

Problem Statement 1

- **Open-Source:**

Selenium is a freeware and a portable tool. It has no upfront direct costs involved. The tool can be freely downloaded and the support for it is freely available, as it is community-based.

- **Supports languages:**

Selenium supports a range of languages, including Java, Perl, Python, C#, Ruby, Groovy, JavaScript, etc. It has its own script, but it doesn't limit it to that language. It can work with various languages and whatever the developers/testers are comfortable with.

- **Supports Operating Systems:**

Selenium operates across and supports multiple Operating Systems, (OS) like Windows, Mac, Linux, UNIX, etc. With Selenium Suite of solutions, a tailored testing suite can be created over any platform and then executed on another one. For instance, you can create test cases using Windows OS and run it with ease on a Linux-based system.

- **Supports multiple browsers:**

Selenium provides support across multiple browsers, namely, Internet Explorer, Chrome, Firefox, Opera, Safari, etc. This becomes highly resourceful while executing tests and testing it across various browsers simultaneously.

The browsers supported by the Selenium packages are:

- Selenium IDE can be used with Firefox as a plug-in.
- Selenium RC and Webdriver supports diverse browsers, such as Internet Explorer.
- Supports programming languages and frameworks

Selenium integrates with programming languages and various frameworks. For instance, it can integrate with ANT or Maven type of framework for source code compilation. Furthermore, it can integrate with the TestNG testing framework for testing applications and reporting purposes. It can integrate with Jenkins or Hudson for Continuous Integration (CI) and can even integrate with other Open-Source tools to support other features.

- **Tests across devices**

Selenium Test Automation can be implemented for mobile web application automation on Android, iPhone, and Blackberry. This can help in generating necessary results and addresses issues on a continuous basis.

- **Constant updates**

Selenium support is community-based and active community support enables constant updates and upgrades. These upgrades are readily available and do not require specific training. This makes Selenium resourceful and cost-effective as well.

- **Loaded Selenium Suites**

Selenium is not just a singular tool or utility, it is a loaded package of various testing tools and so is referred to as a Suite. Each tool is designed to cater to different testing needs and requirements of test environments.

Additionally, Selenium comes with capabilities to support Selenium IDE, Selenium Grid, and Selenium Remote Control (RC).

- **Ease of implementation**

Selenium offers a user-friendly interface that helps create and execute tests easily and effectively. Its open-source features help users to script their own extensions which makes it easy to develop customized actions and even manipulate at an advanced level. Tests run directly across browsers and users can watch while the tests are being executed. Additionally, Selenium's reporting capabilities are one of the reasons for being chosen, as it allows testers to extract results and take follow-up actions.

- **Reusability and Add-ons**

Selenium Test Automation Framework uses scripts that can be tested directly across multiple browsers. Concurrently, it is possible to execute multiple tests with Selenium, as it covers almost all aspects of functional testing by implementing add-on tools that broaden the scope of testing.

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