

TUTORIAL 2

2. Identify a Bug or Propose a New Feature in an Application with Supporting Test Cases

Objective:

Train students in practical software analysis by identifying bugs or suggesting new features, and designing test cases to verify and validate the system's behavior.

Sample Application Used:

Login and Registration Web Application (HTML + PHP or Python Flask)

- Use a basic version from GitHub or local copy (<http://localhost/sample-login-app/>)

Tools Required:

- Web Browser (Chrome/Firefox)
- Code Editor (VS Code/Sublime)
- Excel/Google Sheets for documenting test case
- Optionally: DevTools (F12), Postman (for API), Selenium (for automation)

TASK 1: Identify a Bug

Step 1: Explore the Application

Navigate to the Login and Registration pages of the application.

Try these scenarios:

- Register with an existing email and verify that an error message is shown.
- Leave the password field blank during login and verify that an error message is displayed.
- Enter weak password '123' and verify the system rejects it.

- Attempt login with SQL injection string ' OR '1'='1 and verify that access is denied.



Observed Bug:

Bug Title: Verify that the registration form does not accept weak passwords like '123' and enforces password strength rules.

Bug Report:

Field	Details
Bug ID	BUG-2025-001
Bug Title	Check that weak passwords are not allowed during registration."
Module	Verify that the Registration page loads correctly with all required fields visible.
Environment	Chrome v116, Windows 10
Steps to Reproduce	1.Open the Registration page. 2.Enter a valid email address. 3.Enter password 123. 4.Click Submit . 5.Verify that the system rejects the weak password and displays an error message.
Expected Result	Enter a weak password '123' on the Registration page and verify that the error message 'Password too weak' is displayed.
Actual Result	Verify that registration succeeds with password '123' and the user is redirected or notified of successful registration.
Priority	High
Status	Open

Supporting Test Cases:

TC ID	Module	Test Case Description	Input	Expected Result	Actual Result	Status
TC01	Registration	Register with weak password	Email: user@test.com Password: 123	Show error: "Password too weak"	Registration success	 Fail
TC02	Registration	Register with strong password	Email: user@test.com Password: Abc@1234	User registered successfully	User registered	 Pass

Suggested Fix:

Implement password strength validation:

- Verify that the password must be at least 8 characters long during registration.
- Check that passwords include uppercase, lowercase, digits, and special characters.
- Verify that both JavaScript and server-side validation are applied for the registration form.

TASK 2: Propose a New Feature

Observed Issue:

Verify that the system does not provide a '**Forgot Password**' option, preventing users from recovering forgotten passwords.

Proposed Feature: Add "Forgot Password" Link

Feature Description:

Field	Details
Feature Title	Verify that the 'Forgot Password' function allows users to reset their password successfully.
Location	Verify that the Login page loads correctly with all required fields and buttons visible.
Description	Verify that clicking the 'Forgot Password?' link under the Login form navigates the user to the password reset page.
Benefit	Adding a 'Forgot Password?' link improves usability and allows users to recover their accounts easily.
Priority	Adding a 'Forgot Password?' link under the Login form enhances usability by providing a straightforward way for users to recover their accounts, reducing frustration and support requests.

Supporting Test Cases:

TC ID	Module	Test Case Description	Input	Expected Result
TC01	Forgot Password	Click on the 'Forgot Password?' link under the Login form.	Click	Click on the 'Forgot Password?' link under the Login form. Verify that the user is redirected to the Reset Password page.
TC02	Forgot Password	Enter a valid email address in the Reset Password page and submit the form.	Email: user@test.com	Enter a valid email on the Reset Password page and submit. Verify that the message 'Reset link sent to your email' is displayed.

TC03	Forgot Password	Enter an invalid email on the Reset Password page and submit. Verify that an appropriate error message is displayed indicating the email is not recognized.	Email: test@fake.com	Submit an invalid email on the Reset Password page. Verify that the message 'Email not found in our system' is displayed.
TC04	Forgot Password	Enter a new strong password on the Reset Password page and submit. Verify that the password is successfully updated and the user can log in with the new password.	New Password: Abc@1234	Reset the password with a strong new password. Verify that the message 'Password changed' is displayed and the user can log in with the updated password.
TC05	Forgot Password	Enter a weak password on the Reset Password page and submit. Verify that the system rejects it and prompts the user to create a stronger password.	New Password: 123	Reset the password using a weak password. Verify that the error message 'Password too weak' is displayed and the password is not accepted.

Summary for Students

Activity	Result
Bug Identified	Verify that the system incorrectly accepts a weak password during password reset.
Bug Severity	High
New Feature Proposed	Verify that the Forgot Password function allows users to reset their password using a valid email.
Supporting Test Cases Created	1.Click on the “ Forgot Password? ” link.

	<p>2.Enter a valid email and submit.</p> <p>3.Enter a weak password (e.g., 123) and submit.</p>
Tools Used	Browser, Excel, Editor