**Taking Screenshots When a test fails:**

First, we will look at how to take screenshots.

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

File src = ((TakesScreenshot)driver).getScreenshotAs(OutputType.***FILE***);

FileUtils.*copyFile*(src, **new** File("D:\\TestNGScreenshots\\screenshot.png"));

Selenium provides an interface “TakesScreenshot” which has a method “getScreenshotAs()” which will get screenshots into a file. This getScreenshotAs() method is implemented in RemoteWebDriver class.

You can't use it from your driver instance because you used the WebDriver interface, which doesn't extends TakesScreenshot interface, to create the driver instance.

Here WebDriver interface doesn’t extend the TakesScreenshot interface. But FirexfoxDriver class implements TakesScreenshot.

In the above declaration we are using driver object with reference type as WebDriver. So we have to cast the driver object to TakesScreenshot to access the method getScreenshotAs().

If we create the driver as

FireforxDriver driver = new FirefoxDriver()

Then we can directly use the method as

FirefoxDriver driver = new FirefoxDriver();

File src = driver.getScreenshotAs(OutputType.FILE);

**How to use Listeners concept in TestNG to take screenshots when a test fails –**

**TestNG xml:**

We add listeners tag to the TestNG xml and mention which listener we want to use.

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

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

<suite name=*"Suite"*>

<listeners>

<listener class-name=*"TestNGExamples.Listeners"*/>

</listeners>

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

<classes>

<class name=*"TestNGExamples.TextBoxNew"*/>

<class name=*"TestNGExamples1.RadioButtons"*/>

</classes>

</test> <!-- Test -->

</suite> <!-- Suite -->

**Initializing.java**

This class stores the class name(package.class) and the driver in a map. This is public class so that it can be accessed from anywhere. This is static so this belongs to class and will be kind of constant and won’t become null because of creation of object.

**package** TestNGExamples;

**import** java.util.HashMap;

**import** java.util.Map;

**import** org.openqa.selenium.WebDriver;

**public** **class** Initializing {

**public** **static** Map<String, WebDriver> *map1* = **new** HashMap<String, WebDriver>();

}

**TextBoxNew.java**

**package** TestNGExamples;

**import** org.openqa.selenium.By;

**import** org.openqa.selenium.WebDriver;

**import** org.openqa.selenium.firefox.FirefoxDriver;

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

**public** **class** TextBoxNew {

@Test

**public** **void** TextBox1() **throws** InterruptedException{

System.*setProperty*("webdriver.gecko.driver", "C:\\BrowserDrivers\\geckodriver.exe");

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

TestNGExamples.Initializing.*map1*.put("TestNGExamples.TextBoxNew", driver);

driver.get("file:///D:/Selenium%20Course/Java/index.html");

//Thread.sleep(2000);

driver.findElement(By.*id*("firstnam")).sendKeys("Subbu");

TestNGExamples.Initializing.*map1*.remove("TestNGExamples.TextBoxNew");

//Thread.sleep(2000);

driver.quit();

}

@Test

**public** **void** TextBox2() **throws** InterruptedException {

System.*setProperty*("webdriver.gecko.driver", "C:\\BrowserDrivers\\geckodriver.exe");

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

TestNGExamples.Initializing.*map1*.put("TestNGExamples.TextBoxNew", driver);

driver.get("file:///D:/Selenium%20Course/Java/index.html");

//Thread.sleep(2000);

driver.findElement(By.*xpath*("//input[@color='re']")).sendKeys("Venkat");

//Thread.sleep(2000);

TestNGExamples.Initializing.*map1*.remove("TestNGExamples.TextBoxNew");

driver.quit();

}

@Test

**public** **void** TextBox3() **throws** InterruptedException {

System.*setProperty*("webdriver.gecko.driver", "C:\\BrowserDrivers\\geckodriver.exe");

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

TestNGExamples.Initializing.*map1*.put("TestNGExamples.TextBoxNew", driver);

driver.get("file:///D:/Selenium%20Course/Java/index.html");

//Thread.sleep(2000);

driver.findElement(By.*id*("first nam")).sendKeys("Ganesh");

//Thread.sleep(2000);

TestNGExamples.Initializing.*map1*.remove("TestNGExamples.TextBoxNew");

driver.quit();

}

@Test

**public** **void** TextBox4() **throws** InterruptedException {

System.*setProperty*("webdriver.gecko.driver", "C:\\BrowserDrivers\\geckodriver.exe");

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

driver.get("file:///D:/Selenium%20Course/Java/index.html");

//Thread.sleep(2000);

driver.findElement(By.*xpath*("//input[starts-with(@id,'last')]")).sendKeys("Rajesh");

//Thread.sleep(2000);

driver.quit();

}

}

Here we are adding the driver object to the map we created in Initializing.java using the following statement.

TestNGExamples.Initializing.*map1*.put("TestNGExamples.TextBoxNew", driver);

If the test is executed successfully, we will remove the driver object from the map.

TestNGExamples.Initializing.*map1*.remove("TestNGExamples.TextBoxNew");

**Listeners.java:**

**package** TestNGExamples;

**import** java.io.File;

**import** java.io.IOException;

**import** org.openqa.selenium.OutputType;

**import** org.openqa.selenium.TakesScreenshot;

**import** org.openqa.selenium.WebDriver;

**import** org.testng.ITestContext;

**import** org.testng.ITestListener;

**import** org.testng.ITestResult;

**import** org.apache.commons.io.FileUtils;

**public** **class** Listeners **implements** ITestListener{

@Override

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

// **TODO** Auto-generated method stub

System.***out***.println("Test Started");

}

@Override

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

// **TODO** Auto-generated method stub

System.***out***.println("Test Successful");

}

@Override

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

// **TODO** Auto-generated method stub

//TextBox t = new TextBox();

//Initializing a = new Initializing();

String clname = result.getInstanceName();

System.***out***.println("Class Name is "+clname);

WebDriver driver = TestNGExamples.Initializing.*map1*.get(clname);

String mthname = result.getName();

System.***out***.println("Method Name is "+mthname);

File src = ((TakesScreenshot)driver).getScreenshotAs(OutputType.***FILE***);

**try** {

FileUtils.*copyFile*(src, **new** File("D:\\TestNGScreenshots\\"+clname+"."+mthname+".png"));

} **catch** (IOException e) {

// **TODO** Auto-generated catch block

e.printStackTrace();

}

TestNGExamples.Initializing.*map1*.remove(clname);

driver.quit();

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

}

@Override

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

// **TODO** Auto-generated method stub

System.***out***.println("Test Skipped");

}

@Override

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

// **TODO** Auto-generated method stub

System.***out***.println("Test failed but with in Success Percentage");

}

@Override

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

// **TODO** Auto-generated method stub

System.***out***.println("Test Started Beginning");

}

@Override

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

// **TODO** Auto-generated method stub

System.***out***.println("Test Started Ending");

}

}

In the listener, in onTestFailure() method we have implemented the screenshot procedure.