**Implementing Automated Tests with Selenium**

Selenium allows automated testing of web applications across multiple browsers, including **Microsoft Edge**. Using the **Edge WebDriver**, we can interact with web pages as a user would.

**Features of Selenium with Microsoft Edge**

1. **Cross-Browser Testing** – Automates tests on **Edge, Chrome, Firefox, and more**.
2. **Multi-Language Support** – Works with **Java, Python, C#, JavaScript**.
3. **Supports Edge in Headless Mode** – Run tests without opening the browser.
4. **Integrates with Testing Frameworks** – Works with **JUnit, TestNG**.
5. **CI/CD Ready** – Can be integrated into **Jenkins, GitHub Actions, and Azure DevOps**.

**Setting Up Selenium for Microsoft Edge (Java)**

**Step 1: Install Java and IDE**

* Install **Java Development Kit (JDK 8 or later)**.
* Use an **IDE** like **IntelliJ IDEA or Eclipse**.

**Step 2: Add Selenium Dependencies (For Maven Projects)**

If using **Maven**, add this dependency to pom.xml:

<dependencies>

<dependency>

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

<artifactId>selenium-java</artifactId>

<version>4.10.0</version>

</dependency>

</dependencies>

**Step 3: Download Microsoft Edge WebDriver**

* **Download Edge WebDriver**:
  + Visit: [Edge WebDriver Download](https://developer.microsoft.com/en-us/microsoft-edge/tools/webdriver/)
  + Choose a version matching your **Edge browser version**.
  + Extract and place it in a directory like C:\WebDriver.
  + Add this directory to the **System PATH** or specify it in the script.

**Writing Automated Tests with Selenium and Edge**

**Example: Automating a Login Test**

import org.openqa.selenium.By;

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.WebElement;

import org.openqa.selenium.edge.EdgeDriver;

public class EdgeLoginTest {

public static void main(String[] args) {

// Set the path to Microsoft Edge WebDriver

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

// Initialize Edge WebDriver

WebDriver driver = new EdgeDriver();

// Open the login page

driver.get("https://example.com/login");

// Locate and fill username field

WebElement username = driver.findElement(By.name("username"));

username.sendKeys("test\_user");

// Locate and fill password field

WebElement password = driver.findElement(By.name("password"));

password.sendKeys("password123");

// Click login button

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

// Validate login success

if (driver.getTitle().contains("Dashboard")) {

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

} else {

System.out.println("Login Test Failed!");

}

// Close the browser

driver.quit();

}

}

**Executing Tests with Microsoft Edge**

**Run the Java Test File**

* In **Eclipse/IntelliJ**, right-click the file and **Run**.
* Alternatively, use the command line:

mvn test

**Run Microsoft Edge in Headless Mode**

Modify the script to run tests without opening the browser:

import org.openqa.selenium.edge.EdgeOptions;

EdgeOptions options = new EdgeOptions();

options.addArguments("--headless");

WebDriver driver = new EdgeDriver(options);

**Conclusion**

Selenium with **Microsoft Edge** allows **cross-browser automation** for web testing. By integrating it with **JUnit, TestNG, and CI/CD pipelines**, teams can efficiently validate web applications across multiple environments.