

Selenium

What is Selenium?

Selenium is an open-source tool used for automating web browsers. It provides a suite of tools and libraries that allow developers to automate interactions with web applications, such as clicking buttons, filling out forms, navigating between pages, and more. Selenium is widely used for **web testing**, but it can also be used for web scraping, automating repetitive tasks, and other browser-based automation tasks.

Selenium supports multiple programming languages, including **Python**, **Java**, **C#**, **Ruby**, and **JavaScript**, making it accessible to developers from different backgrounds.

Key Features of Selenium:

1. **Supports Multiple Browsers** – Works with Chrome, Firefox, Edge, Safari, etc.
2. **Cross-Platform** – Runs on Windows, macOS, and Linux.
3. **Supports Various Programming Languages** – Java, Python, C#, JavaScript, Ruby, etc.
4. **Automates Web UI Testing** – Useful for functional and regression testing.
5. **Integrates with Testing Frameworks** – Works with JUnit, TestNG, NUnit, etc.
6. **Headless Browser Execution** – Can run tests without opening a visible browser.

Selenium Components:

1. **Selenium WebDriver** – The main tool used for browser automation.
2. **Selenium IDE** – A browser extension for recording and replaying test scripts.
3. **Selenium Grid** – Runs tests on multiple machines and browsers in parallel.
4. **Selenium RC**-RC server interact with browser(It is not direct process).

Launch Chrome Browsers using Selenium WebDriver

❖ Code

```
© Main.java  pom.xml (selenium-learn)  © OpenGoogle.java  OpenGoogleTest.java x
1  import org.openqa.selenium.By;
2  import org.openqa.selenium.Keys;
3  import org.openqa.selenium.WebDriver;
4  import org.openqa.selenium.chrome.ChromeDriver;
5  import org.testng.annotations.Test;
6
7  public class OpenGoogleTest {
8
9      @Test
10     public void googleTest(){
11         WebDriver driver = new ChromeDriver();
12         driver.get("https://www.google.com/");
13         driver.findElement(By.name("q")).sendKeys(KeysToSend: "colombo"+ Keys.ENTER);
14         //driver.quit();
15     }
16 }
17
```

❖ Output

```
Run  OpenGoogleTest x
[Icons] [Icons] [Icons] [Icons] [Icons] [Icons] [Icons] [Icons] [Icons] [Icons]
✓ Default Suite 20 sec 990 ms ✓ Tests passed: 1 of 1 test - 20 sec 990 ms
  ✓ selenium-learn 20 sec 990 ms
    ✓ OpenGoogleTest 20 sec 990 ms
      ✓ googleTest 20 sec 990 ms

=====
Default Suite
Total tests run: 1, Passes: 1, Failures: 0, Skips: 0
=====

Process finished with exit code 0
```

