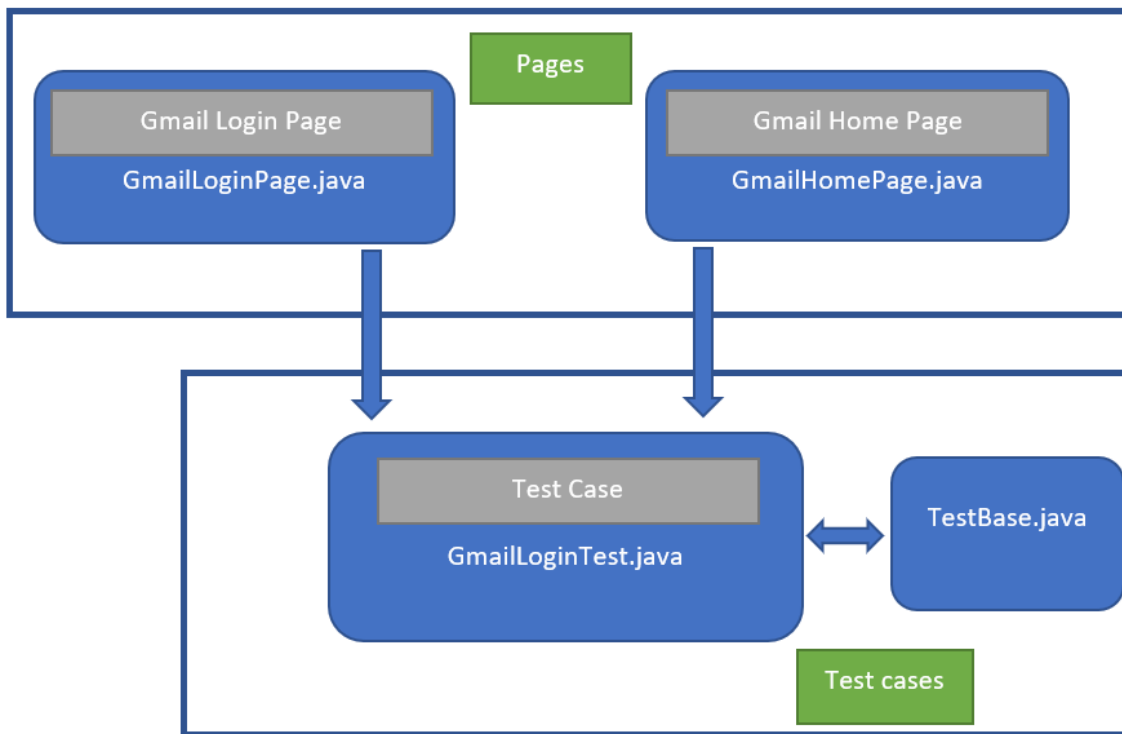


Page Object Model (POM)

What is POM?

POM is a design pattern which is commonly used in Selenium for Automating the Test Cases. This design pattern can be used with any kind of framework like keyword-driven, Data-driven, hybrid framework, etc. The Page object is an object-oriented class which acts as an interface for the page of your Application under test. Page class contains web elements and methods to interact with web elements. While Automating the test cases, we create the object of these Page Classes and interact with web elements by calling the methods of these classes.

Page Object Model Design Pattern



Uses of Page Object Model (POM):

This Design Pattern is used in Selenium where web pages are represented by a corresponding class and web elements are represented by the variables of the class and all interactions are possible through the methods or say functions of the class.

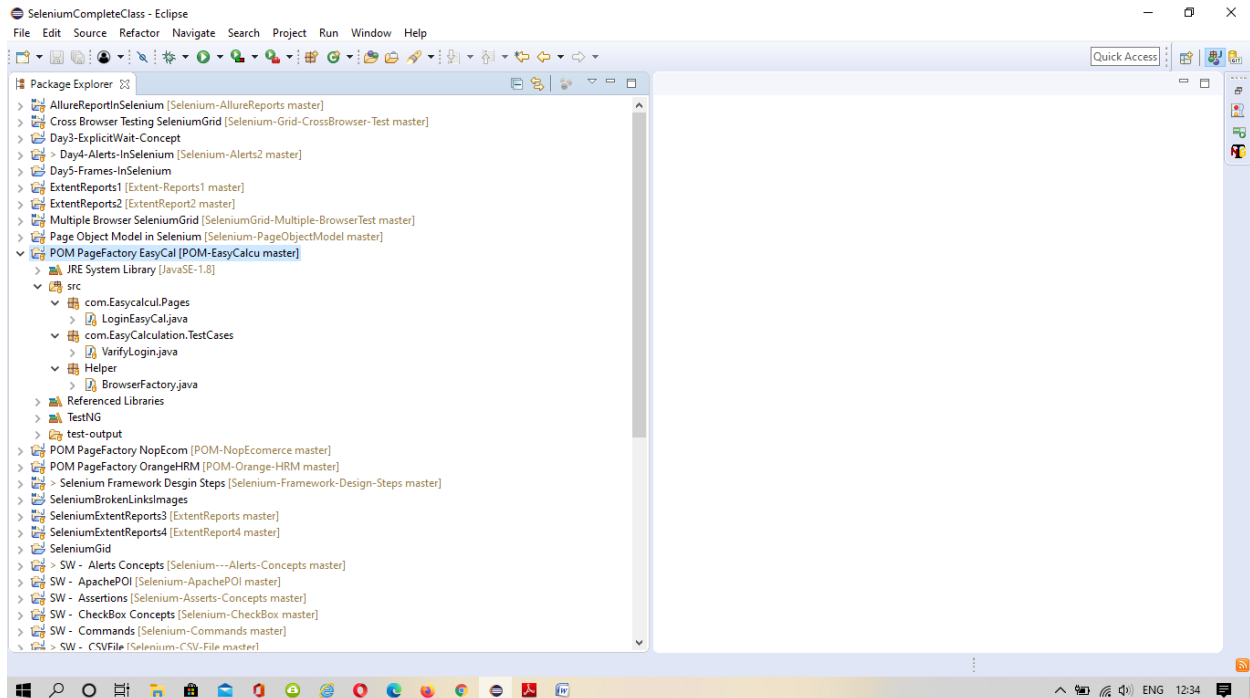
Advantages of POM model:

- **Reusability:** We can reuse the page class if required in different test cases which means we don't need to write code for identifying the web elements and methods to interact with them for every test case.
- **Maintainability:** As we can see from the above picture test case and page class are different from each other which means we can easily update the code if any new web element is added or existing one updated.
- **Readability:** As we can see in the above picture page code is separated from test code which helps to improve code readability.

Implementation of Page Object Model:

Here I'm taking the example of Gmail application to show the implementation of **POM**.

The Project Hierarchy of my **Maven Project** is shown below:



package com.EasyCal.Pages;

```
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.support.FindBy;
```

```
public class LoginEasyCal {

    WebDriver driver;

    public LoginEasyCal(WebDriver driver) {
        this.driver = driver;
    }

    @FindBy(id = "log_email")
    WebElement email;

    @FindBy(name = "log_password")
    WebElement password;

    @FindBy(xpath = "//input[contains(@name,'log_submit')]")
    WebElement loginbtn;
    public void login_EasyCal(String uname, String pass) {
        email.sendKeys(uname);
        password.sendKeys(pass);
        loginbtn.click();
    }
}
```

```

package Helper;

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.ie.InternetExplorerDriver;

public class BrowserFactory {

    static WebDriver driver;

    public static WebDriver BrowserOptions(String browserName, String url){

        if (browserName.equalsIgnoreCase("firefox")){
            System.setProperty("webdriver.gecko.driver",
                               "D:\\Selenium\\Selenium Browsers Jars\\FireFox\\geckodriver.exe");
            driver = new FirefoxDriver();
        } else if (browserName.equalsIgnoreCase("chrome")){
            System.setProperty("webdriver.chrome.driver",
                               "D:\\Selenium\\Selenium Browsers Jars\\Chrome 84\\chromedriver.exe");
            driver = new ChromeDriver();
        } else if (browserName.equalsIgnoreCase("IE")){
            System.setProperty("webdriver.ie.driver",
                               "D:\\Selenium\\Selenium Browsers Jars\\IE\\IE 64\\IEDriverServer.exe");
            driver = new InternetExplorerDriver();
        }

        driver.manage().window().maximize();
        driver.get(url);

        return driver;
    }
}

package com.EasyCalculation.TestCases;

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.support.PageFactory;
import org.testng.annotations.Test;

import com.Easycalcul.Pages.LoginEasyCal;

import Helper.BrowserFactory;

public class VarifyLogin {

    @Test
    public void CheckValidUser(){

        WebDriver driver = BrowserFactory.BrowserOptions("chrome",
                                                           "https://www.login.hiox.com/login?referrer=easycalculation.com");
        LoginEasyCal loginPageEasyCal = PageFactory.initElements(driver, LoginEasyCal.class);
        loginPageEasyCal.login_EasyCal("9740673180", "raghubn@123");

    }
}

```

Page object Model for Orange HRM

```
package com.OrangeHRM.Pages;

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.support.FindBy;
import org.openqa.selenium.support.How;

public class LoginPage {

    WebDriver driver;

    public LoginPage(WebDriver driver) {
        this.driver = driver;
    }

    @FindBy(how = How.ID, using = "txtUsername")
    WebElement Username;

    @FindBy(how = How.NAME, using = "txtPassword")
    WebElement Password;

    @FindBy(how = How.XPATH, using = "//input[contains(@id,'btnLogin')]")
    WebElement BtnLogin;

    public void LoginHRM(String Uname, String Psd) {
        Username.sendKeys(Uname);
        Password.sendKeys(Psd);
        BtnLogin.click();
    }
}

package Helper;

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.ie.InternetExplorerDriver;

public class BrowserFactory {

    static WebDriver driver;

    public static WebDriver StartBrowser(String browserName, String url) throws Exception {
        if (browserName.equalsIgnoreCase("Chrome")) {
            System.setProperty("webdriver.chrome.driver",
                "D:\\Selenium\\Selenium Browsers Jars\\Chrome 84\\chromedriver.exe");
            driver = new ChromeDriver();
        } else if (browserName.equalsIgnoreCase("Firefox")) {
            System.setProperty("webdriver.gecko.driver",
                "D:\\Selenium\\Selenium Browsers Jars\\FireFox\\geckodriver.exe");
            driver = new FirefoxDriver();
        } else if (browserName.equalsIgnoreCase("IE")) {
            System.setProperty("webdriver.ie.driver",
                "D:\\Selenium\\Selenium Browsers Jars\\IE\\IE 64\\IEDriverServer.exe");
            driver = new InternetExplorerDriver();
        }

        driver.manage().window().maximize();
        driver.get(url);
        Thread.sleep(10000);

        return driver;
    }
}
```

```

package com.OragneHRM.TestCases;

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.support.PageFactory;
import org.testng.annotations.Test;

import com.OrangeHRM.Pages.LoginPage;

import Helper.BrowserFactory;

public class VarifyUserLoign {

    @Test
    public void TestBrowser() throws Exception {
        WebDriver driver = BrowserFactory.StartBrowser("IE",
            "https://opensource-demo.orangehrmlive.com/index.php/auth/login");
        LoginPage loginHRM = PageFactory.initElements(driver, LoginPage.class);
        loginHRM.LoginHRM("Admin", "admin123");
    }
}

```

POM for NopEcommerce

```

package com.NopEcommerce.Pages;

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.support.FindBy;
import org.openqa.selenium.support.How;

public class LoginPage {

    WebDriver driver;

    public LoginPage(WebDriver driver) {
        this.driver = driver;
    }

    @FindBy(how = How.ID, using = "Username")
    WebElement username;

    @FindBy(how = How.NAME, using = "Password")
    WebElement password;

    @FindBy(how = How.XPATH, using = "//input[contains(@type,'submit')]")
    WebElement loginbtn;

    public void loginNopEcom(String uname, String pass) {

        username.sendKeys(uname);
        password.sendKeys(pass);
        loginbtn.click();
    }
}

```

```

package helper;

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.ie.InternetExplorerDriver;

public class BrowserFactory {

```

```

        static WebDriver driver;

        public static WebDriver BrowserOptions(String browserName, String url) {

            if (browserName.equalsIgnoreCase("firefox")) {
                System.setProperty("webdriver.gecko.driver",
                    "D:\\Selenium\\Selenium Browsers Jars\\FireFox\\geckodriver.exe");
                driver = new FirefoxDriver();
            } else if (browserName.equalsIgnoreCase("chrome")) {
                System.setProperty("webdriver.chrome.driver",
                    "D:\\Selenium\\Selenium Browsers Jars\\Chrome 84\\chromedriver.exe");
                driver = new ChromeDriver();
            } else if (browserName.equalsIgnoreCase("IE")) {
                System.setProperty("webdriver.ie.driver",
                    "D:\\Selenium\\Selenium Browsers Jars\\IE\\IE 64\\IEDriverServer.exe");
                driver = new InternetExplorerDriver();
            }

            driver.manage().window().maximize();
            driver.get(url);

            return driver;
        }
    }

    package com.NopEcom.TestCases;

    import org.openqa.selenium.WebDriver;
    import org.openqa.selenium.support.PageFactory;
    import org.testng.annotations.Test;

    import com.NopEcommerce.Pages.LoginPage;

    import helper.BrowserFactory;

    public class VarifyValidUser {

        @Test
        public void TestUser() {
            WebDriver driver = BrowserFactory.BrowserOptions("firefox",
                "https://www.nopcommerce.com/en/login?returnUrl=%2Fen");
            LoginPage loginNop = PageFactory.initElements(driver, LoginPage.class);
            loginNop.loginNopEcom("raghuchaithu123", "chaithu@123");
        }
    }

```