

Testing Windows Applications using Appium and JUnit in Java

Overview

In this tutorial, we will create a JUnit Test Case in Java, using the [Appium](#) library for automation of Windows applications.

Description

The following automated test class validates the "Calculator" Windows native application using several methods (i.e., Tests) for validating each arithmetic operation.



Please note

This example is taken from the public Github repository <https://github.com/Microsoft/WinAppDriver/tree/master/Samples/Java/CalculatorTest>. It also provides examples for other languages.

Requirement

- WinAppDriver must be running in the destination machine (i.e., the one having Windows and the "Calculator" application), or the Appium Desktop.

```
WinAppDriver.exe 192.168.56.102 4723
```

We will make a simple update to the pom.xml file in order to generate a JUnit xml report.

pom.xml

```
<project xmlns="http://maven.apache.org/POM/4.0.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>

  <groupId>CalculatorTest</groupId>
  <artifactId>CalculatorTest</artifactId>
  <version>1.0-SNAPSHOT</version>

  <dependencies>
    <dependency>
      <groupId>org.seleniumhq.selenium</groupId>
      <artifactId>selenium-java</artifactId>
      <version>3.3.1</version>
    </dependency>
    <dependency>
      <groupId>junit</groupId>
      <artifactId>junit</artifactId>
      <version>4.12</version>
    </dependency>
    <dependency>
      <groupId>io.appium</groupId>
      <artifactId>java-client</artifactId>
      <version>5.0.0-BETA6</version>
    </dependency>
  </dependencies>

  <reporting>
    <plugins>
      <plugin>
        <artifactId>maven-surefire-report-plugin</artifactId>
      </plugin>
    </plugins>
  </reporting>
</project>
```

The class implementing the automated tests needs to be updated in order to properly set up the IP of the Appium server.

```
//*****
//
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//
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//
//*****

import org.junit.*;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.remote.DesiredCapabilities;
import java.util.concurrent.TimeUnit;
import java.net.URL;
import io.appium.java_client.windows.WindowsDriver;
```

```

public class CalculatorTest {

    private static WindowsDriver CalculatorSession = null;
    private static WebElement CalculatorResult = null;

    @BeforeClass
    public static void setup() {
        try {
            DesiredCapabilities capabilities = new DesiredCapabilities();
            capabilities.setCapability("app", "Microsoft.WindowsCalculator_8wekyb3d8bbwe!App");
            CalculatorSession = new WindowsDriver(new URL("http://192.168.56.102:4723"), capabilities);
            CalculatorSession.manage().timeouts().implicitlyWait(2, TimeUnit.SECONDS);

            CalculatorResult = CalculatorSession.findElementByAccessibilityId("CalculatorResults");
            Assert.assertNotNull(CalculatorResult);

        } catch (Exception e) {
            e.printStackTrace();
        } finally {
        }
    }

    @Before
    public void Clear()
    {
        CalculatorSession.findElementByName("Clear").click();
        Assert.assertEquals("0", _GetCalculatorResultText());
    }

    @AfterClass
    public static void TearDown()
    {
        CalculatorResult = null;
        if (CalculatorSession != null) {
            CalculatorSession.quit();
        }
        CalculatorSession = null;
    }

    @Test
    public void Addition()
    {
        CalculatorSession.findElementByName("One").click();
        CalculatorSession.findElementByName("Plus").click();
        CalculatorSession.findElementByName("Seven").click();
        CalculatorSession.findElementByName("Equals").click();
        Assert.assertEquals("8", _GetCalculatorResultText());
    }

    @Test
    public void Combination()
    {
        CalculatorSession.findElementByName("Seven").click();
        CalculatorSession.findElementByName("Multiply by").click();
        CalculatorSession.findElementByName("Nine").click();
        CalculatorSession.findElementByName("Plus").click();
        CalculatorSession.findElementByName("One").click();
        CalculatorSession.findElementByName("Equals").click();
        CalculatorSession.findElementByName("Divide by").click();
        CalculatorSession.findElementByName("Eight").click();
        CalculatorSession.findElementByName("Equals").click();
        Assert.assertEquals("8", _GetCalculatorResultText());
    }

    @Test
    public void Division()
    {
        CalculatorSession.findElementByName("Eight").click();
        CalculatorSession.findElementByName("Eight").click();
        CalculatorSession.findElementByName("Divide by").click();
        CalculatorSession.findElementByName("One").click();
    }
}

```

```

        CalculatorSession.findElementByName("One").click();
        CalculatorSession.findElementByName("Equals").click();
        Assert.assertEquals("8", _GetCalculatorResultText());
    }

    @Test
    public void Multiplication()
    {
        CalculatorSession.findElementByName("Nine").click();
        CalculatorSession.findElementByName("Multiply by").click();
        CalculatorSession.findElementByName("Nine").click();
        CalculatorSession.findElementByName("Equals").click();
        Assert.assertEquals("81", _GetCalculatorResultText());
    }

    @Test
    public void Subtraction()
    {
        CalculatorSession.findElementByName("Nine").click();
        CalculatorSession.findElementByName("Minus").click();
        CalculatorSession.findElementByName("One").click();
        CalculatorSession.findElementByName("Equals").click();
        Assert.assertEquals("8", _GetCalculatorResultText());
    }

    protected String _GetCalculatorResultText()
    {
        // trim extra text and whitespace off of the display value
        return CalculatorResult.getText().replace("Display is", "").trim();
    }
}

```

Tests can be run using Maven.

```
mvn clean test
```

After successfully running the Test cases and generating the JUnit XML report (e.g., [TEST-CalculatorTest.xml](#)), it can be imported to Xray (either by the REST API or through the **Import Execution Results** action within the Test Execution).

Each JUnit's Test Case is mapped to a Generic Test in Jira, and the **Generic Test Definition** field contains the name of the class and the method name that implements the Test Case.

Tests

+ Add

Overall Execution Status



TOTAL TESTS: 5

FILTERS

Test Set: All Assignee: All Status: Component: Search: Contains text X Clear

Show 100 entries Columns

Key	Summary	Test Type	#Req	#Def	Test Sets	Assignee	Status	
1	CALC-1309 Division	Generic	0	0		Administrator	PASS	▶ ...
2	CALC-1310 Subtraction	Generic	0	0		Administrator	PASS	▶ ...
3	CALC-1311 Addition	Generic	0	0		Administrator	PASS	▶ ...
4	CALC-1312 Multiplication	Generic	0	0		Administrator	PASS	▶ ...
5	CALC-1313 Combination	Generic	0	0		Administrator	PASS	▶ ...

Showing 1 to 5 of 5 entries First Previous 1 Next Last

The Execution Details of the Generic Test contains information about the Test Suite, which in this case corresponds to the Test Case class.

Execution Status: PASS

Started On: Today 5:33 PM Finished On: Today 5:33 PM

Assignee: Administrator Executed By: Administrator

Execution Defects (0) Execution Evidences (0)

Execution Details

Test Description: None

Test Details: Test Type: Generic Definition: CalculatorTest.Multiplication

Results: Context: TestSuite CalculatorTest Error Message: - Duration: 1 sec Status: PASS

References

- https://github.com/Microsoft/WinAppDriver
- http://appium.io