**Prerequisites**

1. **Java Development Kit (JDK)** installed on your system.
2. **Web Browser** (e.g., Google Chrome, Firefox).
3. **ChromeDriver** or equivalent WebDriver for your browser.

**Step 1: Install Java Development Kit (JDK)**

1. **Download JDK**:  
   Visit the [Oracle JDK Downloads](https://www.oracle.com/java/technologies/javase-downloads.html) page and download the latest version of JDK.
2. **Install JDK**:  
   Run the installer and follow the instructions. Ensure the installation path is noted (e.g., C:\Program Files\Java\jdk-XX).
3. **Set Environment Variable**:
   * Go to Control Panel > System > Advanced System Settings > Environment Variables.
   * Under **System Variables**, find Path, click **Edit**, and add the bin folder of your JDK (e.g., C:\Program Files\Java\jdk-XX\bin).
4. **Verify Installation**:  
   Open a terminal or command prompt and type:

bash

java -version

You should see the installed version of Java.

**Step 2: Download and Install Eclipse IDE**

1. **Download Eclipse**:  
   Go to the Eclipse Downloads page. Choose **Eclipse IDE for Java Developers**.
2. **Install Eclipse**:
   * Download the installer and run it.
   * Select **Eclipse IDE for Java Developers** and follow the installation instructions.
   * Once installed, launch Eclipse.

**Step 3: Set Up Selenium in Eclipse**

**A. Create a New Java Project**

1. Open Eclipse and go to File > New > Java Project.
2. Enter a project name (e.g., SeleniumTest) and click **Finish**.

**B. Download Selenium WebDriver**

1. Visit the Selenium Downloads page.
2. Download the **Selenium Java Client Library**.
   * This will download a .zip file containing JAR files.

**C. Add Selenium Libraries to Your Project**

1. Right-click your project in Eclipse and select **Build Path > Configure Build Path**.
2. Go to the **Libraries** tab and click **Add External JARs**.
3. Select all the .jar files from the downloaded Selenium folder, including those in the libs subfolder.
4. Click **Apply and Close**.

**Step 4: Download WebDriver**

1. Depending on your browser, download the appropriate WebDriver:
   * **ChromeDriver**: https://sites.google.com/chromium.org/driver/
   * **GeckoDriver** (Firefox): <https://github.com/mozilla/geckodriver/releases>
   * **EdgeDriver**: <https://developer.microsoft.com/en-us/microsoft-edge/tools/webdriver/>
2. Place the WebDriver executable in a folder (e.g., C:\drivers) and add the folder to your system's Path environment variable.

**Step 5: Write and Run a Selenium Script**

1. **Create a New Java Class**:
   * Right-click the src folder in your project.
   * Select New > Class.
   * Name the class (e.g., FirstTest) and check **public static void main(String[] args)**.
2. **Example Selenium Script**:

java

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.chrome.ChromeDriver;

public class FirstTest {

public static void main(String[] args) {

// Set the path to the WebDriver

System.setProperty("webdriver.chrome.driver", "C:\\drivers\\chromedriver.exe");

// Initialize WebDriver

WebDriver driver = new ChromeDriver();

// Open a website

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

// Print the title of the page

System.out.println("Page title is: " + driver.getTitle());

// Close the browser

driver.quit();

}

}

1. **Run the Program**:
   * Right-click on the class file and select **Run As > Java Application**.
   * The browser should open, navigate to Google, and print the page title.

**Step 6: Verify Installation**

Ensure the browser launches and the script executes successfully. If so, your Selenium setup is complete.

**Optional: Install TestNG (for Advanced Testing)**

1. Open Eclipse and go to Help > Eclipse Marketplace.
2. Search for **TestNG** and install it.
3. Restart Eclipse and create TestNG test cases for structured testing.