

Web Testing – Dynamic Data Filling using Selenium

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Abstract - Nowadays, Whenever we want to know about something, the first thing we do is open a website, eventually, they became quite popular. Therefore, developing one is not so easy; involves a lot of development and testing. Just as development, testing is also important and need to be taken care of when dealing with a lot of users or test cases.

Selenium is a free framework, which is used to automate the web testing process. In this article what we have done is collected all the variables from the code and put them aside in a sample data handling file formats. By doing this we do not need to hard code or need not disturb the code to that extent. Also, time can be saved with being less complex.

Key Words: Website Testing, Automation, Selenium Framework, Java, Jackson Library, Web Driver, TestCase executer

1. INTRODUCTION

Web applications are hard to test manually because those are becoming more complex day by day. If we do manual testing it will increase the cost of testing and the exact output and results are not expected in the manual testing.

1.1 Problem Statement

As automation made the testing process quite easier. One can save a lot of time and mundane process of sitting in front of the system for hours. Also, being automated yet there is a lot of data i.e, variables that change from site to site, is present inside the code. So, whenever we want to reuse the code for a different website, we need to go into code change all the attributes values, etc. So hardcoding need to be removed and the code should be dynamic.

1.2 Solution

To remove the hardcoding, we implemented a process to extract all the data and variables be links, address reference, actions, into a separate simple data handling file formats like .txt and .json

This solves this problem to a maximum extent, and reduce the code complexity and increases understandability.

1.3 Selenium

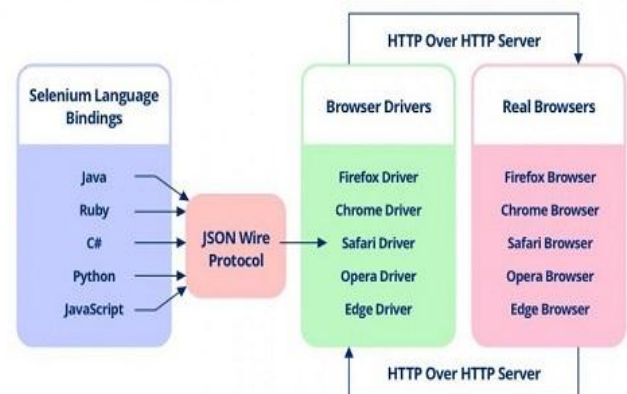
Selenium has become a recent trend in website automation. If you want to test a pretty big website robustly, with a lot of test suites and test cases, then Selenium web

driver is the best way. It's a set of language-specific bindings, to drive whatever browser we are using, Just like the method we wish them to. We can use subsequent languages to control the browser.

- Java
- Python
- C#
- Ruby
- Javascript
- Kotlin

We can also Use Selenium IDE or Grid for testing But we used just the web driver here for our purpose.

Selenium WebDriver Architecture



1.4 Jackson API

Jackson Library is a Java-based library to convert Java objects into JSON format or JSON data into java objects.

- Easy to use
- No need to create a mapping file to serialize Java objects to JSON and vice versa
- Jackson is kind of quick, consumes less memory house, and is appropriate for giant object graphs or systems
- It creates clean and compact JSON results which are easy to read
- Jackson library doesn't need the other library except JDK
- It is an open-source and free of usage



2. IMPLEMENTATION

The following are we used for implementation:

- Selenium
- Web browser
- Jackson library
- Selenium server standalone jar
- Text files – test case suite, test runner, test case file
- Json file – for user data
- Eclipse IDE
- Web driver (chrome, firefox, etc as per requirements)

Web driver drives the browser; for accessing and controlling a website we have the following elements

1. XPath
2. Class name
3. Id
4. Link text
5. Tag name
6. CSS selector
7. Element name

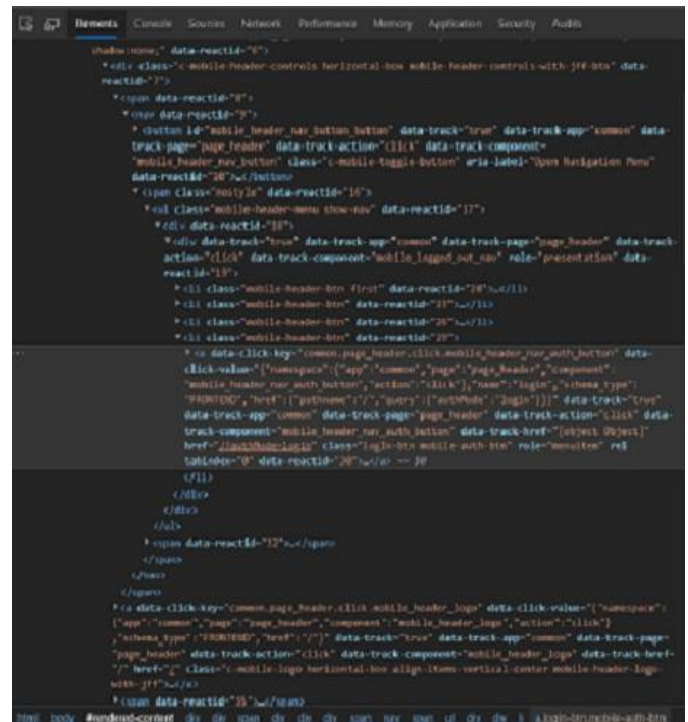


Chart -1: Source code

A file named TestRunner is the main method file and it handles and initializes everything. Instead of default args, it will take a text file as an argument which contains addresses to other files. The following are the files we used for demonstration purpose

1. Config text file
2. Login text file
3. Test data JSON file
4. Logout text file



Fig -1: Config text file

```
login.txt - Notepad
File Edit Format View Help
GOTO https://www.test_site.com/
LINKTEXT Log In
ENTER user_login {username}
ENTER login__user_password {password}
CLICKXPath /html/body/div[3]/div/div/span/div
[2]/div/div[3]/div/div/div/div[2]/div/div
[1]/form/div[1]/button
```

Fig -2: Login text file

```
testdata.json - Notepad
File Edit Format View Help
[
  {
    "id": "1",
    "username": "abc@test.com",
    "password": "12345678"
  }
]
```

Fig -3: Testdata JSON file

```
logout.txt - Notepad
File Edit Format View Help
CLICK right-nav-dropdown-btn
SCROLLCLICK .sign-out
```

Fig -3: Logout text file

So, various web elements can be used and targeted using this selenium and controlled for testing purposes. This, at times, can be used on a large scale web sites which saves a lot of time.

Multiple Selenium tests cases can be executed in parallel on the same machine or remote machines. By playing parallel & distributed testing, you will be saving time to run tests, execute the tests within the same machine; otherwise you can execute the tests on web servers.

3. CONCLUSION

In this article, we tested a website we made but can be applied and tested against any website. The only variable part in the entire idea is the elements need to be targeted in the text files and their respective actions on them. This considerably reduces a lot of time for testing eliminating manual testing. In real-time, when it comes to testing a million test suits will be there and with this method, on shifts, all of them can be done in hours which, when done manually, takes days.

REFERENCES

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BIOGRAPHIES



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