**What are Listeners in TestNg?**

In TestNG, listeners are like observers that listen for certain events during the test execution process. They allow us to take specific actions before, after, or during the execution of our tests. For example, we can use a listener to automatically take a screenshot when a test fails or to log information after each test.

**\*\*Types of Listeners in TestNG\*\***

1. IAnnotationTransformer

2. IAnnotationTransformer2

3. IConfigurable

4. IConfigurationListener

5. IExecutionListener

6. IHookable

7. IInvokedMethodListener

8. IInvokedMethodListener2

9. IMethodInterceptor

10. IReporter

11. ISuiteListener

12. ITestListener

**\*\*iTestListeners in TestNG\*\***

- \*\*onTestStart()\*\*: An `onTestStart()` is invoked only when any test method gets started.

- \*\*onTestSuccess()\*\*: An `onTestSuccess()` method is executed on the success of a test method.

- \*\*onTestFailure()\*\*: An `onTestFailure()` method is invoked when a test method fails.

- \*\*onTestSkipped()\*\*: An `onTestSkipped()` is run only when any test method has been skipped.

- \*\*onStart()\*\*: An `onStart()` method is executed at the start of any test method.

- \*\*onFinish()\*\*: An `onFinish()` is invoked when any test case finishes its execution.

- \*\*onTestFailedButWithinSuccessPercentage()\*\*: This method is invoked each time when the test method fails but is within the success percentage.

**Code example:**

**This is listener class**

***package tut9\_Listeners;***

***import org.testng.ITestContext;***

***import org.testng.ITestListener;***

***import org.testng.ITestResult;***

***public class ListenerClass implements ITestListener***

***{***

***public void onStart(ITestContext context)***

***{***

***System.out.println("onStart method invoked");***

***}***

***public void onTestStart(ITestResult result)***

***{***

***System.out.println("Name of test method started: " + result.getName());***

***}***

***public void onTestSuccess(ITestResult result)***

***{***

***System.out.println("Name of test method successfully executed: " + result.getName());***

***}***

***public void onTestFailure(ITestResult result)***

***{***

***System.out.println("Failed test method name is: " + result.getName());***

***}***

***public void onTestFailedWithTimeout(ITestResult result)***

***{***

***// Optionally, handle what happens when a test fails due to a timeout***

***}***

***public void onTestFailedButWithinSuccessPercentage(ITestResult result)***

***{***

***// Optionally, handle partial failures***

***}***

***public void onTestSkipped(ITestResult result)***

***{***

***System.out.println("Name of skipped test method is: " + result.getName());***

***}***

***public void onFinish(ITestContext context)***

***{***

***System.out.println("onFinish method invoked");***

***}***

***}***

**This is Test class**

***package tut9\_Listeners;***

***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.SkipException;***

***import org.testng.annotations.Listeners;***

***import org.testng.annotations.Test;***

***@Listeners(tut9\_Listeners.ListenerClass.class)***

***public class ListenersDemo***

***{***

***@Test***

***public void login()***

***{***

***WebDriver driver=new ChromeDriver();***

***driver.manage().timeouts().implicitlyWait(Duration.ofSeconds(10));***

***driver.get("https://opensource-demo.orangehrmlive.com/web/index.php/auth/login");***

***driver.manage().window().maximize();***

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

***userNameField.sendKeys("Admin");***

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

***passwordField.sendKeys("admin123");***

***WebElement submitButton=driver.findElement(By.xpath("//button[text()=' Login ']"));***

***submitButton.click();***

***Assert.assertEquals(driver.getTitle(), "OrangeHRM");***

***}***

***@Test***

***public void testSkipped() throws SkipException***

***{***

***System.out.println("skipped test case");***

***throw new SkipException("skip exception thrown");***

***}***

***@Test***

***public void testFail()***

***{***

***System.out.println("Failed Test Case");***

***Assert.assertTrue(false);***

***}***

***}***

I***f you want to execute using XML File:***

***<?xml version="1.0" encoding="UTF-8"?>***

***<!DOCTYPE suite SYSTEM "https://testng.org/testng-1.0.dtd">***

***<suite name="Suite">***

***<listeners>***

***<listener class-name="tut9\_Listeners.ListenerClass"></listener>***

***</listeners>***

***<test thread-count="5" name="Test">***

***<classes>***

***<class name="tut9\_Listeners.ListenersDemo" />***

***</classes>***

***</test>***

***</suite>***