Selenium IDE:

* Selenium IDE (Integrated Development Environment) is the major tool in the Selenium Suite.
* Selenium IDE is implemented as a Firefox Add-On and as a Chrome Extension.
* It is the simplest framework in the Selenium Suite.
* Selenium IDE allows for recording, editing and debugging of functional tests.
* Operates on the basis of the rich set of Selenese commands, which helps the IDE understand what needs to be done
* Allows the test developers to set breakpoints for the purpose of debugging particular test cases
* Test cases can be re-used using the run command. (e.g. allowing you to re-use the logic of login or reload on multiple places in the entire suite)

Selenium WebDriver:

* Selenium WebDriver is a programming interface that can be used to create and execute test cases. It allows you to test across all major programming languages, browsers, and operating systems.
* Selenium WebDriver is a browser automation framework that accepts commands and sends them to a browser.
* Selenium WebDriver, an interface to write instructions that work interchangeably across browsers.
* It is implemented through a browser-specific driver.
* It controls the browser by directly communicating with it.
* Selenium WebDriver supports Java, C#, PHP, Python, Perl, Ruby

Selenium Grid

* Selenium Grid is a server that allows tests to use web browser instances running on remote machines.
* With Selenium Grid, one server acts as the central hub. Tests contact the hub to obtain access to browser instances.
* The hub has a list of servers that provide access to browser instances (WebDriver nodes), and lets tests use these instances.
* Selenium Grid allows running tests in parallel on multiple machines and to manage different browser versions and browser configurations centrally (instead of in each individual test).

3.What is Selenium? How it is useful in Automation Testing?

Selenium is an open-source framework widely used for automating web browsers.

It provides a suite of tools and libraries that enable developers and testers to automate browser actions and simulate user interactions with web applications.

Selenium supports multiple programming languages, including Java, C#, Python, Ruby, and JavaScript, making it versatile and accessible to a broad range of users.

Automation testing refers to the practice of using software tools and scripts to execute test cases and validate the functionality of an application automatically.

Selenium is particularly popular in the field of automation testing due to its various features and capabilities.

Selenium Uses in Automation:

Selenium allows you to automate browser tasks, such as clicking buttons, filling out forms, navigating through pages, and extracting data.

It can interact with elements on a web page just as a user would, enabling comprehensive testing of web applications.

Since Selenium supports multiple web browsers, including Chrome, Firefox, Safari, Internet Explorer, and Edge, it enables cross-browser testing.

Test scripts can be written once and executed on different browsers to ensure consistent behavior and identify browser-specific issues.

Selenium integrates well with various testing frameworks, such as JUnit, TestNG, and PyTest, providing a structured approach to test development and execution.

Selenium provides a wide range of methods for locating elements on a web page based on attributes like ID, class, name, XPath, CSS selectors, and more.

Selenium allows you to write test scripts in multiple programming languages, enabling teams to use their preferred language or choose the one that suits their project requirements.

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4. Browser Driver used in Selenium.

In Selenium, through WebDriver Interface, we can access different browsers.

Following are the various browsers we can access

* ChromeDriver,
* ChromiumDriver,
* EdgeDriver,
* EventFiringWebDriver,
* FirefoxDriver,
* InternetExplorerDriver,
* RemoteWebDriver,
* SafariDriver