Login System Testing Report

# 1. Project Overview

Objective:  
Apply both static and dynamic testing techniques to a simple login system, reinforcing concepts learned in Chapters 1, 3, and 4.  
  
System Description:  
The login system requires a valid username and password. If credentials are correct, access is granted. If incorrect, an error message is displayed. After three failed login attempts, the account is locked. This system was selected to demonstrate login-related test scenarios and apply black-box and white-box testing methods.

# 2. Requirements Review (Static Testing)

The requirements were reviewed for:  
- Ambiguities in behavior or terminology.  
- Inconsistencies or missing information.  
- Undefined edge cases (e.g., empty fields).  
  
Findings:  
The requirements are generally clear, but a few clarifications are recommended:  
- What happens after the account is locked?  
- Is there a cooldown period before retrying?  
- Do failed attempts reset after a successful login?

# 3. Test Case Design (Black Box Testing)

## 3.1 Equivalence Partitioning

|  |  |  |  |
| --- | --- | --- | --- |
| Test Case | Username | Password | Expected Result |
| TC01 | validUser | validPass | Access granted |
| TC02 | invalidUser | validPass | Access denied (error) |
| TC03 | validUser | invalidPass | Access denied (error) |
| TC04 | invalidUser | invalidPass | Access denied (error) |
| TC05 | [empty] | validPass | Error: Missing username |
| TC06 | validUser | [empty] | Error: Missing password |

## 3.2 Boundary Value Analysis (Login Attempts)

|  |  |  |  |
| --- | --- | --- | --- |
| Test Case | Attempts | Scenario | Expected Result |
| TC07 | 0 | No login attempted | No error |
| TC08 | 1 | First failed login | Error: 1st attempt failed |
| TC09 | 2 | Second failed login | Error: 2nd attempt failed |
| TC10 | 3 | Third failed login | Account locked |
| TC11 | 4 | Attempt after lockout | Still locked – no access |
| TC12 | Reset | Successful login resets attempts | Access granted, counter = 0 |

# 4. Test Execution Summary

|  |  |  |  |
| --- | --- | --- | --- |
| Total Test Cases | Passed | Failed | Blocked |
| 12 | 10 | 2 | 0 |

Failed Test Cases:  
- TC04: No clear error message shown for invalid credentials.  
- TC11: System allowed login attempt after account was locked.

# 5. Conclusion & Recommendations

The login system meets the basic requirements but has critical issues with:  
- User feedback during failed login attempts.  
- Account locking enforcement.  
  
Recommendations:  
- Add clear error and lockout messages.  
- Enforce a cooldown period after 3 failed attempts.  
- Include a "Forgot Password" option.  
- Reset failed attempts only after a successful login.

# 6. Test Data Used

A set of valid and invalid usernames and passwords were used to validate the system.  
- Valid Credentials: username = 'user1', password = 'pass123'  
- Invalid Credentials: username = 'fakeuser', password = 'wrongpass'  
- Edge Cases: Empty fields, special characters, very long strings.