

Test Plan: User Registration Web Application

Project Name: User Registration Web Application **Prepared By:** Manogna N **Date:** July 28, 2025

1. Introduction

This test plan outlines the comprehensive strategy for testing the **User Registration Web Application**. This responsive web-based platform enables users to register, log in, and manage their profiles. The core objective of this testing effort is to ensure the application's **UI and backend API** function correctly, meet defined business requirements, perform reliably under various conditions, and deliver a seamless user experience. We will primarily leverage **automated test suites** to achieve these goals.

2. Scope

The testing scope encompasses both the user interface (UI) and the backend API of the User Registration Web Application.

2.1 UI Tests

These tests focus on the user-facing functionality and interactions:

- **User Creation:** Creating a new user account.
- **User Authentication:** Logging in with both valid and invalid credentials.
- **User Profile Management:** Editing an existing user's profile.
- **User Deletion:** Deleting an existing user account.

2.2 API Tests

These tests validate the functionality of the Node.js backend API, specifically covering standard **CRUD (Create, Read, Update, Delete)** operations.

3. Testing Approach

Our testing approach combines both functional and automation testing to thoroughly validate the application.

- **UI Functional and Automation Testing:** We will utilize **Selenium with Python** to automate UI test scenarios, ensuring consistent and repeatable validation of the frontend.
- **API Testing:** **Postman** will be used to validate the functionality, performance, and reliability of the backend APIs.

4. Tools Used

The following tools are integral to our testing process:

Tool	Purpose
Selenium	UI functional and automation testing
Postman	Manual and automated API testing
MongoDB	Database for backend data storage
Node.js	Backend API development
React	Frontend development
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5. Test Coverage

This section details the specific test scenarios and coverage for both the frontend and backend components.

5.1 Frontend (React App) - Functional UI Automation

Tool: Selenium

Feature	Test Case Description	Type	Priority
Login	Login with valid credentials	Positive	High

	Login with invalid credentials	Negative	High
Item Management	Create a new item with valid inputs	Positive	High
	Edit an existing item	Positive	High
	Delete an item (with confirmation)	Positive	High
Assertions	Verify item appears after creation	Validation	High
	Verify item is updated in UI	Validation	High
	Verify item is removed from UI	Validation	High
	Check UI message on failed login	Validation	Medium

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5.2 Backend (Node.js API) - API Test Automation

Tool: Postman

Endpoint	Test Case Description	Method	Type
/login	Login with valid credentials returns token/200	POST	Positive
	Login with invalid credentials returns 401	POST	Negative
	Missing fields return 400	POST	Validation
/items	Fetch list of items returns 200 and data	GET	Positive
/items	Create a new item returns 201	POST	Positive
	Missing fields return 400	POST	Validation
/items/:id	Update an existing item returns 200	PUT	Positive
	Invalid ID returns 404	PUT	Negative
/items/:id	Delete an item returns 200	DELETE	Positive
	Invalid ID returns 404	DELETE	Negative

6. Assumptions

The following assumptions underpin this test plan:

- The User Registration Web Application will be **stable and accessible** within the defined test environment.
 - All necessary test data will be available and correctly configured prior to test execution.
 - The development team will provide timely support for any identified issues or clarifications.
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7. Test Environment

Details of the environment used for testing:

- **Browsers:** Google Chrome version 138.0.7204.158 (Official Build) (arm64)
 - **Operating System:** Mac OS
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8. Exit Criteria

Testing will be considered complete and ready for release when all the following criteria are met:

- All defined test cases (both UI and API) have **passed successfully**.
- There are **no open critical or high-priority bugs**. All identified critical issues have been resolved and verified.