login module?
  - It checks if the login works according to requirements—accepting valid inputs, rejecting invalid ones, showing correct errors, and preventing misuse.
2. What limitations may affect the accuracy of your test results?
  - Incomplete requirements can lead to unclear results, and functional testing cannot detect performance issues or deeper security problems.

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**Task 7: Practical Execution (Hands-On) (10 points)**

Perform any **2** of your test cases manually (or using a mock HTML login page you create).

Submit **screenshots** showing:

- Input entered
- System response
- Your interpretation (Pass/Fail)

| Test Case     | Input Entered                          | System Response                        | Interpretation |
|---------------|--|--|----------------|
| Valid Login   | Refer to the<br>“Screenshot”<br>Folder | Refer to the<br>“Screenshot”<br>Folder | Pass           |
| Invalid Login | Refer to the<br>“Screenshot”<br>Folder | Refer to the<br>“Screenshot”<br>Folder | Pass           |

Submission:

Create a GitHub repository and upload all your files. Make your repository public so that I can access the contents for verification.