Micro Project on Automation Testing using Selenium IDE

on

PURPLEMATH.COM

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Test Plan Identifier

Test Plan ID: Purplemath_Website_Test_Plan_01
This identifier ensures unique identification of the test plan within the project lifecycle.

References

❖ **Purplemath Website:** https://www.purplemath.com/

❖ **Selenium IDE User Guide:** A tool that allows us to record and run test cases in the browser automatically.
https://www.selenium.dev/selenium-ide/

❖ **IEEE 829-2008:** Standard for software test documentation, providing guidelines for structuring test plans.
https://jmpovedar.wordpress.com/wp-content/uploads/2014/03/ieee-829.pdf

Introduction

The purpose of this test plan is to ensure the quality of the Purplemath website. We are conducting testing to verify that critical features, such as the homepage, navigation bar, search functionality, contact form, and internal links, function correctly on the website. The testing will help identify any issues before the website is used by end-users. By conducting thorough testing, we aim to enhance user experience, prevent potential bugs or issues from affecting users, and ensure that the website meets the required performance standards. This will ultimately lead to a more reliable and user-friendly platform for the site's visitors.

Objective:

- ❖ To check the functionality of core features of the Purplemath website.
- ❖ To identify any bugs or issues that may affect user experience.
- ❖ To ensure the website works as expected across different browsers.

Test Items

The following items/features will be tested:

- ❖ **Home Page:** Verifying that the homepage loads correctly with all its elements, such as navigation bar, buttons, and text.

- ❖ **Navigation Bar:** Ensuring that all links in the navigation bar work and redirect to the correct pages.

- ❖ **Search Functionality:** Testing the search feature to confirm that it returns relevant results.

- ❖ **Contact Page Form:** Verifying that the contact form on the website submits information correctly.

- ❖ **Internal Links:** Checking that internal links within the website tutorials lead to the correct pages.

Software Risk Issues

Testing is often affected by external and internal factors. Here are the risks identified for this project:

❖ **Website Changes**: Any updates made to the website during testing may change the behavior of tested features. This could cause inconsistencies in test results.

❖ **Browser Compatibility**: Different browsers (like Chrome, Firefox, Safari) might render the website differently, which may result in test failures.

❖ **Network Issues**: Poor or unstable internet connectivity may affect the test execution, especially with features that depend on external data (e.g., search results).

❖ **Tool Limitations**: Selenium IDE might not capture all user actions perfectly, especially in dynamic content or with certain browser features.

Features to be Tested

The following features will be verified as part of this test plan:

❖ **Homepage loading and navigation**: Ensuring the homepage is displayed correctly and contains all navigation options.

❖ **Navigation bar functionality**: Verifying that the links on the navigation bar lead to the correct pages.

❖ **Search functionality**: Ensuring that searching for specific terms shows the correct results.

❖ **Contact page form submission**: Checking if the form submits data correctly and shows a confirmation message.

❖ **Internal links**: Ensuring that clicking on internal links (like "Algebra Lessons") takes the user to the correct content.

Features Not to be Tested

The following items will not be included in this test plan:

- ❖ **Mobile Version**: Testing will only be done on the desktop version of the website.

- ❖ **Backend Processes**: The way the website handles data behind the scenes (e.g., database storage) is not part of this testing.

- ❖ **Design or Aesthetics**: We are not testing the design or layout of the website, only functionality.

Approach

Testing will be done using the **Selenium IDE** tool, which will allow us to automate interactions with the website. The approach is as follows:

- ❖ **Automation Tool**: Selenium IDE will be used to create and run test cases. The tool can simulate user actions such as clicking links, entering search terms, and submitting forms.

- ❖ **Cross-Browser Testing**: Tests will be conducted on both **Google Chrome** and **Mozilla Firefox** to ensure compatibility across major browsers.

- ❖ **Manual Verification**: Some manual checks will be performed if Selenium IDE cannot fully test certain interactions.

- ❖ **Test Execution**: We will test each feature individually and log the results in Selenium's test logs.

Item Pass/Fail Criteria

For each feature, the test will either pass or fail based on the following criteria:

1. **Pass**: The website behaves as expected, with no errors, incorrect links, or missing elements.
2. **Fail**: If any discrepancies or bugs are found during the test (e.g., incorrect redirection, missing content), the test case will fail.

Example:

- If you test the homepage and all elements load as expected, it's a pass.
- If a link in the navigation bar redirects to an incorrect page, it's a fail.

Suspension Criteria and Resumption Requirements

Testing may be paused if certain issues occur:

- ❖ **Website Downtime**: If the Purplemath website is temporarily unavailable, testing will be suspended.

- ❖ **Major Bugs**: If a critical error is found (e.g., a broken homepage or non-working search), testing will be paused until the issue is fixed.

- ❖ **Resumption**: Testing will resume once the issue has been fixed or the website is restored.

Test Deliverables

The following deliverables will be provided at the end of the testing phase:

- ❖ **Test Case Scripts**: The automated test scripts used in Selenium IDE.

- ❖ **Test Execution Results**: A report showing which test cases passed and which failed.

- ❖ **Test Logs**: Logs generated by Selenium IDE during the test runs, including detailed information about failures.

- ❖ **Test Summary Report**: A document summarizing the overall results of the testing, including any issues found and their impact.

Remaining Test Tasks

- ❖ **Final Verification**: Run all tests once more to ensure that any issues have been resolved.

- ❖ **Re-test Failed Cases**: If any tests fail, those specific test cases will be re-executed after bugs are fixed.

- ❖ **Cross-Browser Testing**: Ensure the website behaves correctly in different browsers (Chrome, Firefox).

- ❖ **Bug Reporting**: Document any issues found during testing and share them with the development team for resolution.

Environmental Needs

To execute the tests, the following environments are required:

❖ **Operating Systems**: Windows 10 or higher, macOS.

❖ **Browsers**: Google Chrome (latest version) and Mozilla Firefox (latest version).

❖ **Internet Connection**: A stable connection to load and interact with the Purplemath website.

❖ **Selenium IDE**: The Selenium IDE plugin should be installed on the browsers for automated testing.

Planning Risks and Contingencies

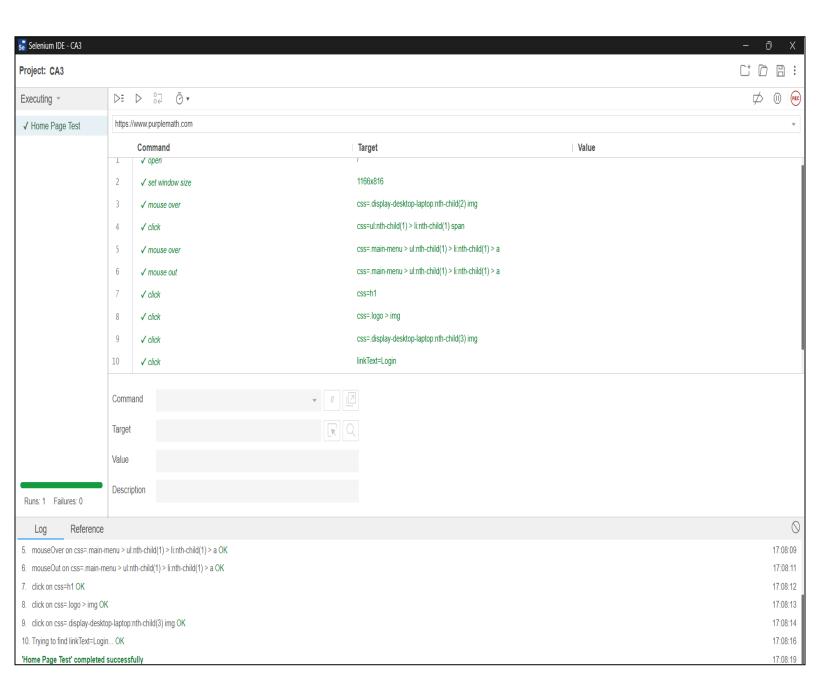❖ **Risk 1**: The website may change during the testing phase, causing test cases to fail.
Contingency: Keep a communication channel open with the development team to know about any changes to the site during testing.

❖ **Risk 2**: Selenium IDE might not capture complex interactions like drag-and-drop or dynamic content updates.
Contingency: Test these scenarios manually if necessary or switch to a more advanced tool.

❖ **Risk 3**: Browser compatibility issues may arise.
Contingency: Test on different browsers (Chrome, Firefox) and ensure the website functions across multiple platforms.
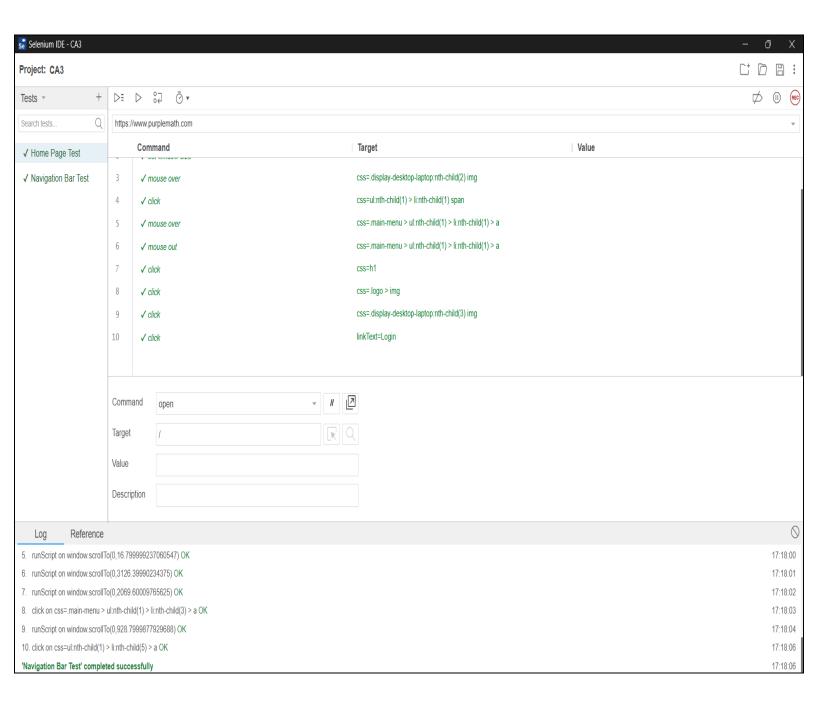
Glossary

❖ Test Case Scripts:

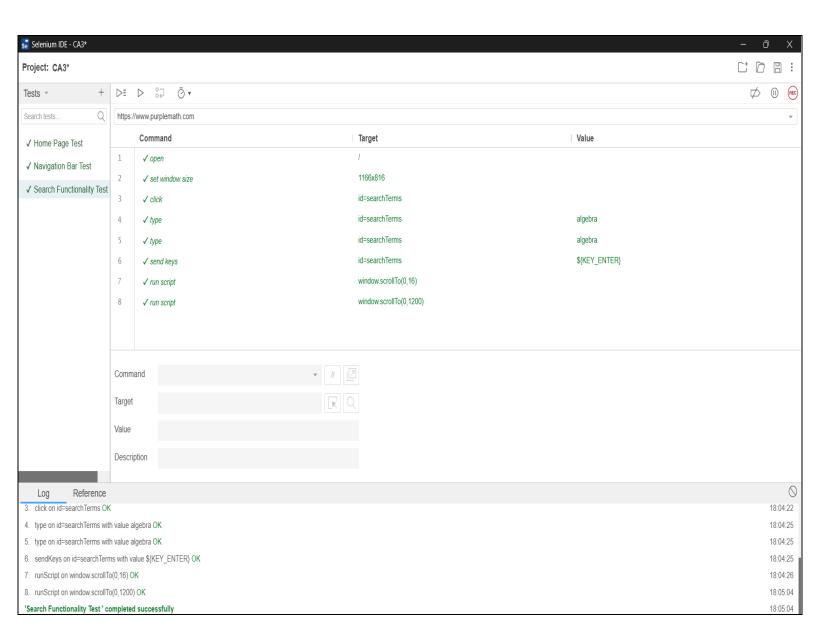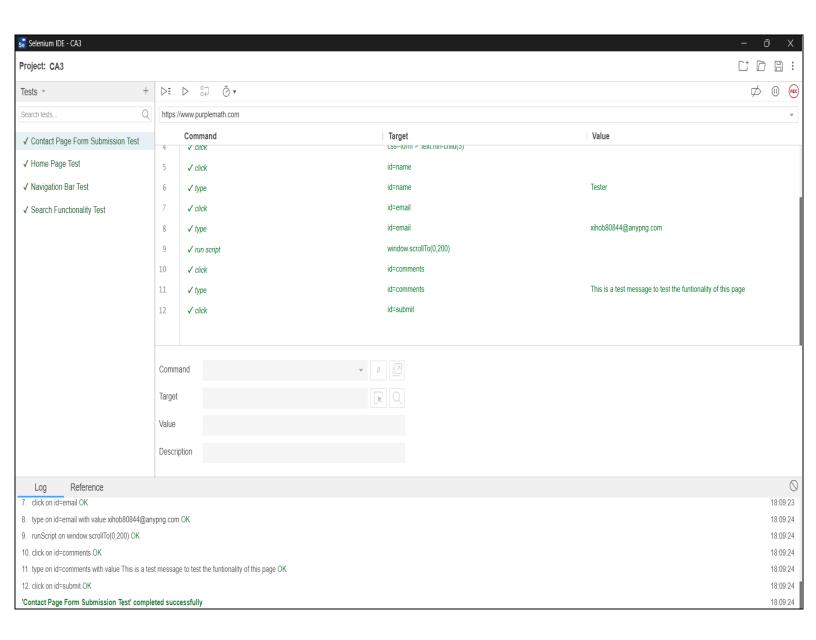| Test Scenario		Testing Purplemath.com	Tester		Sukhdeep Singh		Date		15/11/2024
ID	Test Case	Pre-condition	Test Steps	Test Data	Expected Output	Post-condition	Actual Output	Status	Comments
TC001	Verify Homepage Loads Successfully	The browser is installed and internet connection is active.	1. Open browser. 2. Navigate to Purplemath.	a. Valid URL b. Button clicked	Homepage loads with navigation links and topics.	Homepage remains loaded.	Homepage loads with navigation links and topics.	Pass	Home page Loads successfully.
TC002	Verify Navigation Bar	The homepage is loaded.	1. Click on all tab in the navigation menu. 2. Verify that the page is displayed.	a. Navigate all the pages in the navigation bar.	All page opens successfully.	User is on Find Local Tutors page.	All page opens successfully.	Pass	All pages works with no errors.
TC003	Verify Search Functionality	Homepage is loaded with a visible search bar.	1. Enter "Algebra" in the search bar. 2. Click the "Search" button. 3. Verify the search results page.	a. Enter "Algebra". b. Enter "Math".	Relevant search results are displayed.	User is on the search results page.	Relevant search results are displayed.	Pass	The search bar is functioning correctly.
TC004	Verify Contact Page Form Submission	The "Contact" page is accessible.	1. Navigate to "Contact" page. 2. Fill the form (name, email, message). 3. Submit the form. 4. Verify message.	Name: "Tester" Email: "tester39@example.com" Message: "Testing contact form"	Confirmation message is displayed.	Form submission is complete.	Confirmation message is displayed.	Pass	Form submission is complete, and the confirmation message is shown.
TC005	Verify Internal Links	User is on the Home page.	1. Click on a topic (e.g., "College Algebra"). 2. Verify the topic page is displayed with content.	a. Clicks on the Internal Links. b. Verify the links Workings.	Topic page content loads successfully.	User is on the selected topic's page.	Topic page content loads successfully.	Pass	Topic page content loads successfully.

❖ Home Page Test

❖ Navigation Bar Test

❖ **Search FunctionalityTest**

❖ Contact Page Form Submission Test

❖ Internal Link Working Test