Final Project Report: Automated Testing of Mercury Tours Website

Project Overview

This project focused on developing and implementing an automated testing suite for the Mercury Tours demo website (**https://demo.guru99.com/test/newtours**/). The primary objective was to ensure the reliability and functionality of key features such as user registration, login, and flight booking. By leveraging Selenium WebDriver with Python, we created a comprehensive set of test cases to validate various aspects of the website's functionality.

GitHub Repository

https://github.com/LeiaDing/TestingTravelWebsite

Technologies Used

1. Python: The primary programming language used for writing test scripts.

2. Selenium WebDriver: An open-source tool for automating web browsers, used to interact with web elements and simulate user actions.

3. unittest: Python's built-in testing framework used to organize and run test cases.

4. ChromeDriver: The WebDriver for Google Chrome, allowing Selenium to control Chrome browser instances.

5. xmlrunner: A test runner that produces XML reports, useful for integrating with CI/CD pipelines and generating readable test results.

6. webdriver\_manager: A library to automatically manage driver binaries for Selenium WebDriver.

Test Cases

Our test suite covered three main scenarios: Registration, Login, and Flight Booking. Here's a breakdown of the test cases and their results:

Scenario 1: Registration

1. test\_registration\_page\_load: Verified that the registration page loads correctly. (Passed)

2. test\_registration\_form\_fields: Checked the presence of all required form fields on the registration page. (Passed)

3. test\_successful\_registration: Attempted a successful user registration with valid data. (Passed)

4. test\_registration\_password\_mismatch: Tested the system's response to mismatched passwords during registration. (Passed)

5. test\_registration\_required\_fields: Verified that empty required fields are properly handled. (Failed)

Scenario 2: Login

6. test\_login\_page\_load: Confirmed that the login page loads correctly. (Passed)

7. test\_successful\_login: Attempted a successful login with valid credentials. (Passed)

8. test\_failed\_login: Verified the system's response to invalid login credentials. (Passed)

9. test\_empty\_login: Tested the system's handling of empty login fields. (Failed)

10. test\_logout: Verified the logout functionality. (Passed)

Scenario 3: Flight Booking

11. test\_flight\_page\_load: Checked that the flight booking page loads correctly. (Passed)

12. test\_flight\_search\_form\_fields: Verified the presence of all required fields in the flight search form. (Passed)

13. test\_flight\_search: Attempted a round-trip flight search with valid data. (Passed)

14. test\_one\_way\_flight\_search: Tested the one-way flight search functionality. (Passed)

15. test\_flight\_search\_no\_selection: Verified the system's response to a flight search with no selections. (Passed)

Test Results Summary

- Total Tests: 15

- Passed: 13

- Failed: 2

- Errors: 0

- Total Execution Time: 80.644 seconds

Conclusion

The automated testing suite for the Mercury Tours website successfully validated the majority of critical functionalities. However, some important issues were identified:

1. **Registration Process**: While most registration-related tests passed, there was an issue with handling required fields. The test test\_registration\_required\_fields failed, suggesting that the website might allow registrations with incomplete information. This could lead to data integrity problems and should be addressed.
2. **Login Functionality**: The failed test\_empty\_login test indicates a potential security vulnerability. The system should properly validate and reject login attempts with empty credentials. This needs to be fixed to enhance the security of the login process.
3. **Overall Reliability**: 13 out of 15 tests passed successfully, demonstrating that the core functionalities of registration, login, and flight booking are largely working as expected. This is a positive indicator of the website's overall reliability.
4. **Performance**: The total execution time of about 80 seconds for 15 tests is reasonable, but there might be room for optimization to reduce the test execution time further.