

Page Object Model

Framework - karana de lesian kara ganna puluwan wanna widiyata hada gana eka .

2 Types - Data Driven

Page Object Model

Why - Gmail hadanakota tebuna view eka dan change wela neh. Page eka button ekak teyanawa. eke element name eka change wenawa . eka test cases 10 teyanwa. E wage 20 places wala teyanawa.hama welawama hama thama change karanna wenawa neh .eka test case wala teyanne natuwa page class ekata aran yana eka thamai page object model keyanne.

Page layer eke

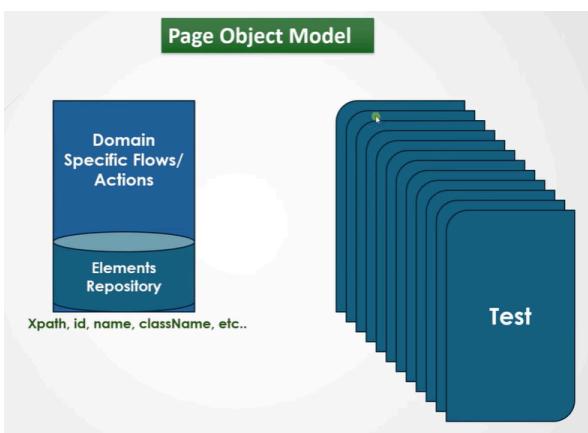
Elements locators

Click wage actions set eke methods widiyata da gannawa.

Test layer eke

Methods teka call karana eka thamai karanne.

Danne nati kenekta unath methods name teka order ekata teyana nisa test layer eke eyata idea ekak ganan puluwan e test ekan wena de gana.



Advantages

Re-usability of code

Organised

Manageble

Understandable

Scalable

Cost effective

Less maintenance

Rules

Standard

Inteliij

New - project - java - maven



Src - main - Java	Src - main - test
Package - pages - pages class - HomePage	<p>Test class teka teyann ona methana. @ test annotation eka dapu method teyan class eka teyann ona test folder eka yatathe.</p> <p>Package - testcases - TC001_RegsterUserTest</p>

TC001 - RegisterUserTest

Mulinma register menu eka click karanna ona neh

Main - java - pages-Homepage class - method ekak hadanna **selectregistermenu** keyala . Meka athule neh driver.findElement keyala danna ona. But driver eke error ekak enawa neh.mokada driver eke initiate karala teyanne src - test - java keyala folder eke neh.(Test layer) Eka nisa thamai **constructor** keyala ekak use karanne .

Thawa class ekakain me class eke teyanan method access karanan yanakota e class ekan object ekak hadanawa. Ethakota call wena method ekak thamai **constructor** keyala keyanne. Eka class name ekanma thamai hadanne.void keyala return types na.dan constructor eka athulata webdriver eka pass karanawa.driver eka me home page hama thama use karana nisa eka global variable ekak wage da gananwa.

This keyala key word ekak use karanawa me class eke keyala keyanna.me class eke teyanan driver eka keyala keyanan . this .driver = driver ;

```

import org.openqa.selenium.WebDriver;
no usages
public class HomePage {
    1 usage
    WebDriver driver;
    no usages
    public HomePage(WebDriver driver){
        this.driver = driver;
    }
    no usages
    public void selectRegisterMenu(){
    }
}

```

Me Driver eka thama power ekak na .make power eka teyanne @BeforeMethod eka execute unata passe.

```
11 > public class TC001_RegisterUserTest {
12
13     5 usages
14     WebDriver driver;
15
16     @BeforeMethod
17     public void openPage(){
18         driver = new ChromeDriver();
19         driver.manage().window().maximize();
20         driver.manage().timeouts().implicitlyWait(Duration.ofSeconds(10));
21         driver.get("https://demo.guru99.com/test/newtours/index.php");
22     }
23
24     @Test
25     public void TC001(){
26
27     }
28
29     @AfterMethod
30     public void closeBrowser(){
31         driver.quit();
32     }
33
34 }
```

Me power eka api src-java-pages wala teyana constructor ekata pass karanna ona.ekata thamai constructor eke argument ekak dala teyanne webdriver driver keyala.

```
import ...
public class TC001_RegisterUserTest {
    5 usages
    WebDriver driver;
    @BeforeMethod
    public void openPage(){
        driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.manage().timeouts().implicitlyWait(Duration.ofSeconds(10));
        driver.get("https://demo.guru99.com/test/newtours/index.php");
    }
    @Test
    public void TC001(){
    }
    @AfterMethod
    public void closeBrowser(){
        driver.quit();
    }
}
```

Me method eke edala home page ekata object eka hadanakota api constructor eka call karanawa.ethkoata driver ekata power eka enawa.

By.LinkTest meka class athulata giyama ctrl eka click karanagana **By** keyala thamai return type eka teyanne.By.LinkTest("Register") eka By ekata store karanna puluwan.

Driver.findElement - me method ekan thamai **element ekak find karanne**

By.LinkText("Register") - meka thamai locate karanne element eka .

Element eka find karana ekai locate karan ekai 2kak.

Me locator keyala strategy eka api udata geniyanawa . eka class level eke teya gananwa

public class HomePage {
 2 usages
 WebDriver driver;

 no usages
 public HomePage(WebDriver driver){
 this.driver = driver;
 }

 no usages
 By registerBtn_loc = By.linkText("REGISTER");

 no usages
 public void selectRegisterMenu(){
 driver.findElement(By.linkText("REGISTER")).click();
 }

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

 1 usage
 By registerBtn_loc = By.linkText("REGISTER");

 no usages
 public void selectRegisterMenu(){
 driver.findElement(registerBtn_loc).click();
 }
}

The code shows a tooltip for the variable 'registerBtn_loc' in the second 'selectRegisterMenu()' method. The tooltip displays the definition: 'By registerBtn_loc = By.linkText("REGISTER")'. A red arrow points from the variable name in the code to the tooltip, and another red arrow points from the tooltip back to the variable name.

Src- test-java

@Test method eke

Public void TC001(){

Meka home page eke object ekak hada ganna ona

HomePage homepage = new HomePage(); - new ekata passe call karanne e class eke constructor ekata

5
6 3 usages 1 related problem
7 public class HomePage {
8
9 2 usages
10 WebDriver driver;
11
12 1 usage 1 related problem
13 public HomePage(WebDriver driver){
14 this.driver = driver;
15 }
16
17 1 usage
18 By registerBtn_loc = By.linkText("REGISTER");
19
20 no usages
21 public void selectRegisterMenu(){
22 driver.findElement(registerBtn_loc).click();
23 }
24

The code shows a tooltip for the constructor 'HomePage(WebDriver driver)' in line 13. The tooltip displays the definition: 'By registerBtn_loc = By.linkText("REGISTER")'. A blue box highlights the constructor line, and a red arrow points from the constructor name in the code to the tooltip.

Meka webdriver driver keyala argument ekak pass karala teyanawa.e argument ekata haryana widiyata value ekak pass karanna ona .driver eka pass karanna ona.

```

6 usages
WebDriver driver;

@BeforeMethod
public void openPage(){
    driver = new ChromeDriver();
    driver.manage().window().maximize();
    driver.manage().timeouts().implicitlyWait(Duration.ofSeconds(10));
    driver.get("https://demo.guru99.com/test/newtours/index.php");
}

@Test
public void TC001(){

    HomePage homepage = new HomePage(driver);
}

```

Dan me driver eke power eka home page ekata giya

}

```

public class HomePage {
    2 usages
    WebDriver driver;

    1 usage
    public HomePage(WebDriver driver){
        this.driver = driver;
    }

    1 usage
    By registerBtn_loc = By.linkText("REGISTER");
}

1 usage
public void selectRegisterMenu(){
    driver.findElement(registerBtn_loc).click();
}

}

```

By eke neh meka store kare.mata test class edala action ekak karanna ona keyala hithanna. Ethakota karanne HomePage homepage = new HomePage through apita eke methods access karanna puluwan neh.eth By registerBtn_loc = By.LinkText("Register") meka access karanna ba neh .ekata karanne teyanne access modifier ekak dana eka .Public keyala

```

2 usages
WebDriver driver;

1 usage
public HomePage(WebDriver driver){
    this.driver = driver;
}

2 usages
public By registerBtn_loc = By.linkText("REGISTER");
}

1 usage
public void selectRegisterMenu(){
    driver.findElement(registerBtn_loc).click();
}

}

```

org.openqa.selenium.By
@NotNull >
@Contract("...->new") >
public static By linkText(
 String linkText
>)

Params: linkText - The exact text to match
against.
Returns: A By which locates A elements by the
exact text it displays.

But hoda widiya thamai below eka

```

14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37

```

```

    HomePage
    RegisterPage
    RegisterSuccessPage
    resources
    test
    java
    testCases
    TC001_RegisterUserTest
    resources
    target
    test-output
    .gitignore
    pom.xml
    External Libraries
    Scratches and Consoles

```

```

    b usages
    WebDriver driver;

    @BeforeMethod
    public void openPage(){
        driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.manage().timeouts().implicitlyWait(Duration.ofSeconds(10));
        driver.get("https://demo.guru99.com/test/newtours/index.php");
    }

    @Test
    public void TC001(){
        HomePage homePage = new HomePage(driver);
        homePage.selectRegisterMenu();
    }
}

```

```

no usages
public void setFirstName(String firstName){
    driver.findElement(firstName_loc).sendKeys(firstName);
}

```

Test class eke setFirstName ekeyala eka class karala eka eke yanan ona name eka pass karanna ona. Eka String first name ekata set weka . sendkeys wala firstname ekata set wenawa

Drop down eka handel karanne

```

    }

    no usages
    public void selectCountry(){
        WebElement countrySelect_ele = driver.findElement(countrySelect_loc);
    }
}

```

Me WebElement keyala eka gaththe findelement eka CRTL ekath ekka click kara la return type eka bala eka dala name ekak danna.

Me leemet eka find karan inne thama .meka dan locate karanna ona. Drop down ekata option ekak select karanna teyanne dan.

DOM eke gehen balanan select tag ekan da drop down eka teyane ekyala . etakhkota selenium wala class ekak teyanwa select keyala ,eka dala ganan puluwan.

Select dropDownCountry - new Select(methana pass karanna ona api allapu element eka value eka)

```
no usages
public void selectCountry(){
    WebElement countrySelect_ele = driver.findElement(countrySelect_loc);
    Select dropDownCountry = new Select(countrySelect_ele);
    dropDownCountry.selectByIndex(2);
}
```

Xpath liyanakota “ danna mokada By.xpath keyala danakota “” athule neh danne.ethakota error ekak enawa

```
no usages
By successText_loc = By.xpath( xpathExpression: "//b[contains(text(), 'Dear')]");
```

findElement return karanne interface ekak

```
1 usage
By successText_loc = By.xpath( xpathExpression: "//b[contains(text(), 'Dear')]")
```

```
no usages
public void registerSuccessText(){
    String successText = driver.findElement(successText_loc).getText();
    return successText;
}
```

Cannot return a value from a method with void result type
Make 'registerSuccessText()' return java.lang.String' Alt+Shift+Enter More actions... Alt+Enter
String successText = driver.findElement(successText_loc).getText();

Return kaanna ba. Void neh teyanne . eth api string ekak return karanawa neh .

Meka nkn api lamayk salli dila tea ekak gannat danna kiuwa wage - void

Lamayekta salli dila chocolate aran kanna kiuwa wage - return type ekak dana eka - string

```
1 usage
By successText_loc = By.xpath( xpathExpression: "//b[contains(text(), 'Dear')]");
```

```
no usages
public String registerSuccessText(){
    String successText = driver.findElement(successText_loc).getText();
    return successText;
}
```

Assert karana widiya

```
RegisterSuccessPage registerSuccessPage = new RegisterSuccessPage(driver);
String actualText = registerSuccessPage.registerSuccessText();
Assert.assertTrue(actualText.contains("Dear"));
}
```

Java.Lang.String
@Contract(pure = true)
public boolean contains(
 @NotNull CharSequence s
)

actualText keyala method ekan return karanne boolean ekak

```

<version>1.0-SNAPSHOT</version>
<properties>
    <maven.compiler.source>20</maven.compiler.source>
    <maven.compiler.target>20</maven.compiler.target>
    <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
</properties>

<dependencies>
    <!-- https://mvnrepository.com/artifact/org.seleniumhq.selenium/selenium-java -->
    <dependency>
        <groupId>org.seleniumhq.selenium</groupId>
        <artifactId>selenium-java</artifactId>
        <version>4.10.1</version>
    </dependency>
    <!-- If remove scope tag can call Assert class in under main folder also-->
    <!-- https://mvnrepository.com/artifact/org.testng/testng -->
    <dependency>
        <groupId>org.testng</groupId>
        <artifactId>testng</artifactId>
        <version>7.7.0</version>
        <scope>test</scope>
    </dependency>
    <!-- Temp reporting 01-->
    <!-- https://mvnrepository.com/artifact/com.github.edrlseshivab/testng-metrics -->
</dependencies>

```

Mekan keyanne src - test - java eka teyana assertion wethak ganan keyala . nkn hari main java eke assert karana ewa error enawa . (Pages class eke danan puuwan)

Framework --> Data driven, Page Object Model (POM)
why?

button -> 10 test cases > 20 places

Aim : Test case -> extract -> how to find element

2 Aproaches to Create Page Object Classes

- 1) Without using PageFactory
- 2) using PageFactory

POM - Using PageFactory

driver.findElement keyana ekan neh element ekak identify kara ganne.eka natuwa wena widiyak teyenawa.element identification ekai element locate karana ekai 1 place ekakin karanna yanawa dan api.

Public - meka da gaththama me class ekanobject hadawama ona thanakin access karanna puluwan.

Driver.findElement return karanne webElement ekak neh . eka nisa element eka identify karama eka store karanna puluwan webElement eke.

```

no usages
public class HomePageUpdated {
    WebDriver driver;
}

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

public WebElement registerBtn_loc;
//    public By registerBtn_loc = By.linkText("REGISTER");
//    public void selectRegisterMenu();
//        driver.findElement(registerBtn_loc).click();
}

```

Pubic WebElemebt registerBtn_ele;

Dan meka element eke location strategy eka ko. Dan me element eka alla ganna widiyak na neh.eka prasnayak neh.api webElement ekata variable ekak haduwa registerBtn_ele keyala. Dan me element eka identify karanna apita teyenawa annotation ekak. @ keyala dala balanna @FindBy - Selenium walin thami meka enne.

Mekata api arugmented ekak widiyata pass karanna ona **how** key word eka.

Thawa teyenawa **HOW** keyala enum class ekak
(how =How.locator teka enawa,using = "ape value eka")

//1st way

no usages

```
@FindBy(how = How.LINK_TEXT, using ="REGISTER")
public WebElement registerBtn_ele; I
```

Lesi widiya thamai below eka

//2nd way

no usages

```
@FindBy(linkText = "REGISTER")
public WebElement registerBtn_ele; I
```

Dan registerBtn_ele eka method eke nknma call karanna puluwan.me registerBtn_ele eke . ekak tebama eka webelement ekak nisa . webElement class eke teyanan ona method ekak options widiyata denawa.

Me registerBtn_ele value eka enne @FindBy ekan api element eka identify karagana neh teyanne.

Driver eka use karala neh kare . me @FindBy ekatath driver eka ona. Api me driver eka koheth use kare na neh ..ekata thamai **PageFactory** class eka use karanne.eke teyenawa **InitElements** keyala method ekak teyenawa.eka pass karanna ona class ekata hadana constructor eka athulema thamai. Ethakota thamai me class ekata object ekak hadanakota me line ekath execute wala ape element identification ekata power ekak enne.

//2nd way

1 usage

```
@FindBy(linkText = "REGISTER")
public WebElement registerBtn_ele;
```

no usages

```
public void selectRegisterMenu(){
    registerBtn_ele.click();
}
```

InitElements = Intiatize element - meka athule argument 2kak pass karanna ona

1st argument - ape driver eka

2nd argument - mona class eke teyana elements da capture karanna ona. Eka nisa driver. Keyana eka hama thanama use karanna ona na.

Apita ona HomePageUpdate keyala class eke teyanna elements teka thamai me driver eka use karala identify karana ona.ethakota me class eka keyala pannaa apita java wala this keyala key word ekak teyenawa. Eka use karana.

Me class eke teyanne elements teka me driver eka use karala identify karana puluwan power eka me line ekata teyenawa

```
import org.openqa.selenium.support.How;
import org.openqa.selenium.support.PageFactory;

no usages
public class HomePageUpdated {

    no usages
    public HomePageUpdated(WebDriver driver){
        PageFactory.initElements(driver, page; this);

        //1st way
        // @FindBy(how = How.LINK_TEXT, using ="REGISTER")
        // public WebElement registerBtn_ele;

        //2nd way
        1 usage
        @FindBy(linkText = "REGISTER")
        public WebElement registerBtn_ele;

        no usages
        public void selectRegisterMenu(){
            registerBtn_ele.click();
        }
}
```

Meka nisa dan driver.findElement eka hama thama use karana ona na.api constructor eka thule PageFactory.initElement(driver,this); eke pass karama athi.api gawa @FindBy dala element 100 tebunath power eka yanawa me driver eka use karala element eka identify kara ganna puluwan.

Me line eka damme element eka identify karana nave. Element identify karanan thamai me line eka damme.meka damme ai ? apita me class eke alert ekak handel karana ona.,wait concept eka naththam extend class ekath ekka move wanna ona, windows handling part ekak ona,frame ekak ekka weda karana ona,ewata apita me drive eka ona neh. Anna eka nisa thamai page class eke api driver power eka dila teya ganne.me constructor eka call karama me driver ekatah power eka yanawa me driver ekatah power eka yanawa.me driver eka use karala apita adala actions kara ganna puluwan. Me line eka ona me element identify part ekata. Me 2ka araweranama teyanna ona oyage page class eke

```
import org.openqa.selenium.support.PageFactory;

no usages
public class HomePageUpdated {

    1 usage
    WebDriver driver;

    no usages
    public HomePageUpdated(WebDriver driver){
        this.driver = driver;
        PageFactory.initElements(driver, page; this);
    }
}
```

**** Page class ****

```
no usages
public class HomePageUpdated {
    // 1 usage
    WebDriver driver;

    public HomePageUpdated(WebDriver driver) {
        this.driver = driver;
        PageFactory.initElements(driver, page: this);
    }

    // 1st way
    // @FindBy(how = How.LINK_TEXT, using ="REGISTER")
    // public WebElement registerBtn_ele;

    // 2nd way
    // 1 usage
    @FindBy(linkText = "REGISTER")
    public WebElement registerBtn_ele;

    no usages
    public void selectRegisterMenu(){
        registerBtn_ele.click();
    }
}
```

Dropdown handle

```
no usages
public void selectCountry(){
    WebElement countrySelect_ele = driver.findElement(countrySelect_loc);
    Select dropDownCountry = new Select(countrySelect_ele);
    dropDownCountry.selectByIndex(2);
}
```

Select keyana class eka accept karanne(Return karanne) element ekak nisa api By key word eke store karapu api meka athulata dala. Eka webelement eka store karala api e web element ekata hadapu reference variable eka select ekata pass kara. Eka nisa dan apita me line eka ona na.

```
no usages
public void selectCountry(){
    Select dropDownCountry = new Select(countrySelect_ele);
    dropDownCountry.selectByIndex(2);
}
```

Pagefactory ekai this.driver ekai commnet ekarala error eka balanna.

```
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.support.FindBy;
import org.openqa.selenium.support.How;
import org.openqa.selenium.support.PageFactory;

public class HomePageUpdated {
    //WebDriver driver;

    public HomePageUpdated(WebDriver driver) {
        //this.driver = driver;
        //PageFactory.initElements(driver, this);
    }
}
```

TC001_RegisterUserTestUpdated

Tests failed: 1 of 1 test – 7 sec 433 ms

```

Default Suite
  PageObjectModel_Learning_YouTube
    TC001_RegisterUserTestUpdated
      TC001
        7 sec 433 ms
        7 sec 433 ms
        7 sec 433 ms
        11 ms
        java.lang.NullPointerException: Cannot invoke "org.openqa.selenium.WebElement.click()" because "this.registerBtn_ele" is null
          at pages.HomePageUpdated.selectRegisterMenu(HomePageUpdated.java:29)
          at testCases.TC001_RegisterUserTestUpdated.TC001(TC001_RegisterUserTestUpdated.java:29) <10 internal lines>
          at java.base/java.util.ArrayList.forEach(ArrayList.java:151) <6 internal lines>
          at org.testng.SuiteRunnerWorker.runSuite(SuiteRunnerWorker.java:53)
          at org.testng.SuiteRunnerWorker.run(SuiteRunnerWorker.java:96) <4 internal lines>
          at com.intellij.rt.testng.IDEARemoteTestNG.run(IDEARemoteTestNG.java:66)
          at com.intellij.rt.testng.RemoteTestNGStarter.main(RemoteTestNGStarter.java:105)

=====
Default Suite
Total tests run: 1, Passes: 0, Failures: 1, Skips: 0
=====
```

Interview Question

Login functionality eke automate karanna findElements use karanen natuwa ?

Ethokota page factory use karala karana hati keyanan ona.

@FindBy(xpath,"//xpath")

WebElement name;

WebDriver class eke findElement method eka wethak nawe neh teaynne. Eka nisa thamai this.driver= driver da ganne.

Class ekan object ekak haduawama mulinma call wanne constructor eka .eka thamai mulinma execute wanne . eka nisa thamai pageFactory eka constructor ekata da gaththe.

```
HomePageUpdated homePage = new HomePageUpdated(driver);
homePage.registerBtn_ele.click();
```

Page class eke methods hadanan natuwa me widiyata test class eke dagana yannath puluwan

Test case eke **readable** eka wadi karanna puluwan below wage dala

```

PageObjectModel_Learning_YouTube D:\Previous_P...
  idea
  src
  main
    java
      pages
        HomePage
        HomePageUpdated
        RegisterPage
        RegisterPageUpdated
        RegisterSuccessPage
        RegisterSuccessPageUpdated
      resources
    test
      java
        testCases
          TC001_RegisterUserTest
          TC001_RegisterUserTestUpdated
        resources
      target
      test-output
      .gitignore
      pom.xml
      External Libraries
      Scratches and Consoles

  driver.manage().window().maximize();
  driver.manage().timeouts().implicitlyWait(Duration.ofSeconds(10));
  driver.get("https://demo.guru99.com/test/newtours/index.php");

  @Test
  public void TC001(){
    registerUser();
    verifyRegistrationSuccess();
  }

  1 usage
  public void registerUser(){
    HomePageUpdated homePage = new HomePageUpdated(driver);
    homePage.registerBtn_ele.click();

    RegisterPageUpdated registerPage = new RegisterPageUpdated(driver);
    registerPage.setFirstName("Mohamed");
    registerPage.setLastName("Hashir");
    registerPage.setEmail("test@gmail.com");
    registerPage.selectCountry();
    registerPage.setUserName("Mhashir");
    registerPage.setPassword("test123");
    registerPage.setConfirmPassword("test123");
    registerPage.submit();
  }

  1 usage
  public void verifyRegistrationSuccess(){
    RegisterSuccessPageUpdated registerSuccessPage = new RegisterSuccessPageUpdated(driver);
    String actualText = registerSuccessPage.getSuccessText();
    String expectedText = "Your registration completed";
    assertEquals(actualText, expectedText);
  }
}
```

Reusable eka wadi karanan puluwan below wage

The screenshot shows the IntelliJ IDEA interface with the project structure on the left and the code editor on the right.

Project Structure:

- Project: PageObjectModel_Learning_YouTube
- src
 - main
 - java
 - functions
 - NewtoursCommonFunctions
 - test
 - java
 - testCases
 - TC001_RegisterUserTest
 - TC001_RegisterUserTestUpdated
- target
- test-output
- .gitignore
- pom.xml
- External Libraries
- Scratches and Consoles

Code Editor (NewtoursCommonFunctions.java):

```

import pages.RegisterSuccessPageUpdated;
import pages.RegisterPageUpdated;
import pages.HomePageUpdated;

public class NewtoursCommonFunctions {
    WebDriver driver;

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

    public String registerUser(String fName, String lName, String email, String uName, String pass, String conformPass) {
        HomePageUpdated homePage = new HomePageUpdated(driver);
        homePage.registerBtn_ele.click();

        RegisterPageUpdated registerPage = new RegisterPageUpdated(driver);
        registerPage.setFirstName(fName);
        registerPage.setLastName(lName);
        registerPage.setEmail(email);
        registerPage.selectCountry();
        registerPage.setUserName(uName);
        registerPage.setPassword(pass);
        registerPage.setConfirmPassword(conformPass);
        registerPage.submit();

        RegisterSuccessPageUpdated registerSuccessPage = new RegisterSuccessPageUpdated(driver);
        String successText = registerSuccessPage.registerSuccessText();
        return successText;
    }
}

```

A green oval highlights the constructor and the registerUser method. A blue oval highlights the entire class definition.

The screenshot shows the IntelliJ IDEA interface with the project structure on the left and the code editor on the right.

Project Structure:

- Project: PageObjectModel_Learning_YouTube
- src
 - main
 - java
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 - java
 - testCases
 - TC001_RegisterUserTest
 - TC001_RegisterUserTestUpdated
- target
- test-output
- .gitignore
- pom.xml
- External Libraries
- Scratches and Consoles

Code Editor (TC001_RegisterUserTestUpdated.java):

```

import org.openqa.selenium.WebDriver;
import org.testng.annotations.BeforeMethod;
import org.testng.annotations.Test;

public class TC001_RegisterUserTestUpdated {
    WebDriver driver;

    @BeforeMethod
    public void openPage(){
        driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.manage().timeouts().implicitlyWait(Duration.ofSeconds(10));
        driver.get("https://demo.guru99.com/test/newtours/index.php");
    }

    @Test
    public void TC001(){
        //registerUser();
        //verifyRegistrationSuccess();

        NewtoursCommonFunctions newtoursCommonFunctions = new NewtoursCommonFunctions(driver);
        String actualText = newtoursCommonFunctions.registerUser( fName: "Mohamed", lName: "Hashir", email: "hashirhasmy111@gmail.com", uName: "Mhashir"
        Assert.assertTrue(actualText.contains("Dear"), message: "Registration Attempt failed");
    }

    public void registerUser(){
        HomePageUpdated homePage = new HomePageUpdated(driver);
        homePage.registerBtn_ele.click();
    }
}

```

A blue oval highlights the call to the registerUser method within the TC001 test method.

Method Chaining - Java concept ekak selenium concept ekak nawe

Method Chaining in POM

```

driver.manage().window().maximize();
driver.manage().timeouts().implicitlyWait(Duration.ofSeconds(10));

driver.findElement(locator).sendKeys("Hashir");

WebElement nameElement = driver.findElement(locator);
nameElement.sendKeys("Hashir");

System.out.println("My name is Hashir");

```

```

package methodChaining;
import java.io.PrintStream;
public class Demo {
    public static void main(String[] args) {
        System.out.println("My name is Hashir");
        PrintStream printStream = System.out;
        printStream.println("My name is Hashir-1");
    }
}

```

Run: Demo < "C:\Program Files\Java\jdk-20\bin\java.exe" ...
My name is Hashir
My name is Hashir-1
Process finished with exit code 0

Me option 2kanma wanne ekama de . me PrintStram keyanne out keyana eka return karana return type eka . meka gaththe out keyana eka ctrl+space karala athulata gehen.meka wedak nati wedak nneh eka line ekan ganan puluwan eka lines 2kakin ganan eka.

Method chaining - hugak walawata use karanne API automation wala.

Getters ans Setters

Test - java - java class ekak hadanna main method dala

Eke variables 2kak hadanna

```

package methodChaining;
public class Tour {
    public String place;
    public String modeOfTravel;
}

```

Class eke right click karala.

Generate - (Encapsulation)getters and setters select karanna.ethakota variable 2kata hada ganan puluwan.

Thawa thanakin me methods(getters & setters) call kara keyala hithannako.

Setters - Thawa thanain class ekata object ekak hadala. E object eka through setPlace method eka call karanawa.ethkota ekata value ekak dunnama e value eka aragana me place keyana ekata da gananwa. This.place = place keyana ekata assign kara gannawa.

Getters - Set karapu value eka thawa thanakin balanna onanam getPlace keyana eka call karanam hari. Ethakota eya place keyana value eka return karanawa. Ethakota e method eke return type eka string/int teya ganna ona.void tebunoth keso deyak return karanna ba neh.

The screenshot shows a Java code editor with the following code:

```
public String place;
2 usages
public String modeOfTravel;
no usages
public String getPlace() {
    return place;
}
no usages
public void setPlace(String place) {
    this.place = place;
}
no usages
public String getModeOfTravel() {
    return modeOfTravel;
}
no usages
public void setModeOfTravel(String modeOfTravel) {
    this.modeOfTravel = modeOfTravel;
}
no usages
public static void main(String[] args) {
```

Annotations in the code:

- A blue arrow points from the word "place" in the first line of code to the "place" variable declaration at line 6.
- A green arrow points from the "place" variable declaration at line 6 to the "return place;" line at line 10.
- An orange arrow points from the "place" variable declaration at line 6 to the "this.place = place;" line at line 13.

Yaluwo set eka ekatu wela trip ekak yanna hithan innawa . api place eka widiyata nuwaraeliya select karan innawa.modeof travel = car eka yanna ona keyala hithan innawa.yanan onan menna teyana ekenek ahanawa koheda api yanne keyala.e prasneyata answer ekak dena widiyata api method ekak hadamu.eyata api answer eka pahatha widiya denawa.eta passe eya apita answer ekak denawa neh . eka apita danawa ohh athal eke car eke nuwara eliye yanawada keyala

```
no usages
public void heyManWhereAreYouGoing(){
    System.out.println(getPlace());
    System.out.println("Oooh AthAL eke " + getModeOfTravel() + " eke " + getPlace() + " yanavada");
}
```

Eta passe eka main method eke call karanawa.

```
}

1 usage
public void heyManWhereAreYouGoing(){
    System.out.println(getPlace());
    System.out.println("Oooh AthAL eke " + getModeOfTravel() + " eke " + getPlace() + " yanavada");
}

public static void main(String[] args) {
    Tour tour = new Tour();
    tour.setPlace("NuwaraEliya");
    tour.setModeOfTravel("Car");
    tour.heyManWhereAreYouGoing();
}

}
```

Main method ekan me tour keyana class eka object ekak hada gananwa ethkota thamai variable and methods access karanna puluwan wennne.

```
PageC
13
14
15
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20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
39
```

1 usage
public void setPlace(String place) {
 this.place = place;
}

no usages
public String getModeOfTravel() {
 return modeOfTravel;
}

1 usage
public void setModeOfTravel(String modeOfTravel) {
 this.modeOfTravel = modeOfTravel;
}

public static void main(String[] args) {
 Tour tour = new Tour();
 tour.setPlace("NuwaraEliya");
 tour.setModeOfTravel("Car");
}

Tour tour = new Tour(); - me tour keyana ekata object eka widiyatath , reference variable ekak widiyaath ganan puluwan.

Dan me lines teka adu karala optimize karanna yanawa.

```
Public void setplace(Sting place){  
this.place=place  
}
```

Meka void ain karala class eke name eka danawa,

Eta passe error ekak enawamissing return statement enawa

Ethanata return this keyala danwa . mekan wanne me class eke object eka return karanan keyala .

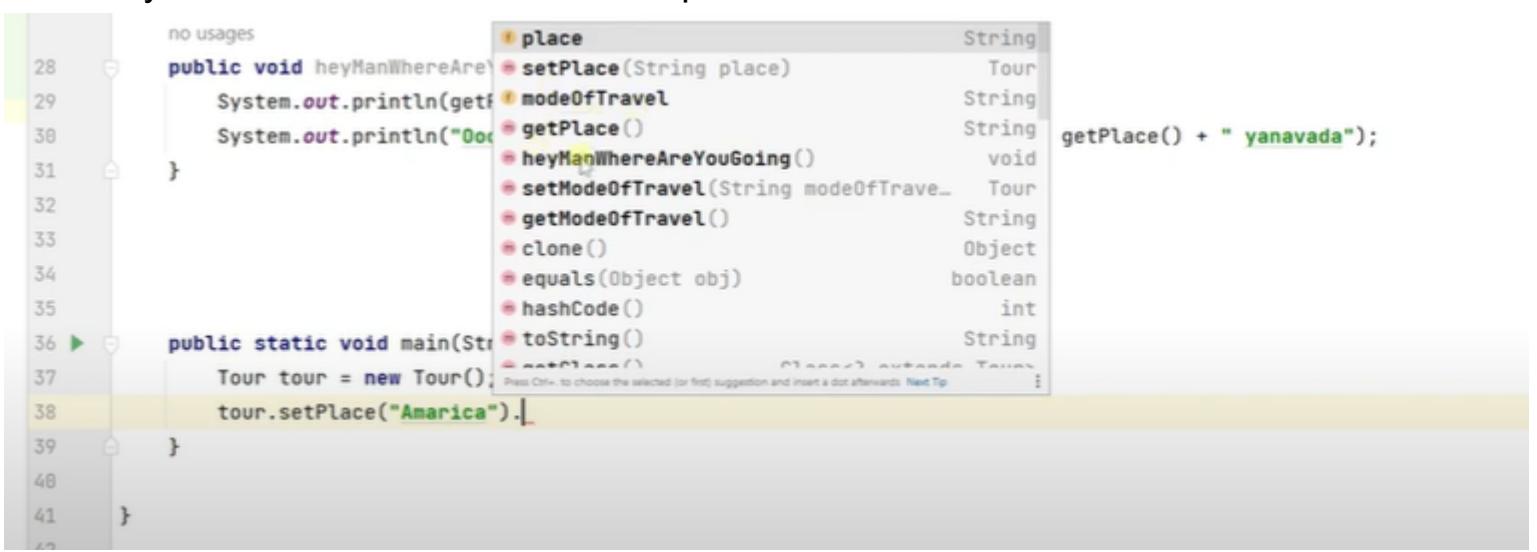
```
1 usage
public Tour setPlace(String place) {
    this.place = place;
    return this;
}

1 usage
public String getModeOfTravel() {
    return modeOfTravel;
}

1 usage
public Tour setModeOfTravel(String modeOfTravel) {
    this.modeOfTravel = modeOfTravel;
    return this;
}

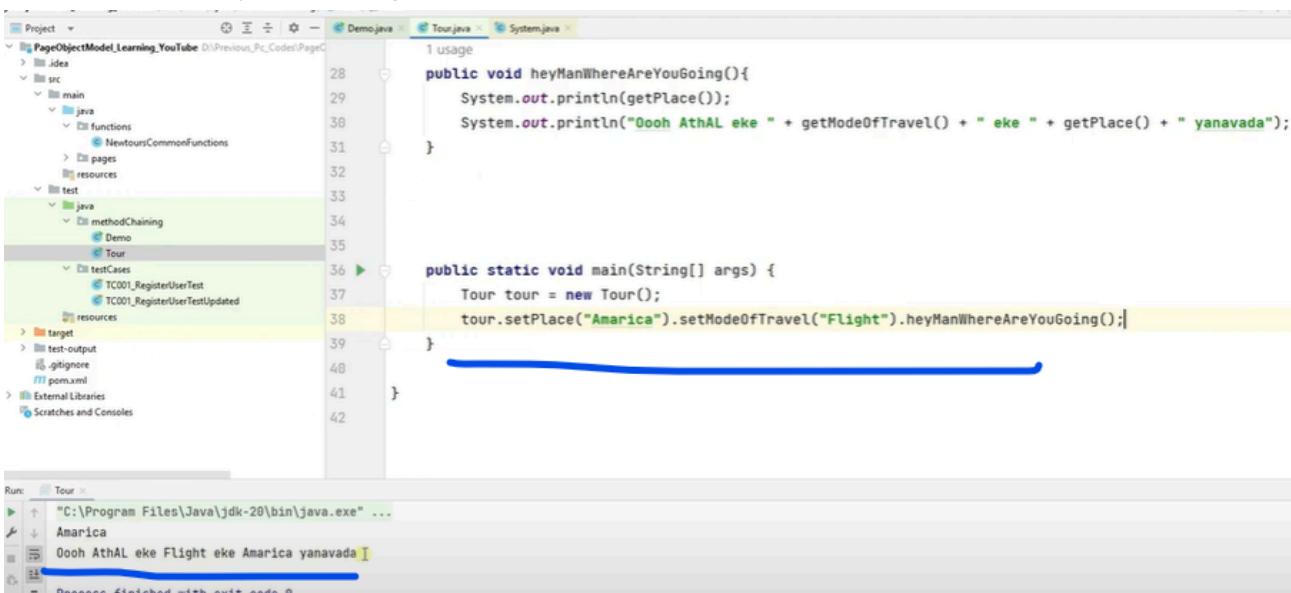
1 usage
public void heyManWhereAreYouGoing(){
    System.out.println(getPlace());
    System.out.println("Oooh AthAL eke " + getModeOfTravel() + " eke " + getPlace() + " yanavada");
}
```

Dan class object eka return karana nisa method channing denawa .void teyanwakota . dammata mukuth panne na . dan enawa class object eke return karana nisa.dan class eka athule teyana variable + methos okkoma pannawa.



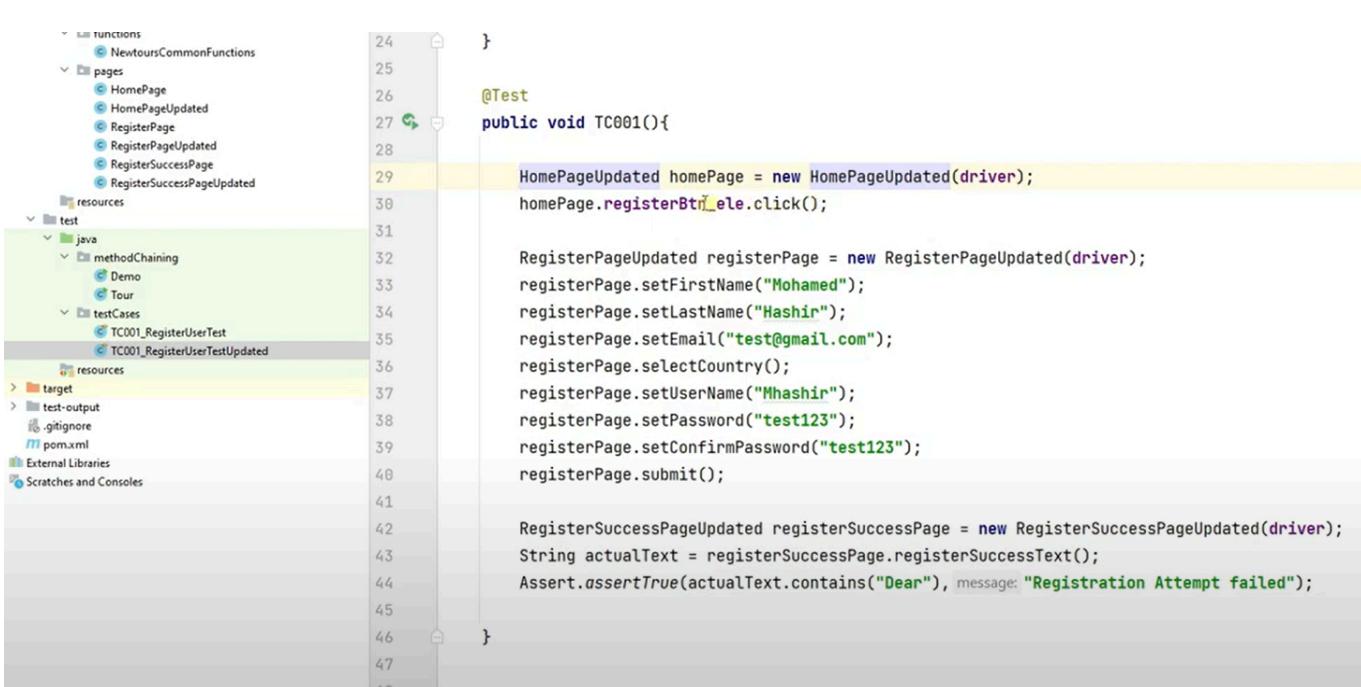
```
28     no usages
29     public void heyManWhereAreYouGoing(){
30         System.out.println(getPlace());
31         System.out.println("Ooooh AthAL eke " + modeOfTravel() + " eke " + getPlace() + " yanavada");
32     }
33
34
35
36     public static void main(String[] args){
37         Tour tour = new Tour();
38         tour.setPlace("Amarica").
```

Heymanwhereareyougoin eka dala . tebbata mukuth enne na.eke void neh teyanne . eka nisa e method eka teyan ewa ganan ba.



```
1 usage
28     public void heyManWhereAreYouGoing(){
29         System.out.println(getPlace());
30         System.out.println("Ooooh AthAL eke " + modeOfTravel() + " eke " + getPlace() + " yanavada");
31     }
32
33
34
35
36     public static void main(String[] args) {
37         Tour tour = new Tour();
38         tour.setPlace("Amarica").setModeOfTravel("Flight").heyManWhereAreYouGoing();
```

Run: Tour
C:\Program Files\Java\jdk-20\bin\java.exe ...
Amarica
Ooooh AthAL eke Flight eke Amarica yanavada
Process finished with exit code 0



```
24     }
25
26     @Test
27     public void TC001(){
28
29         HomePageUpdated homePage = new HomePageUpdated(driver);
30         homePage.registerBtnEle.click();
31
32         RegisterPageUpdated registerPage = new RegisterPageUpdated(driver);
33         registerPage.setFirstName("Mohamed");
34         registerPage.setLastName("Hashir");
35         registerPage.setEmail("test@gmail.com");
36         registerPage.selectCountry();
37         registerPage.setUserName("Mhashir");
38         registerPage.setPassword("test123");
39         registerPage.setConfirmPassword("test123");
40         registerPage.submit();
41
42         RegisterSuccessPageUpdated registerSuccessPage = new RegisterSuccessPageUpdated(driver);
43         String actualText = registerSuccessPage.registerSuccessText();
44         Assert.assertTrue(actualText.contains("Dear"), message: "Registration Attempt failed");
45
46     }
47
48 }
```

Mekata api method channing da gannawa.

Api dan home page eke innawa . Register button eka click karata passe mama yanne mona page ekatada ? register page ekata neh .ethokota return karanna ona home page eka nawe ai yanne register page ekata nisaeka thamai danna ona . ethota e class eke object ekak hadala thamai rerun karanna ona.

Ethokta error rkan enawa argument ekak missing keyala. Eka athulata gehen balanna mokakda return karanne keyala .driver eka neh.ekata driver eka danna . api me new dala call karane constructor ekata neh .eka passe error ekak denawa return type eka change karanna keyala

```

.idea
src
  main
    java
      functions
        NewtoursCommonFunctions
      pages
        HomePage
        HomePageUpdated
        RegisterPage
        RegisterPageUpdated
        RegisterSuccessPage
        RegisterSuccessPageUpdated
    resources
  test
    java
      methodChaining
        Demo
        Tour
      testCases
        TC001_RegisterUserTest
        TC001_RegisterUserTestUpdated
    resources
target
test-output
.gitignore
pom.xml
External Libraries
Scratches and Consoles

```

```

10 2 usages
11     WebDriver driver;
12
13 2 usages
14     public HomePageUpdated(WebDriver driver){
15         this.driver = driver;
16         PageFactory.initElements(driver, page: this); //mandatory
17     }
18
19     // 1st way
20     // @FindBy(how = How.LINK_TEXT, using ="REGISTER")
21     // public WebElement registerBtn_ele;
22
23     //2nd way
24     2 usages
25         @FindBy(linkText = "REGISTER")
26         public WebElement registerBtn_ele;
27
28 1 usage
29     public RegisterPageUpdated selectRegisterMenu(){
30         registerBtn_ele.click();
31         return new RegisterPageUpdated(driver);
32     }
33
34
35
36
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57
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59

```

Meka next ekata yana class eke object ekak haduve eke variables and methods use karanna puluwan wanna.

Eta passe register page eke return karanna ona me class ekama neh . eka nisa return this danna ona.

```

.idea
src
  main
    java
      functions
        NewtoursCommonFunctions
      pages
        HomePage
        HomePageUpdated
        RegisterPage
        RegisterPageUpdated
        RegisterSuccessPage
        RegisterSuccessPageUpdated
    resources
  test
    java
      methodChaining
        Demo
        Tour
      testCases
        TC001_RegisterUserTest
        TC001_RegisterUserTestUpdated
    resources
target
test-output
.gitignore
pom.xml
External Libraries
Scratches and Consoles

```

```

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```

Submit eka click karata pass register success page ekata.ethkota return karanna ona next page
eka (registersuccesspage eka) eka object ekak hada ganna ona

```
    public RegisterPageUpdated setConfirmPassword(String confirmPassword_ele) {
        confirmPassword_ele.sendKeys(confirmPassword);
        return this;
    }

    public RegisterSuccessPageUpdated submit() {
        submitBtn_ele.click();
        return new RegisterSuccessPageUpdated(driver);
    }
}
```

Dan yanna last class ekata . register success paga keyana ekata . eke success test ekak neh enne eka string ekan return karanna dala teyenne.

The screenshot shows a Java code editor with the following structure:

- File Tree:** Shows project structure with `NewtoursCommonFunctions`, `pages`, `resources`, `test`, `java`, `testCases`, and `target`.
- Code Editor:** Displays the `RegisterSuccessPageUpdated` class.

```
12 public RegisterSuccessPageUpdated(WebDriver driver){  
13     this.driver = driver;  
14     PageFactory.initElements(driver, page this);  
15 }  
16  
17  
18 1 usage  
19 @FindBy(xpath = "//b[contains(text(), 'Dear')]")  
20 WebElement successText_ele;  
21  
22 2 usage  
23 public String registerSuccessText(){  
24     String successText = successText_ele.getText();  
25     return successText;  
26 }
```

The code includes annotations from the `PageObject` library, such as `@FindBy` and `WebElement`. The `registerSuccessText()` method is highlighted with a yellow background and a circled warning icon. A blue underline is present under the `return successText;` statement.

Dan test case ekata yanna.

The screenshot shows the IntelliJ IDEA interface with the following details:

- Project Tree:** The project is named "PageObjectModel_Learning_YouTube". It contains a main package with Java classes for homepage, register page, and success page. There are also test packages for method chaining and a specific test case named "TC001_RegisterUserTest" which includes "TC001_RegisterUserTestUpdated".
- Code Editor:** The file "TC001_RegisterUserTestUpdated.java" is open. The code implements a test for the registration process. It uses Page Object Model (POM) and Page Factory patterns. A tooltip for the "submit()" method is visible, showing its signature and the class it belongs to.
- Toolbars and Status Bar:** Standard IntelliJ IDEA toolbars and status bar are at the bottom, including "Version Control", "Run", "TODO", "Problems", "Terminal", "Services", "Build", and "Dependencies". The status bar also indicates annotation processing information.

```
File Edit View Navigate Code Refactor Build Run Tools VCS Window Help PageObjectModel_Learning_YouTube - TC001_RegisterUserTestUpdated.java Tour

Project PageObjectModel_Learning_YouTube D:\Previous_Pc\Codes\PageObjectModel_Learning_YouTube\src\test\java\TC001_RegisterUserTestUpdated.java TC001_RegisterUserTestUpdated.java

21     driver = new ChromeDriver();
22     driver.manage().window().maximize();
23     driver.manage().timeouts().implicitlyWait(Duration.ofSeconds(10));
24     driver.get("https://demo.guru99.com/test/newtours/index.php");
25 }
26
27 @Test
28 public void TC001(){
29
30     HomePageUpdated homePage = new HomePageUpdated(driver);
31     homePage.selectRegisterMenu();
32
33     registerPage.setFirstName("M");
34     registerPage.setLastName("H");
35     registerPage.setEmail("test");
36     registerPage.selectCountry();
37     registerPage.setConfirmPassword("t");
38     registerPage.setPassword("te");
39     registerPage.setConfirmPass("e");
40     registerPage.submit();
41
42     RegisterSuccessPageUpdated registerSuccessPage = new RegisterSuccessPageUpdated(driver);
43     String actualText = registerSuccessPage.registerSuccessText();
44     Assert.assertTrue(actualText.contains("Dear"), message: "Registration Attempt failed");
45 }

@PageObjectModel_Learning_YouTube
  Project
    > idea
      > main
        > functions
          > NewtoursCommonFunctions
        > pages
          > HomePage
          > HomePageUpdated
          > RegisterPage
          > RegisterPageUpdated
          > RegisterSuccessPage
          > RegisterSuccessPageUpdated
        > resources
      > test
        > java
          > methodChaining
            > Demo
            > Tour
          > testCases
            > TC001_RegisterUserTest
            > TC001_RegisterUserTestUpdated
          > resources
        > target
        > test-output
        > .gitignore
        > pom.xml
      > External Libraries
      > Scratches and Consoles

  Elements
  Structure

  Version Control Run TODO Problems Terminal Services Build Dependencies

  Lombok requires enabled annotation processing // Enable annotation processing (13 minutes ago)
```

Dan wena wenama objects hadanna ona na. Method chain karala teyana nisa . teyala ganna puluwan.

; remove karanna naththam ethanin stop wenawa

```

    driver.get("https://demo.guru99.com/test/newtours/index.php");
}

@Test
public void TC001(){

    HomePageUpdated homePage = new HomePageUpdated(driver);
    homePage.selectRegisterMenu()
        .setFirstName("Mohamed")
        .setLastName("Hashir")
        .setEmail("test@gmail.com")
        .selectCountry()
        .setUserName("Mhashir")
        .setPassword("test123")
        .setConfirmPassword("test123")
        .submit();

    RegisterSuccessPageUpdated registerSuccessPage = new RegisterSuccessPageUpdated(driver);
    String actualText = registerSuccessPage.registerSuccessText();
    Assert.assertTrue(actualText.contains("Dear"), message: "Registration Attempt failed");
}

```

selectRegisterMenu eke registerpage keyana eke object eka return karana nisa eka danna ona na.

Below eke return type eka string ekak.

```

    WebDriver driver;
}

public RegisterSuccessPageUpdated(WebDriver driver){
    this.driver = driver;
    PageFactory.initElements(driver, page: this);
}

@FindBy(xpath = "//b[contains(text(), 'Dear')]")
WebElement successText_ele;

public String registerSuccessText(){
    String successText = successText_ele.getText();
    return successText;
}

```

Finalize una method eke return type eka balala eka store karanna ekata padanam una variable ekaka. Eke kohomada wanna kiuwoth

String variable ekaka store karanawa meka . Mokada antema variable eke return type eka balanawa . eka return type eka string ekak eka nisa string ekak danna puluwan. Me variable eka ona apita assertion eka karanna

```

    HomePageUpdated homePage = new HomePageUpdated(driver);

    String actualText = homePage.selectRegisterMenu().registerPageUpdated()
        .setFirstName("Mohamed")
        .setLastName("Hashir")
        .setEmail("test@gmail.com")
        .selectCountry()
        .setUserName("Mhashir")
        .setPassword("test123")
        .setConfirmPassword("test123")
        .submit().registerSuccessPageUpdated()
        .registerSuccessText();

    Assert.assertTrue(actualText.contains("Dear"), message: "Registration Attempt failed");
}

```

XML File

Project - new- directory- xmlPlans

XmlPlan - new -file - QA_Reg_ModuleA_Plan1.xml

```
Folder : xmlPlans
xml file name : QA_Reg_ModuleA_Plan1
```

```
<?xml version="1.0" encoding="utf-8" ?>
<!DOCTYPE suite SYSTEM "https://testng.org/testng-1.0.dtd" >

<suite name="QA_Reg_ModuleA_Plan1">

    <test name="TC001_RegisterUserTestUpdated">
        <classes>
            <class name="testCases.TC001_RegisterUserTestUpdated"/>
        </classes>
    </test>

</suite>
```

Eka test ekakin eka test ekak cover wana widiyata thamai dala teyanne.

QA_Reg_ModuleA_Plan1.xml

Environment regression ewana automate karanne module eka name eka test cases
500wage teyanakota eka ekama pian eka dana eka best approach eka nawe (maximum 50
test cases thamai hoda . wadipura teka plan B danna

XML eke suite name ekath file name ekamai dunne

Class name eka - testcases folder eka teyana eka - testcases.tecname eka

Test name - class name eka dala teyana test case name eka

Dan xml file eka run karanna. Test eka pass wai.

Apita dan report ekak ona. Eclipse walauam report ekak enawa xml file ekan . but interlij eke na.

Testng walin apita report ekak denawa . eka da ganan puluwan.

xmlPlans eke teyana xml right click karala - modify run configuration - listerner tab - + eka click karala. Eka email keyala search karanna - ok

Testng listener ekak use karala me xml eka run karamareport ekak enawa .