

Grunt JS Whitepaper

**White paper – Benefits of using  
Automated testing through,  
Selenium, FitNesse.**



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## Executive Summary

This white paper discusses about Selenium framework and Fitnesse frameworks.

Also discusses about what the power of combining both together is and the benefits over other prominent tools.

In real time what has been gained and the time saved to work on repetitive tasks for any change in the application.

## What is Selenium?

1. It is a portable software testing framework for web applications across different browsers like , , ,  etc, and also platforms.
2. It is designed in a way to support and encourage automation testing of functional aspects of web based applications and a wide range of browsers and platforms.
3. It has the support from some of the largest browser vendors who have taken (or are taking) steps to make Selenium a native part of their browser.
4. Also the core technology in countless other browser automation tools, APIs and frameworks.
5. Selenium provides record/playback tool for authoring tests without the need of learning a test scripting language.
6. Selenium provides a test domain-specific language to write tests in a number of popular programming languages, including Java, C#, Groovy, Perl, PHP, Python and Ruby.
7. Selenium tests can be run against most of the modern web browsers.
8. Selenium deploys on Windows , Linux  and Macintosh  platforms.
9. It is open-source  software, released under the Apache 2.0 license, and can be downloaded and used without charge.

## Why Selenium?

The benefits of Selenium are many,

1. Open Source and has multi browser and platform capability.
2. Supports execution of repeated test cases and encourages unattended execution.
3. Aids in testing a large test matrix and enables parallel execution.
4. Improves accuracy thereby reducing human generated errors.
5. Saves time and money.
6. Have a large user base and helping communities.
7. Has an active repository development.
8. Supports multi language implementations.

## What is Fitnessse?

Let us see what fitnessse in few important points is,

1. Lightweight, open-source framework for automated testing comprising a web server, a wiki and an automated testing tool for software.
2. Designed to support acceptance testing rather than unit testing in that it facilitates detailed readable description of system function.
3. Simple tool that allows non-technical users to specify and run acceptable tests for software systems.
4. An application testing suite that allows you to test the business layer of your application.
5. Not a browser automation tool, although there are such tools that work with Fitnessse.
6. Provides a method to automatically determine that your application is working correctly.
7. The tests that Fitnessse runs integrate the various layers of your application together, demonstrating even to non-coders that the application works as designed.
8. Finally the goal for Fitnessse is to operate at a level just below the user interface level, demonstrating that, given various inputs to your application, the correct results are returned.

## Why Fitnesse?

Let us see few important points which explain the benefits of Fitnesse.

1. Corroboration of testers, developers and customers to arrive at a common understanding as to what a story or feature should deliver.
2. Writing of Test Cases helps in getting quicker feedback and delivering the right business value.
3. Forces the users to keep the documentation update in terms of functional specifications and executable tests to get the desired outcome.
4. Easy customization through fixtures to support the tests.

## Power of Selenium + Fitnesse

Individually both Selenium and Fitnesse are powerful.  
Let us see what happens when both are put together,

1. Fitnesse provides the GUI for writing the Selenium Scripts and both put together support effective Test Driven development.
2. Test Scripts defined in Selenium can be easily translated into Wiki language which is understood by Fitnesse and vice Versa is possible through external tools.
3. This combination is very much useful for developing and maintaining a Regression Test Suite.



## What can be achieved with Selenium + Fitnesse?

1. Automation of Regression cum Functional Testing for Web Applications.
2. User Friendly as not much of coding knowledge is required and scripting can be done in Plain language using Fitnesse.
3. Supports TDD (Test Driven Development) & BDD (Business Driven Development) to write the tests.
4. The same set of scripts can be used for testing on multiple browsers.
5. Fixtures written in Selenium can be re-used across various projects.
6. Execution of Test Scripts for more than one module in parallel.
7. Session Handling can be achieved for multiple users.

## Advantage over other tools

Listed are the benefits of combining Selenium, Fitnesse over QTP which is the most widely used testing tool.

1. Version control through CVS, SVN, and GIT etc. are possible in Selenium to maintain the source code.
2. Eases up the efforts of Continuous Integration.
3. Integration to an existing repository or build tool is also supported without any issues.
4. Coding is possible in real programming languages, viz. Java, Ruby, Python, C#, Perl, Groovy etc, whereas QTP only supports VScript.
5. Functions known as fixtures in Selenium can be easily written or tweaked as per the requirements.
6. Open source community to help and debug.
7. No licensing or renewal costs involved including plug-ins to enhance the testing beyond Web based applications.
8. Supports the Agile Way of working to meet the frequent change in Business Requirements.

9. Less amount of Script maintenance.
10. Feedback of Test Results is very clear and comprehensive as well as easy to understand.
11. Selenium performs actions in the background on the browser i.e. user can execute tests with the browser minimized.

Setup of Test Environment is simple and is easily configurable.

The combination of Selenium and Fitnesse has been extensively used in our Account for automation of Regression Testing in two applications working under the Agile Scrum Methodology.

This has resulted in saving of Testing Efforts by at least 30% for each Sprint.

## What can be done?

### Category 1:

Conduct knowledge sharing and awareness for different projects and try to find out where the complete functional / regression testing is done manually.

### Category 2:

Find out the projects where the testing is automated to a certain extent using QTP.

For **Category 1**, introduction of Automated Testing through the combination of Selenium with Fitnesse would significantly reduce the testing efforts.

Whereas, using this combination on the **Category 2**, would not only save the testing efforts but also the licensing cost for replacing the partially built Testing Suites on QTP.

With a view to cater to the above needs, develop a POC is in covering one of the most widely used functionalities of the application and compare the results w.r.to time & effort spent, this will show you a lot of difference in terms of time, effort, cost etc.

## Conclusion

The main objective of this white paper is to bring the capabilities of Selenium, Fitnesse to fore front.

This helps in saving lot of time by reducing the manual effort and can be easily automate the things which are repeated.

The white paper highlighted the power of using Fitnesse together with Selenium, for the applications and explaining the advantages over prominent tools like QTP.

The paper also explains what can be done in-order to find out how this concept can be adopted and put in front of the existing or ongoing or newly born projects which really need to save time, effort, cost instead of paying huge licenses to the prominent tools.