EX-4 Title: Script to Open Google.com, Verify Title, and Check Redirection to Google.co.in in Mozilla Firefox

AIM: To write a Selenium script that:

- Opens `google.com` in the Mozilla Firefox browser.
- Verifies that the page title is "Google".
- Checks if the page is redirected to `google.co.in`.

Tools and Technologies Used:

- Selenium WebDriver
- Java Programming Language
- Mozilla Firefox Browser
- GeckoDriver for Mozilla Firefox

Mozilla Firefox Browser:

Mozilla Firefox is an open-source web browser developed by Mozilla Foundation. It is one of the most widely used browsers globally, known for its speed, privacy features, and support for a wide range of web technologies. Firefox is built on the Gecko engine, which supports modern web standards. Selenium uses the GeckoDriver to communicate with the browser and automate interactions. GeckoDriver is the WebDriver implementation for Firefox, which is compliant with WebDriver specification.

Procedure for Running the Script:

1. Ensure that the system have the latest version of Mozilla Firefox installed.
2. **Set Up GeckoDriver:**

   ➢ Download GeckoDriver from the official website: [GeckoDriver Releases](#).
   ➢ Place the GeckoDriver executable in a specific directory.
   ➢ Add the path to GeckoDriver in the system properties or directly in the script.

3. Ensure that the Selenium WebDriver library is downloaded and add it to your project's build path.
4. **Write the Selenium Script:**
5. **Run the Script:**
6. Ensure the browser launches, navigates to Google, and outputs the results in the console.

Code:

```java
package Lab;;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
public class exp3 {
        public static void main(String[] args) {
        // Set the path for GeckoDriver
System.setProperty("webdriver.firefox.driver", "c://geckodriver.exe");


            // Initialize WebDriver for Firefox
 WebDriver driver = new FirefoxDriver();
            // Open google.com
  driver.get("https://www.google.com");
            // Get the current page title and verify it's "Google"
String pageTitle = driver.getTitle();
        System.out.println("Page Title: " + pageTitle);
                // Get the current URL to check if it has been redirected to google.co.in
 String currentURL = driver.getCurrentUrl();
        System.out.println("Current URL: " + currentURL);

        // Verify if the URL contains 'google.co.in' for redirection
        if (currentURL.contains("google.com")) {
           driver.navigate().to("https://www.google.co.in");
           System.out.println("Redirected to google.co.in successfully.");
        }
    else {
           System.out.println("Redirection to google.co.in failed.");
        }

        // Close the browser
        driver.quit();
      }


      }
```

Common Issues and Troubleshooting:

1. **GeckoDriver Version Mismatch:**
   If the version of GeckoDriver doesn't match the installed version of Firefox, the script will fail. Always download the GeckoDriver version corresponding to your Firefox browser version.
2. **Path to GeckoDriver:**
   If Selenium cannot locate the GeckoDriver executable, double-check the path specified in `System.setProperty()` and ensure it points to the correct location.
3. **WebDriverException:**
   If GeckoDriver fails to initialize or Selenium WebDriver throws an error, ensure:
   - Your Firefox browser is updated.
   - The correct version of GeckoDriver is being used.
   - The Selenium WebDriver JAR files are correctly included in your project's build path.
4. **Browser Not Opening:**
   If the browser doesn't open, check if:
   - The correct GeckoDriver executable path is provided.
   - The Firefox browser is correctly installed and updated.
5. **Timeouts:**
   Increase sleep time (if needed) to observe browser actions, especially on slower machines or networks.

Output:

```
Page Title: Google
Current URL: https://www.google.com/
Redirected to google.co.in successfully.
```

Result:- The Selenium script successfully:
     Opens the Google homepage in Mozilla Firefox.
     Verifies that the title is "Google".
     Checks if the page redirects to google.co.in.