1. PROJECT SETUP

```xml
<!-- https://mvnrepository.com/artifact/org.seleniumhq.selenium/selenium-java -->
<dependency>
    <groupId>org.seleniumhq.selenium</groupId>
    <artifactId>selenium-java</artifactId>
    <!-- <version>4.10.0</version> -->
    <version>${selenium.java.version}</version>
</dependency>

<!-- https://mvnrepository.com/artifact/io.github.bonigarcia/webdrivermanager -->
<dependency>
    <groupId>io.github.bonigarcia</groupId>
    <artifactId>webdrivermanager</artifactId>
    <version>${webdrivermanager.version}</version>
</dependency>

<!-- https://mvnrepository.com/artifact/org.testng/testng -->
<dependency>
    <groupId>org.testng</groupId>
    <artifactId>testng</artifactId>
    <version>${testng.version}</version>
    <scope>test</scope>
</dependency>
```

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2. Declare Web Elements

```java
/*************************************************************************/
// Data Members | Properties
// Web Elements Declaration
/*************************************************************************/


// With Page Factories
1 usage
@FindBy(xpath = "//*[@id='user-name']")
private WebElement textBox_Username;


1 usage
@FindBy(xpath = "//input[@placeholder='Password']")
private WebElement textBox_Password;


1 usage
@FindBy(id = "login-button")
private WebElement button_Login;
```

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3. Operations on Web Elements

```java
/*****************************************************************************/
// Methods | Tasks | Functionality | Behavior
// Operations on the Web Elements
/*****************************************************************************/


/**
 * Fills the username field with the provided username.
 *
 * @param username The username to be filled in the username field.
 */
1 usage    ± "Rajat
public void fill_TextBox_Username(String username) { textBox_Username.sendKeys(username); }

/**
 * Fills the password field with the provided password.
 *
 * @param password The password to be filled in the password field.
 */
1 usage    ± "Rajat
public void fill_TextBox_Password(String password) { textBox_Password.sendKeys(password); }

/**
 * Clicks the login button.
 */
1 usage    ± "Rajat
public void click_Button_Login() { button_Login.click(); }
```

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4. Create Test and call Objects

```java
@Test
public void test_Login_Functionality_Valid_Credentials(){

    getDriver().get("https://www.saucedemo.com/");

    LoginPage loginPage = new LoginPage(getDriver());
    loginPage.fill_TextBox_Username("standard_user");
    loginPage.fill_TextBox_Password("secret_sauce");
    loginPage.click_Button_Login();

    HomePage homePage = new HomePage(getDriver());

    // Assert.assertEquals() -
        // Boolean values as Actual and Expected
        // String values as Actual and Expected
    // This is the example of POLYMORPHISM (OOPS Concept) - Compile Time (Method Overloading)
        // It allows us to perform a single action in different ways.
    Assert.assertEquals(homePage.get_Element_Icon_Twitter().isDisplayed(),  expected: true,
            message: "Assertion for Twitter icon presence in the Footer");

    String msg_FooterText_Actual = homePage.get_Element_Msg_Footer().getText();
    String msg_FooterText_Expected = "© 2023 Sauce Labs. All Rights Reserved. Terms of Service | Privacy Policy";
    Assert.assertEquals(msg_FooterText_Actual, msg_FooterText_Expected,
            message: "Assertion for message present in the Footer");     }
}
```

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