**Lab Exercise 2 - Testing a Login Page using Selenium WebDriver in Java with Microsoft Edge**

**Objective**

* Automate login functionality testing using Selenium WebDriver.
* Validate correct and incorrect login attempts on a sample web application.

**Step 1: Prerequisites**

Before starting, ensure you have the following installed:

1. **Java JDK 17 or later**
2. **Microsoft Edge (Latest Version)**
3. **Microsoft EdgeDriver** (Download matching version from [Edge WebDriver](https://developer.microsoft.com/en-us/microsoft-edge/tools/webdriver/))
4. **Eclipse/IntelliJ IDEA** (or any Java IDE)
5. **Maven** (Optional, if using dependencies from pom.xml)
6. **Test Web Page:** Use any sample login page like https://practicetestautomation.com/practice-test-login/

**Step 2: Set Up Selenium WebDriver**

1. Download EdgeDriver matching your Edge version.
2. Extract and place msedgedriver.exe in a known location (e.g., C:\WebDriver).
3. Add Selenium dependencies (if using Maven):

<dependencies>

<dependency>

<groupId>org.seleniumhq.selenium</groupId>

<artifactId>selenium-java</artifactId>

<version>4.5.1</version>

</dependency>

</dependencies>

If not using Maven, download Selenium JAR files from Selenium Downloads and add them to the project's Build Path.

**Step 3: Writing Selenium Login Test**

Create a new Java class (LoginTest.java) and add the following code:

import org.openqa.selenium.By;

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.WebElement;

import org.openqa.selenium.edge.EdgeDriver;

import org.openqa.selenium.edge.EdgeOptions;

public class LoginTest {

public static void main(String[] args) {

// Step 1: Set the EdgeDriver path

System.setProperty("webdriver.edge.driver", "C:\\WebDriver\\msedgedriver.exe");

// Step 2: Configure EdgeOptions

EdgeOptions options = new EdgeOptions();

options.addArguments("--remote-allow-origins=\*");

// Step 3: Initialize WebDriver

WebDriver driver = new EdgeDriver(options);

try {

// Step 4: Open the Login Page

driver.get("https://practicetestautomation.com/practice-test-login/");

System.out.println("Opened Login Page: " + driver.getTitle());

// Step 5: Locate and fill in the username field

WebElement usernameField = driver.findElement(By.id("username"));

usernameField.sendKeys("student");

// Step 6: Locate and fill in the password field

WebElement passwordField = driver.findElement(By.id("password"));

passwordField.sendKeys("Password123");

// Step 7: Click the Login button

WebElement loginButton = driver.findElement(By.id("submit"));

loginButton.click();

// Step 8: Validate successful login

Thread.sleep(2000); // Wait for page to load

if (driver.getCurrentUrl().contains("practicetestautomation.com/logged-in-successfully")) {

System.out.println("Test Passed: Login successful!");

} else {

System.out.println("Test Failed: Login was unsuccessful.");

}

} catch (Exception e) {

e.printStackTrace();

} finally {

// Step 9: Close the browser

driver.quit();

}

}

}

**Step 4: Running the Test**

1. **Save the file** and **Run the program (LoginTest.java)**.
2. The Edge browser will launch, navigate to the login page, enter credentials, and validate the login.
3. **Expected Output (Console):**

Opened Login Page: Test Login Page

Test Passed: Login successful!

**Step 5: Negative Test Case (Invalid Login)**

Modify the code to test an incorrect username or password.

usernameField.sendKeys("wronguser");

passwordField.sendKeys("wrongpassword");

**Expected Output (Console):**

Opened Login Page: Test Login Page

Test Failed: Login was unsuccessful.

**Troubleshooting Common Errors**

**1. 403 Forbidden or WebSocket Error**

* Solution: Add the argument --remote-allow-origins=\* in EdgeOptions.

**2. WebDriver Not Found**

* Solution: Verify System.setProperty("webdriver.edge.driver", "C:\\WebDriver\\msedgedriver.exe");  
  Ensure msedgedriver.exe exists in the correct path.

**3. Element Not Found Exception**

* Solution:
  + Check if the **element IDs have changed** on the webpage.
  + Add a **wait statement** (Thread.sleep(2000)) before interacting.

**Summary**

* Successfully set up **Selenium WebDriver with Microsoft Edge**.
* Automated login **success and failure test cases**.
* Validated login using **page title and URL checks**.