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

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

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.

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

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. 2. Click Login.	Username: 2408100 Password: validPass123	Directly opens dashboard	Directly opens dashboard	**Pass**
TC-002	Invalid login	1. Enter invalid username and password .2. Click Login.	Username: 2408100 Password: wrong	Invalid login credentials	Invalid login credentials	**Pass**
TC-003	Empty fields	1. Leave both fields empty. 2. Click Login.	Username: empty Password: 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. 2. Click Login.	Username: 2408100 Password: 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. 2. Repeat thrice.	Username: 2408100 Password: wrong	Account is locked	Invalid login credentials	**Fail**

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.

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

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.

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 "Screenshot" Folder	Refer to the "Screenshot" Folder	Pass
Invalid Login	Refer to the "Screenshot" Folder	Refer to the "Screenshot" 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.