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CAREER MOBILITY SOLUTIONS
We are on a mission to address the digital skills gap for 10 Million+ young professionals, train and empower them to forge a career path into future tech

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Selenium Fundamentals

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Introduction to Selenium

- Selenium was born in **2004** when Jason Huggins, an engineer at ThoughtWorks was working on an application that required lots of manual testing.
- He developed JavaScript code that could automate control of the browser, greatly streamlining the test process. This code came to be called “Selenium Remote Control” and was open-sourced later that year.
- Over the next few years, other developers got involved in the project and a few Selenium-related projects were spawned, including Selenium Grid, Selenium IDE, and Selenium WebDriver.
- This increasingly powerful set of tools is, as of now, essentially one fully coordinated test framework.

What is Selenium?

- Selenium is an open-source tool that automates web browsers. It provides a single interface that lets you write test scripts in programming languages like Ruby, Java, NodeJS, PHP, Perl, Python, and C#, among others.
- The Selenium testing software tool is used to automate tests across browsers for web applications. It's used to ensure high-quality web applications — whether they are responsive, progressive, or regular.
- Selenium is a browser automation tool.It consists of four components they are:
  - Selenium IDE
  - Selenium RC
  - Selenium Webdriver
  - Selenium Grid

Why Selenium?

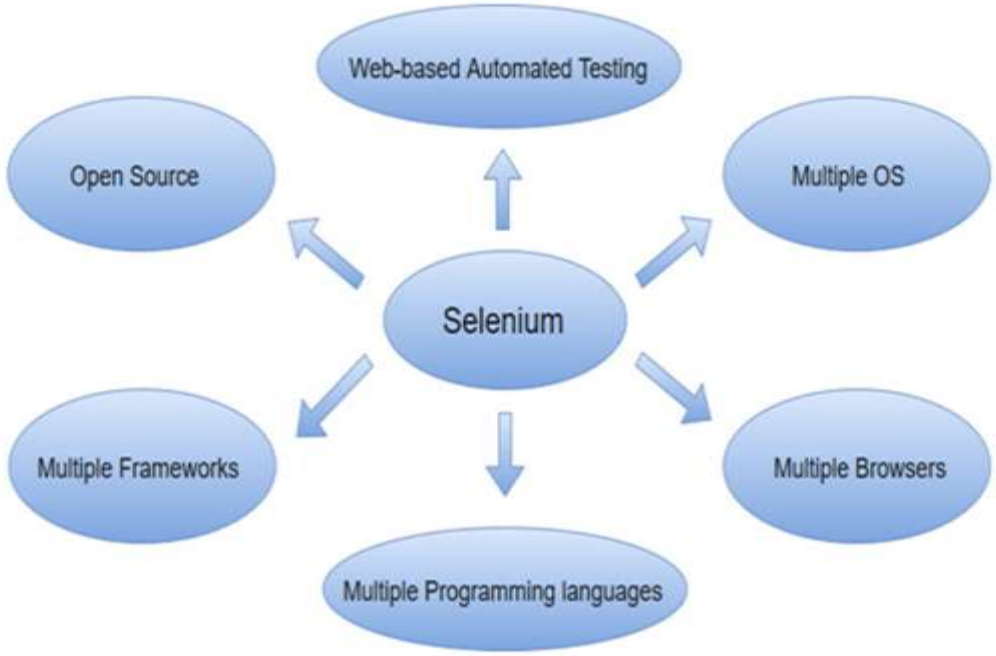
- Selenium is basically used to automate web browsers.
- It supports various browsers like Chrome, Mozilla, Firefox, Safari, and IE.
- Using Selenium WebDriver browser automation is done easily.
- Manual intervention is less, so the possibility of errors diminishes.
- It ensures higher ROI on the huge investments required initially.
- Automated tests make the process more reliable and the tests more dependable.

Why Selenium? (Contd.)

- It makes the test scripts reusable –Cross browser testing helps in performing multiple test across many devices parallelly.
- Most importantly, it enables testing in volumes.
- For instance, it allows you to run tests on thousands of mobile devices.
- In manual testing the same process requires a lot of time and effort which is practically impossible.

Advantages of Selenium

- Programming Language and Framework Support
- Free and Open Source
- Work on different Browsers
- Support Various Operating Systems(OS)
- Easy Implementation
- Reusability



Languages supported by Selenium

- Java
- Python
- Ruby
- C#
- Perl
- PHP

Platform supported by Selenium

- Operating System such as: Windows, Mac OS, Linux, Solaris.
- Browsers such as: Mozilla Firefox, Internet Explorer, Google Chrome, Safari, Opera.

What types of testing can be automated with Selenium?

Types of testing that are commonly automated with Selenium are:

1. Compatibility Testing:

- Done by QA professionals/Testers to ensure that the web app meets performance benchmarks on different browser-OS combinations. For example, testing on different devices (mobile and desktop) to ensure that the front-end fits to scale (responsive); testing on different browsers to see if video ads render on the pages as they should.

2. Performance Testing:

- Series of tests done by QA professionals/Testers to ensure that the project meets performance benchmarks set by the stakeholders. Tester writes a script that checks whether all elements on homepage load within 2 seconds on different browsers/browser versions.

What types of testing can be automated with Selenium?

3. Integration Testing:

- Done by developers to verify that units/modules coded separately (that work on their own), also work when put together. Parallel Test Calculator, for instance, has separate layers. UI takes input and business logic calculates the output—then sends it back to UI to display. The tester could verify whether they are able to relay data/output when integrated.

4. System Testing:

- aka Black Box testing. Done by Testers/QA professionals with no context of the code or any previously executed tests. Typically centered on a single user workflow. The check-out process on a product website, for instance, comprises of: validating user credentials, fetching products from the cart, checking their availability, and validating payment details—before redirecting to the bank website. The tester could write a script to verify that the entire system is functional.

What types of testing can be automated with Selenium?

4. End-to-end Testing:

- Also done by Testers/QA professionals, typically from the user's point of view. The aim is to verify that all touchpoints on the web app are functional. From the previous example, the tester could write a series of test cases to check that sign-up, product search, checkout, review, bookmark, and all other features function as intended (and fail when invalid values are entered in input fields).

5. Regression Testing:

- A series of tests done to ensure that newly built features work with the existing system. From the same example, say the product website launches a new feature (promotional codes) that automatically apply to eligible items before checkout. The tester could write cases to verify that it doesn't break the rest of the checkout feature.

Quiz

1) Select the language which is not supported by Selenium.

a) C#

b) JAVA

c) Pearl

d) ASP

Answer : Option d)

Quiz

2) Selenium core is set of ……. Functions which, is basically used to automate

a) Mobile Applications

b) Desktop Applications

c) Web Browsers

d) User Interfaces

Answer : Option b)

Quiz

3) Which Operarting System is not supported by selenium?

a) Windows

b) Mac OS

c) Unix

d) Solaris

Answer : Option c)

Quiz

4) A series of tests done to ensure that newly built features work with the existing system.

a) Usability Testing

b) Retesting

c) Regression Testing

d) Integration Testing

Answer : Option c)

Quiz

5) Testers write test to check how long it takes to navigate to next page? Identify the testing type.

a) Usability Testing

b) Load Testing

c) Performance Testing

d) Smoke Testing

Answer : Option c)


THANK YOU
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