


Automation Testing of OrangeHRM using Selenium & TestNG (Maven Project)



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1 Project Title

Automation Testing of OrangeHRM Login Page using Selenium WebDriver and TestNG

2 One-Line Project Summary

This project automates the validation of the OrangeHRM login page by verifying the **page title**, **URL**, and **login header text** using **Selenium WebDriver with TestNG** in **Eclipse IDE**, managed through **Maven**.

3 Aim of the Project

The main aim of this project is to:

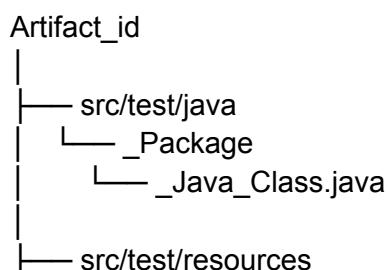
- Understand **real-time web automation testing**
 - Use **TestNG assertions** for validation
 - Automate basic but critical UI validations
 - Implement a **Maven-based Selenium framework**
 - Follow an **industry-standard project structure** that recruiters expect
-

4 Tools & Technologies Used

Tool / Technology	Purpose
Java	Programming language
Selenium WebDriver	Browser automation
TestNG	Test execution & assertions
Maven	Dependency management
Eclipse IDE	Development environment
Chrome Browser	Test execution
OrangeHRM Demo Site	Application under test

5 Project Folder Structure

The project follows a **standard Maven structure**, which is highly preferred in real-time automation projects:



```
|- Maven Dependencies  
|- JRE System Library  
|- pom.xml  
|- target  
|- test-output
```

- ◆ This structure improves **maintainability, scalability, and readability.**
-

6 Test Scenarios Covered

The following test scenarios are automated:

1. Validate the **page title** of OrangeHRM
2. Validate the **URL** after page load
3. Validate the **login header text (Login)**

Each scenario is independent and executed using **TestNG priorities**.

7 Automation Approach & Design

- Used **TestNG annotations (@BeforeMethod, @Test, @AfterMethod)**
- Browser setup and teardown handled centrally
- **Implicit Wait** implemented to handle synchronization
- Assertions used to validate expected vs actual results
- Tests executed in a **priority-based order**

This approach mimics **real industry automation frameworks**.

8 Code Implementation

📌 pom.xml (Maven Configuration)

```
<project xmlns="http://maven.apache.org/POM/4.0.0"  
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
        xsi:schemaLocation="http://maven.apache.org/POM/4.0.0  
                           http://maven.apache.org/xsd/maven-4.0.0.xsd">
```

```

<modelVersion>4.0.0</modelVersion>

<groupId>Artifact_id</groupId>
<artifactId>Artifact_id</artifactId>
<version>0.0.1-SNAPSHOT</version>

<dependencies>

    <!-- Selenium WebDriver -->
    <dependency>
        <groupId>org.seleniumhq.selenium</groupId>
        <artifactId>selenium-java</artifactId>
        <version>4.39.0</version>
    </dependency>

    <!-- TestNG -->
    <dependency>
        <groupId>org.testng</groupId>
        <artifactId>testng</artifactId>
        <version>7.11.0</version>
        <scope>test</scope>
    </dependency>

</dependencies>

</project>

```

Test Class (_Java_Class.java)

```

package _Package;

import java.time.Duration;

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;
import org.testng.Assert;
import org.testng.annotations.AfterMethod;
import org.testng.annotations.BeforeMethod;
import org.testng.annotations.Test;

```

```
public class _Java_Class {

    WebDriver driver;

    @BeforeMethod
    public void setup() {
        driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.manage().timeouts().implicitlyWait(Duration.ofSeconds(10));
        driver.get("https://opensource-demo.orangehrmlive.com/web/index.php/auth/login");
    }

    @AfterMethod
    public void end_test() throws InterruptedException {
        Thread.sleep(4000);
        driver.close();
    }

    @Test(priority = 1)
    public void check_title() {
        String actual_Title = driver.getTitle();
        String expected_Title = "OrangeHRM";
        Assert.assertEquals(actual_Title, expected_Title, "Title mismatch");
    }

    @Test(priority = 2)
    public void check_url() {
        String actual_URL = driver.getCurrentUrl();
        String expected_URL =
        "https://opensource-demo.orangehrmlive.com/web/index.php/auth/login";
        Assert.assertEquals(actual_URL, expected_URL, "URL mismatch");
    }

    @Test(priority = 3)
    public void check_h5() {
        WebElement head5 = driver.findElement(By.xpath("//h5"));
        String actual_text = head5.getText();
        Assert.assertEquals(actual_text, "Login");
    }
}
```

9 Assertions & Validation Strategy

- **Assert.assertEquals()** is used to compare:
 - Actual title vs Expected title
 - Actual URL vs Expected URL
 - Actual UI text vs Expected UI text
 - Assertion failures immediately mark the test as **FAILED**
 - Clear failure messages improve debugging
-

10 Challenges Faced & Solutions

Challenge 1: Synchronization Issues

Solution: Implemented **Implicit Wait** to handle dynamic loading elements.

Challenge 2: Test Dependency

Solution: Used **TestNG priorities** to ensure logical execution order.

Challenge 3: Browser Stability

Solution: Proper setup and teardown using **@BeforeMethod** and **@AfterMethod**.

11 Execution Flow

1. Browser launches
 2. OrangeHRM login page opens
 3. Title validation executes
 4. URL validation executes
 5. Login header text validation executes
 6. Browser closes after each test
-

12 Key Learning Outcomes

- Hands-on experience with **Selenium WebDriver**
- Practical understanding of **TestNG framework**

- Maven dependency management
 - Writing clean and maintainable automation code
 - Understanding **real-world automation testing workflow**
-

13 Conclusion

This project demonstrates my ability to design and implement a **basic yet industry-relevant automation framework** using Selenium and TestNG. It reflects my understanding of **UI validation, test structure, assertions, and Maven configuration**, making it suitable for **entry-level SDET / Automation Tester roles**.
