**What is Selenium testing?**

Selenium testing is a tool used for automating web applications to verify their functionality. It deals with browsers, clicks buttons, fills forms, and checks if the site works correctly.

### ****What is a Locator? How can you find elements in Selenium?****

Selenium uses locators to find and match the elements of a web page that it needs to interact with. There are different types of [Selenium locators](https://intellipaat.com/blog/locators-in-selenium/) to identify various web elements on a web page:

* ID
* Name
* Class
* Partial Link
* XPath
* [CSS Selector](https://intellipaat.com/blog/css-selector-in-selenium/)
* Link Text

**What are the test types supported by Selenium?**

For testing web-based applications, Selenium can be used.

The test types supported by Selenium are:

* **Functional testing**: It verifies if each function of a software application performs in accordance with specific requirements. This testing primarily involves black-box testing, and it is not concerned with the source code of the application.
* **Regression testing**: It is nothing but a full or partial selection of the already executed test cases to be re-executed to ensure whether the existing functionalities work fine.

### ****What is XPath?****

The fundamental concept behind locating elements using XPath is traversing between various elements across the entire page and thus enabling a user to find an element with the reference of another element.

**Explain the difference between single slash and double slash in XPath.**

* **Single slash (/)**: Single slash is used to create an XPath with an absolute path. In this case, the XPath would start selection from the document’s start node.
* **Double slash (//)**: Double slash is used to create an XPath with a relative path. In this case, the XPath would start selection from anywhere within the document.

**Why should you use Selenium for test automation?**

**Selenium should be used for test automation as it:**

* Is a free and open-source tool
* Has a large user base and community support
* Has cross-browser compatibility (Firefox, Chrome, Internet Explorer, Safari, etc.)
* Has great platform compatibility (Windows, Mac OS, Linux, etc.)
* Supports multiple programming languages (Java, C#, Ruby, Python, Perl, etc.)
* Has fresh and regular repository developments
* Supports distributed testing

**Does Selenium have any technical limitations? If so, what are those limitations?**

Yes, Selenium has a few limitations:

* Testing of only web applications is possible using Selenium.
* Testing of mobile applications or desktop applications is not possible.
* Captcha and barcode readers cannot be tested using Selenium.
* A third-party tool like [**TestNG**](https://intellipaat.com/blog/tutorial/selenium-tutorial/testng-in-selenium/) or JUnit should be used to generate reports.
* As Selenium is a free tool, there is no ready vendor support through which users can find various helping communities.
* Prior programming language knowledge is expected from users.

**What is Selenium?**

Selenium is a popular open-source software that is used to automate web-based applications. It is a set of multiple software tools, and each tool has a different approach to automated testing.

**Selenium has four major components, namely:**

* Selenium Integrated Development Environment
* Selenium Remote Control
* Selenium WebDriver
* Selenium Grid

### ****What is Selenium WebDriver?****

Selenium WebDriver is the most popular component of the Selenium framework. It is a powerful tool that allows you to automate web browsers. With Selenium WebDriver, you can write automation scripts in various programming languages and execute them on different browsers like Chrome, Firefox, Safari, and more.

**What is the difference between type keys and type commands?**

TypeKeys() will trigger JavaScript events, while type() won’t. TypesKeys collects different value attributes using JavaScript. Whereas, the type commands imitate an actual user typing.

**14. What are the advantages of Selenium?**

* Selenium is a purely open-source and portable automation testing tool.
* It supports different languages such as C#, PHP, Java, Perl, Python, JS, and Groovy.
* It also supports different OS, including Windows, Linux, UNIX, and Mac OS.
* It provides powerful methods such as Xpath, DOM, and CSS to locate elements.
* Since it is an open-source tool, developers can customize the code. Also, the developer community is supported by Google.

**Define automation testing, and list down its advantages.**

Automation testing, also known as test automation, involves using tools to automate the testing process, writing and executing test cases without human intervention. It empowers us to develop scripts that can be executed repeatedly and generate comprehensive test reports for the application.

Its advantages are given below:

* It helps with the performance and functional testing of an application.
* It makes the execution of repeated test cases easy.
* It facilitates the concurrent execution of multiple test cases.
* It boosts the accuracy and efficiency of the application by cutting down the chances of human error.
* It efficiently executes tests across an extensive test matrix.
* It saves time and money by reducing the burden of arbitrary tasks.

**How many types of WebDriver APIs are available in Selenium?**

The following is a list of WebDriver APIs:

* AndroidDriver
* ChromeDriver
* EventFiringWebDriver
* FirefoxDriver
* HTMLUnitDriver
* InternetExplorerDriver
* iPhoneDriver
* iPhoneSimulatorDriver
* RemoteWebDriver

### ****What is an exception test in Selenium?****

An exception test is a test that looks forward to an exception being thrown inside a [test class](https://intellipaat.com/blog/test-class-in-salesforce/). It anticipates the @Test annotation followed by the expected exception name

### ****What is TestNG in Selenium?****

TestNG is a popular testing framework that is widely used in Selenium. It is used to manage and run test cases in a more efficient and organized manner. TestNG provides features like grouping, parallel testing, and reporting.

**What is POM (Page Object Model)? What are its advantages?**

The page object model is a design pattern used to create object repositories for the web UI elements. Every web page of an application has a corresponding page class that is responsible for locating the web elements and performing actions on them.

Its advantages are as follows:

* It provides support to separate operations and flows on the UI from verification, hence improving code readability.
* As the object repository is independent of test cases, multiple tests can use the same object repository.
* It increases the reusability of the code

**What are the different types of annotations used in Selenium? Explain the JUnit annotation linked to Selenium.**

In Java, a special form of syntactic metadata can be added to the Java source code, which is known as ‘annotations’. Variables, parameters, packages, methods, and classes are annotated. Some of the [JUnit](https://intellipaat.com/blog/what-is-junit/) annotations are:

* Test
* Before
* After
* Ignore
* BeforeClass
* AfterClass
* RunWith

JUnit annotations linked to Selenium are:

JUnit AnnotationsJUnit Annotations

* @Test: The @Test annotation finds a method to be a test method. When used before a test method, it is mentioned as ‘@Test’; it informs the JUnit framework that the following method is a test method.
* @Before: @Before annotation serves the purpose of identifying the method that should be executed prior to running the test method. Its intended use is to establish and configure the test environment before conducting the actual test.
* @After: The “@After” annotation is utilized as a post-execution method following the execution of the test method. This annotation performs teardown operations, such as deleting temporary data, restoring default values, cleaning up the test environment, and other relevant tasks.
* @BeforeClass: The @BeforeClass method is used only once before the start of all tests. Basically, this is used to perform cumbersome activities, like connecting to a database.
* @AfterClass: The @AfterClass method is used only once after executing all tests. This is used to carry out clean-up activities, like disconnecting from a database.

**What are the four elements that you have to pass in Selenium?**

Four parameters that need to be passed in Selenium are:

* Host
* Port number
* Browser
* URL