1. **Web Application – Automate Login Functionality**

**Describe your approach to automating the login functionality of a web application.**

A web application, also known as a web program, is an application program that can be accessed over the internet. A login page is one of the crucial parts of a web application. It helps to provide access to any user-based features into a webpage. As a critical part, the login feature plays a pivotal part in ensuring the security and overall functioning of the entire application, making it necessary to thoroughly test its functionality and addressing any potential issues.

To begin with automating the login feature, let us first check the prerequisites.

*We are using Selenium with Java for testing the login feature. Assuming we have JDK, IDE, Maven, Selenium Web Driver, Browser Driver preinstalled in our system, we can follow the given steps for automating the login functionality of a web page.*

1. Create a Selenium WebDriver instance
2. Navigate to the required webpage
3. Locate the relevant web element
4. Perform action on web element
5. Verify and validate the action

For the login feature, we will be interacting with the username/email, password and the login/submit button. To automate, following steps should be followed.

1. Choose the automation software (Selenium, in our case)
2. Design the test cases
3. Write the test scripts
4. Setup the test environment
5. Run the test
6. Handle the exceptions

**List your test cases.**

**Test Case ID**: TCID\_001

**Test Title**: Verifying Login into the webpage

**Preconditions**:

1. The web page is accessible.
2. The test environment is setup.
3. Valid and Invalid test credentials are available.

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| --- | --- | --- | --- | --- | --- | --- | --- |
| SN | Description | Test Steps | Pre-Conditions | Expected Result | Actual Result | Status | Comments |
| 1 | Launch the browser and access the login page. | 1. Open browser.  2. Click on Login button. | 1. Access to internet.  2. The feature is working properly. | Login page should open. | Login page is open. | Pass |  |
| 2 | Login into the system. | 1. Enter username and password.  2. Click on submit button. | Valid Username and Password. | The user should be navigated to their dashboard. | The user was successfully navigated to their dashboard. | Pass |  |
| Invalid Username and valid Password. | Error message should be shown.  The user should stay on login page. | Error message was shown.  The user was on the login page. | Pass |  |
| Valid Username and Invalid Password. | Error message should be shown.  The user should stay on login page. | Error message was shown.  The user was on the login page. | Pass |  |
| Invalid Username and Password. | Error message should be shown.  The user should stay on login page. | Error message was shown.  The user was on the login page. | Pass |  |
| Empty Username and Empty Password. | Error message should be shown.  The user should stay on login page. | Error message was shown.  The user was on the login page. | Pass |  |
| Enter ' OR 1=1 -- in the username field. | Error message should be shown.  The user should stay on login page. | Error message was shown.  The user was on the login page. | Pass | SQL Injection |
| 3 | The user is directed to the dashboard. | 1. Enter username and password.  2. Click on submit button. | Valid credentials. | The user should be directed to dashboard. | The user was directed to the dashboard. | Pass |  |

**Automate it using Selenium**

For the test, I have used a Lambda Test website, which is a dummy website for web automation testing. I have performed the test using Selenium with Test NG and four scenarios have been tested.

1. Invalid Email and Valid Password, which should result in the login test failure with an error message.
2. Valid Email and Invalid Password, which should result in the login test failure with an error message.
3. Empty Email and Password field, which should result in the login test failure with an error message.
4. Valid Email and Valid Password, which should result in the redirecting the user to home page.