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"</pre>
         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.

//**** 11 // Copyright (c) 2016 Microsoft Corporation. All rights reserved. 11 // This code is licensed under the MIT License (MIT). 11 // THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR // IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, // FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE // AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER // LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, // OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN // THE SOFTWARE. 11 import org.junit.*; import org.openga.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.



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

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Test Type: Generic								
Definition: Calculator	rTest.Multiplication							
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References

- https://github.com/Microsoft/WinAppDriverhttp://appium.io