Content Testing Automation in Web Application of Global Websites through Selenium Automation Frame Work

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Abstract- **Rich Internet Application contains a wide variety of content feeds from external sources. Quality Logic can help with ongoing monitoring of this content to ensure the feed is up and that the appropriate content is being delivered. Test scenarios typically involve a combination of test automation and visual monitoring with test technicians as necessary. Whether the content feeds involve static HTML, XML, vector graphics, video, audio or other content, we can help ensure that your site provides the content that your customers expect. In this globalization world to develop the websites in the local languages without any issues is the key challenge and the same has been expected by our customers. The Key to success of the problem is to test the application in automated method.**

Keywords-**Web Application, Selenium Automation Frame Work, Globalization, Localization, System Integration Testing, Test Script**

I. INTRODUCTION

There are several ways to do testing the content. We can define the entire text element. Preserving the principle of single-point-of-change is an absolute necessity for maintaining large web applications. One final problem related to localization involves the technical sophistication of the page designers and language translators. The localization of a web application is based on its base version. Most of the cases localized version of the site remains unchanged in terms of the design and functionalities [1]. Contents for these localized versions will be shared by Customers who are from their respective geography. Contents are verified legally according to that geography by the customer. Manually verifying the content is a challenging and time taking activity. To reduce the effort and accuracy, we were looking for a technology, where we can deliver the product to our customer with 100% perfection and performance standards.
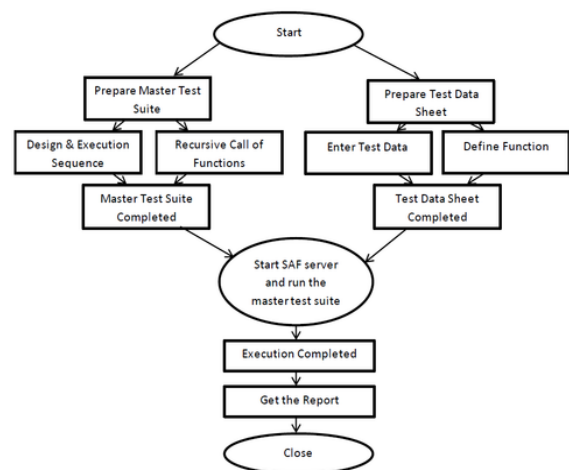
II. DESIGN MODEL

The website has to be tested for accuracy, completeness, consistency, spelling and accessibility. These are the major areas come to user's visibility. Users must have the best possible experience with the website.

The web application may access the content from the any Content management system or Data base. The following are the areas of failures while feeding the customer provided data through any content feeder.

1. There may be duplicate sentences present in the page.
2. There may be word/sentences missing at the time of transferring data from the document to the system.

Websites for different regions with respective locales and all these sites refer the base site. The entire locale will have content changes which would be the major task for testing. As part of this localization the requirements for the content change will be shared in the form of copy decks. The Key challenges at the time of testing as follows.

1. Tester need to find the content through website search option and verify the content's presence
2. For every small text we need to copy the text and search for it in the website.
3. Verify the provided content in the website is a challenge as we are not the language expert
4. If there is a mismatch than we need to manually verify all the text to identify the appropriate mismatch

Design Model of Test suite & Test Data (Figure -1)

III. IMPLEMENTATIONS

In this frame work QA person needs to maintain two files. QA person needs to prepare the Master Test Suite and Test Data Sheet. In the Master test suite tester need to define the design and execution sequence, where the tool will open the web page by given URL. There are two APIs defined as "VerifyText" and "VerifyTextpresent" (Figure 2). In case of "Verifytext" the tester needs to use the object ID of the particular Text, whereas "Verifytextpresent" recording of object ID is not required. At the time of execution the master sheet call the defined function mentioned in the data sheet and the function will relate the test data with the specified page in the test suite (Figure-1 shows the above explained process in details).

FunctionName	Actions	Object
HomePage	begin	
	verifyTextPresent	Col:C
	end	
Productpage	begin	
	verifyTextPresent	Col:D
	end	

Test suite design template (Figure -2)

Instead of doing manual testing the user can maintain the Web pages in the Master test suite sheet and test data sheet for content. Test data sheet should have the complete data of the webpage. The user needs to define a function of the data and number of iteration in the master test suite and it will call the defined function recursively (Figure-3). In test data sheet the data will be mapped with the function name and object address. For example: when the user executes the script the function will refer to the data value present in the respective column of the datasheet mentioned in the "object column". In the master test suite user needs to put a flag like "EX" or "NEX" where "EX" denotes that it will execute the particular script and "NEX" denotes that it will not execute the script.

| TCID	Action	Object	Value	Flag
1	start	CV1		Ex
	setTimeout		500000	Ex
	open	http://www.xyz.com		Ex
	printPassText	URL: for Home Page: http://http://www.xyz.com		Ex
	CallRecursive	HomePage	ITR_5_1	Ex
	open	http://http://www.xyz.com/products		Ex
	printPassText	URL: for Product Page :http://http://www.xyz.com/products		Ex
	CallRecursive	Productpage	ITR_2_1	Ex
	close			Ex

Test Data Design Template (Figure -3)

At the time of execution it crawls the defined pages and verifies the content in the background. Once the execution is completed it will generate the report in the HTML type. And report clearly shows the defects by highlight with Red Back ground color. It will also provide us the test case status.
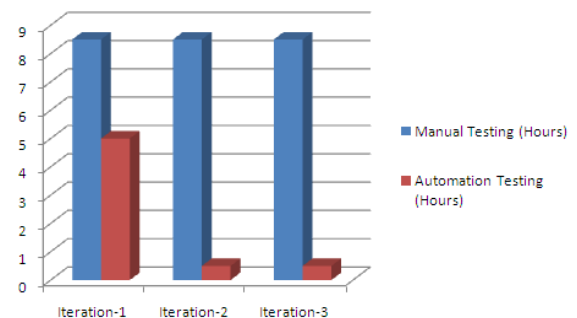
IV. CASE STUDY

We have experimented different sites and categorized and classified in three different scenarios, Small, Medium and Large. In small scale we have put the websites which contains below 50 pages, in medium scale it is 50-100 pages and in large scale more than 100 pages. The report of effort visualization shows a clear picture about this.

Below graph shows that for an application of 103 pages, the manual effort will be 26 hours whereas in automation we can execute in 18 hours for first iteration where as it can save completely for regression testing. In the first iteration also the tester can save at least 30% of effort in a large scale web application.
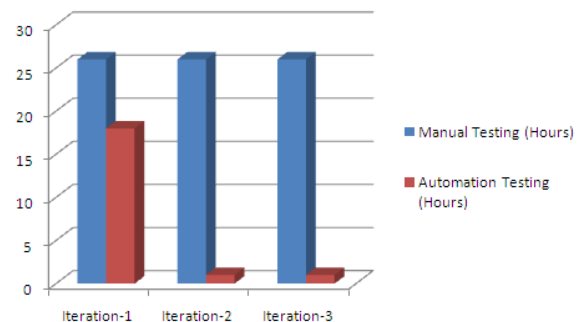
Below graph shows that for an application of 28 pages, the manual effort will be 8.5 hours whereas in automation we can execute in 5 hours for first iteration where as it can save completely for regression testing. In the first iteration also the tester can save at least 20% of effort in a small scale web application.

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The above case studies show that the automation process saves a lot of time and cost in the process of verification and detailed report generation. From iteration two onwards it is negligible.

V. BENEFITS REALIZED IN AUTOMATION TESTING

Automated software testing is the best way to increase the effectiveness, efficiency and coverage of your software testing. Automated software testing can increase the depth and scope of tests to help improve software quality [4] [5].The automation testing will help us to provide advantages as follows:

1. It will support multiple environments.
2. It will provide more coverage of regression testing.
3. It will reduce the elapsed time for testing, getting ready the application faster.
4. It will improve productivity of human testing.
5. It will improve the reusability of tests. It will provide the detail report and log.
6. It will improve accuracy. It will help developer to fix the issue faster as it can provide proper steps with
7. screen shot.

VI. CONCLUSION

This approach is for the web application where it will support the globalization standard contents. As an improving model to this solution we can enhance some more properties like, how do we cram one huge website into the small space? How do we please all the different user and clients when their goals are very different? How we can implement the legal policy in our tool so that it can find out easily if there is any illegal content in the website? [3]Therefore, content testing becomes particularly important, so you can demonstrate to both stakeholders and executives that satisfying users has to be a delicate balance between what they think is relevant and what the user finds valuable.

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