**1. Introduction to Selenium WebDriver (10-15 minutes)**

* What is Selenium?
  + Open-source automation testing tool for web applications.
  + Supports multiple browsers and platforms.
* Key Components of Selenium:
  + Selenium IDE, Selenium RC, WebDriver, Selenium Grid.
* Why WebDriver?
  + Direct communication with browsers.
  + Faster and supports modern browser features.
* Supported languages: Java, Python, C#, etc.
* Overview of supported browsers: Chrome, Firefox, Edge, etc.

**2. Environment Setup (20-25 minutes)**

**Prerequisites:**

* Installed Java Development Kit (JDK) and configured the JAVA\_HOME environment variable.
* Installed an Integrated Development Environment (IDE) like Eclipse or IntelliJ IDEA.

**Steps to Set Up Selenium WebDriver:**

1. **Download Selenium JAR Files:**
   * Visit [Selenium’s official website](https://www.selenium.dev).
   * Download the latest WebDriver JARs.
2. **Download Browser Drivers:**
   * ChromeDriver: Download from chromedriver.chromium.org.
   * Geckodriver for Firefox, EdgeDriver, etc.
3. **Add Selenium JAR Files to IDE:**
   * Create a new Java project in the IDE.
   * Add Selenium JAR files to the project's build path.

**3. Writing the First Test Script (25-30 minutes)**

* **Objective**: Open Google in a browser and search for "Selenium WebDriver".

**Code Example:**

java

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.chrome.ChromeDriver;

import org.openqa.selenium.By;

public class FirstSeleniumTest {

public static void main(String[] args) {

// Set the path to the ChromeDriver executable

System.setProperty("webdriver.chrome.driver", "path\_to\_chromedriver");

// Initialize WebDriver

WebDriver driver = new ChromeDriver();

// Open Google

driver.get("https://www.google.com");

// Perform a search

driver.findElement(By.name("q")).sendKeys("Selenium WebDriver");

driver.findElement(By.name("q")).submit();

// Wait for a few seconds and close the browser

try {

Thread.sleep(3000);

} catch (InterruptedException e) {

e.printStackTrace();

}

driver.quit();

}

}

**Key Points to Discuss in Code:**

* Setting up WebDriver using System.setProperty.
* Using the get() method to navigate to a URL.
* Locating elements using By.name and sending input.
* Submitting forms and quitting the browser session.

**4. Q&A and Hands-On Practice (20 minutes)**

* Encourage participants to replicate the setup and run the sample code on their machines.
* Troubleshoot issues such as driver path errors, browser compatibility, or JDK/IDE setup problems.

**Homework/Practice Task**

* Modify the script to:
  1. Open another website, e.g., YouTube.
  2. Search for a specific video.
* Explore basic element locators: id, name, className, tagName.

**Session Resources**

* Selenium Official Documentation
* Download ChromeDriver
* Selenium WebDriver Java Quick Start