

Testing Java Applications with Maveryx

- ❑ Challenges in UI Test Automation
- ❑ Maveryx: Overview and Concepts
- ❑ The Eclipse Plugin
- ❑ Maveryx Demo

UI Testing

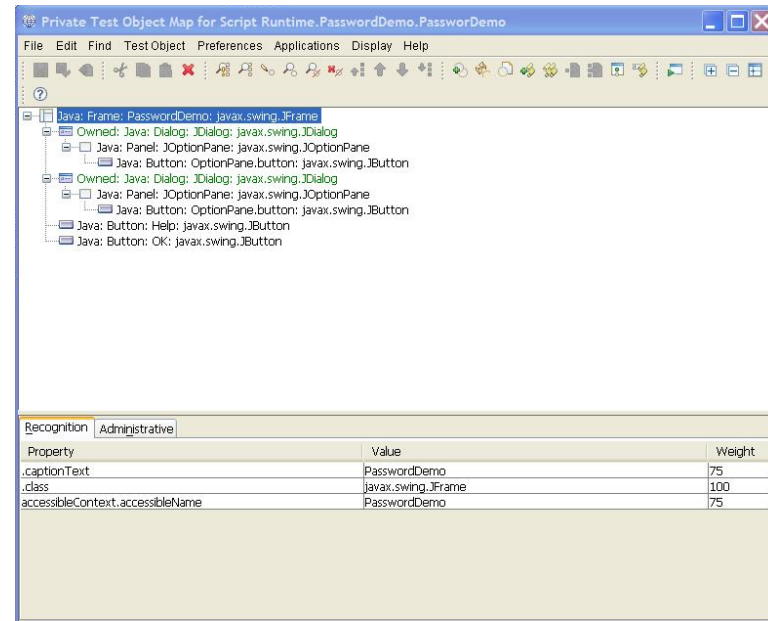
User Interfaces make system testing more difficult because:

- UI changes break(!) the tests
- Many ways in/out: multiple ways to access the same functionality
- Computer and Mobile: same UI, but different technologies
- Might contain thousands of UI objects exposing information properties
 - **UI Map** aka **Test Objects Map**
- Unsolicited events
- ...



UI Maps

- A **UI Map** describes the *test objects* (visible & **invisible**) in the application-under-test (AUT): their **properties**, **locations** and **states**
- It's used by the test automation tools to recognize and test the UI objects
- Each test script **depends on one or more test object maps**



UI Maps

- **Static:** once produced, it doesn't change automatically with the GUI
- **A priori:** generated after GUI release and before test development
- **Need to be updated** in case of GUI changes (...and GUIs change very often!)
- Unable to develop the automated tests before the availability of the AUT
 - **test automation will always start later in the software lifecycle!!**



Maveryx

Maveryx software is a professional open test automation tool which provides testers and developers with innovative testing capabilities for:

- Functional testing
- Regression testing
- GUI testing
- Data-driven and Keyword-driven testing



of **Android** & **Java** AWT / Swing / SWT-based applications



COMING
Soon...



Why Maveryx is different?

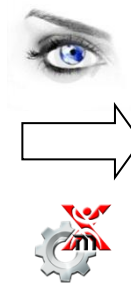
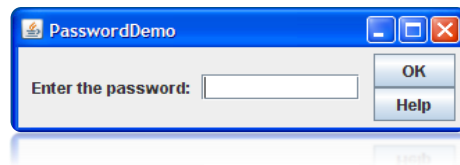
- **NO UI MAPS** or Object Repositories to 'learn' & maintain
- No pre-recording or UI capture

Just code & go!

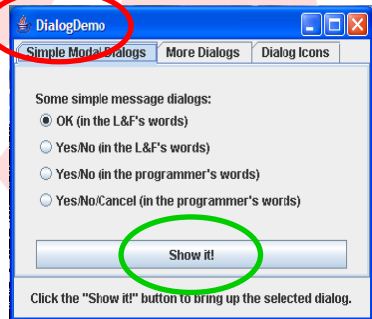
- *Automatic UI inspection directly at runtime*
- Support for all standard and advanced Java™ GUI controls



No recording. No capture. No UI Maps



Finding Objects at Runtime



Application Under Testing

```
<?xml version="1.0" encoding="UTF-8"?>
<accessibleRoot xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="accessibility.xsd">
  <accessible accessibleName="DialogDemo" accessibleRole="frame" class="javax.swing.JFrame" id="a37">
    <accessibleChildren accessibleChildrenCount="1">
      <accessible accessibleRole="root pane" class="javax.swing.JRootPane" id="a36">
        <accessibleChildren accessibleChildrenCount="2">
          <accessible accessibleRole="panel" class="javax.swing.JPanel" id="a0">
            <accessibleComponent enabled="true" showing="false" visible="false" />
            <accessibleStateSet>
              <accessibleState key="enabled" />
              <accessibleState key="focusable" />
            </accessibleStateSet>
          </accessible>
          <accessible accessibleRole="layered pane" class="javax.swing.JLayeredPane" id="a35">
            <accessibleChildren accessibleChildrenCount="1">
              <accessible accessibleRole="panel" class="DialogDemo" id="a34">
                <accessibleChildren accessibleChildrenCount="2">
                  <accessible accessibleRole="page tab list" class="javax.swing.JTabbedPane" id="a32">
```

Snapshot



```
<accessible accessibleName="Show it!" accessibleRole="push button" class="javax.swing.JButton" id="a8">
  <accessibleComponent enabled="true" showing="true" visible="true" />
  <accessibleStateSet>
    <accessibleState key="enabled" />
    <accessibleState key="focusable" />
    <accessibleState key="visible" />
    <accessibleState key="showing" />
    <accessibleState key="opaque" />
  </accessibleStateSet>
```

```
GuiButton b = new GuiButton("Show it!", "DialogDemo", FRAME);
b.click();
```


Finder: Supported Algorithms

Exact Match

Allows searching for test object exactly as it is entered

Query: "PasswordDemo"

Case Insensitive Match

Allows finding an exact match, but the match is not case-sensitive

Query: "passworddemo"

Partial Match

Allows finding a match on partial data

Query: "Demo"

Wildcard

Allows finding a match by using regular expressions

Query: "P?w?dDemo",
"*Demo"

Levenshtein Distance

Allows matching approximate strings with fuzzy logic, using the Levenshtein distance

Query: "PWDDemo"

Thesaurus Searching

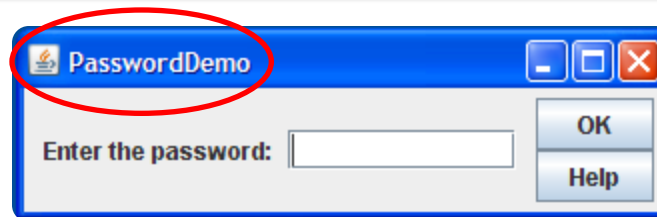
Search for broader or narrower or related terms or concepts in a vocabulary

Query: "O.K."

Google Translation

Allows finding an exact match translation

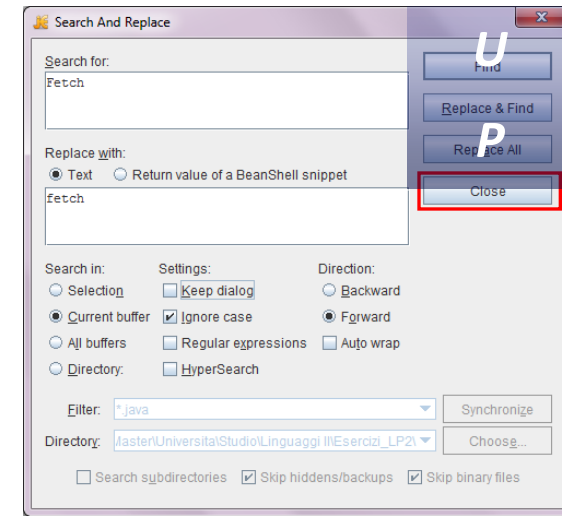
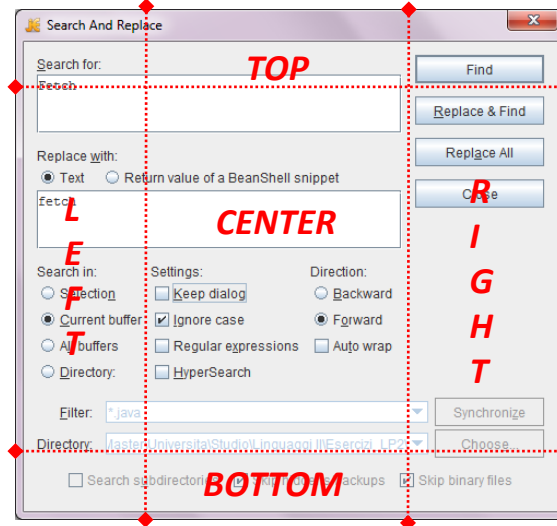
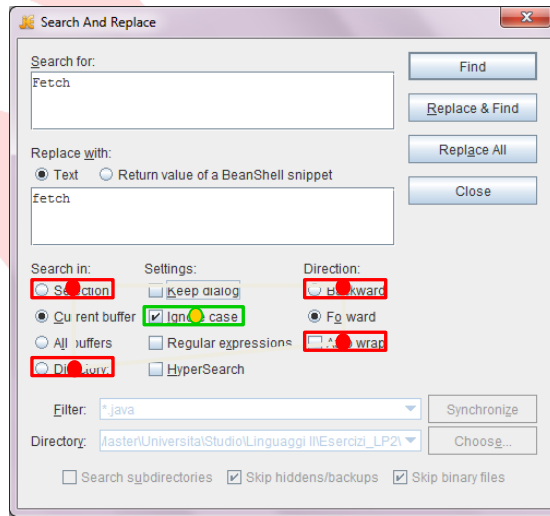
Query: "Aiuto" (Help)



'Zone' Finder

Find the UI object to test in an 'area' of the User Interface

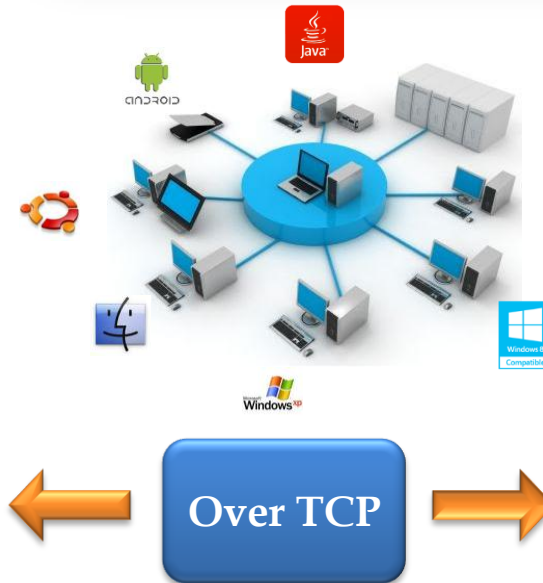
- Area of a polygon
- Top, Bottom, Middle, Left, Right...
- Near to, Up to, Down to, ...



System Architecture

SERVER

CLIENT



Bot

Finder

Viewer

AUT

Java Virtual Machine

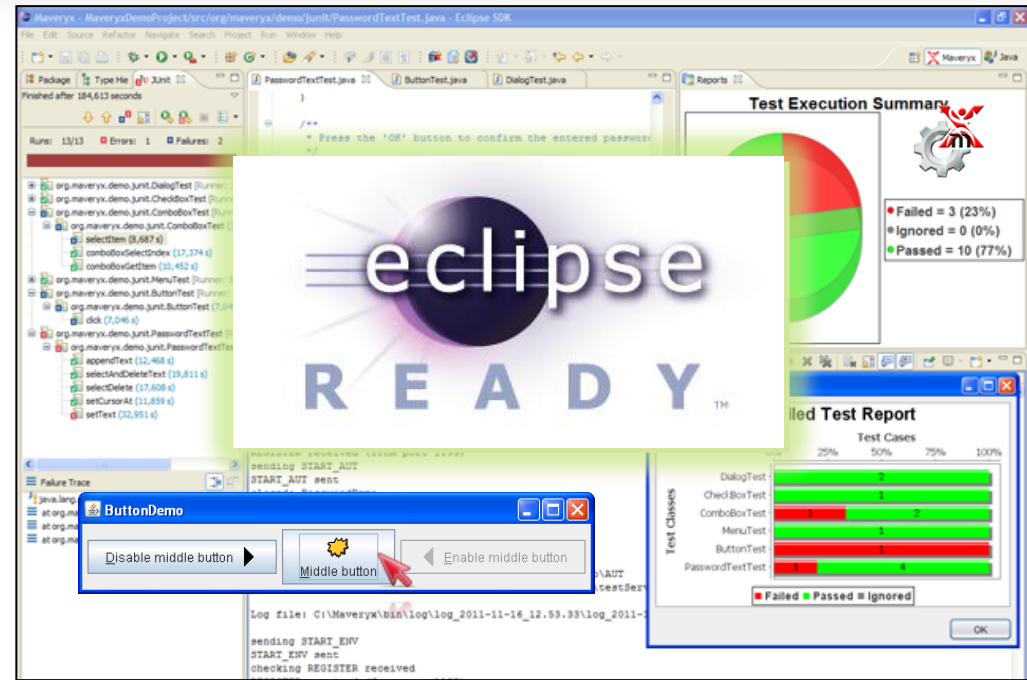
eclipse

Test Script

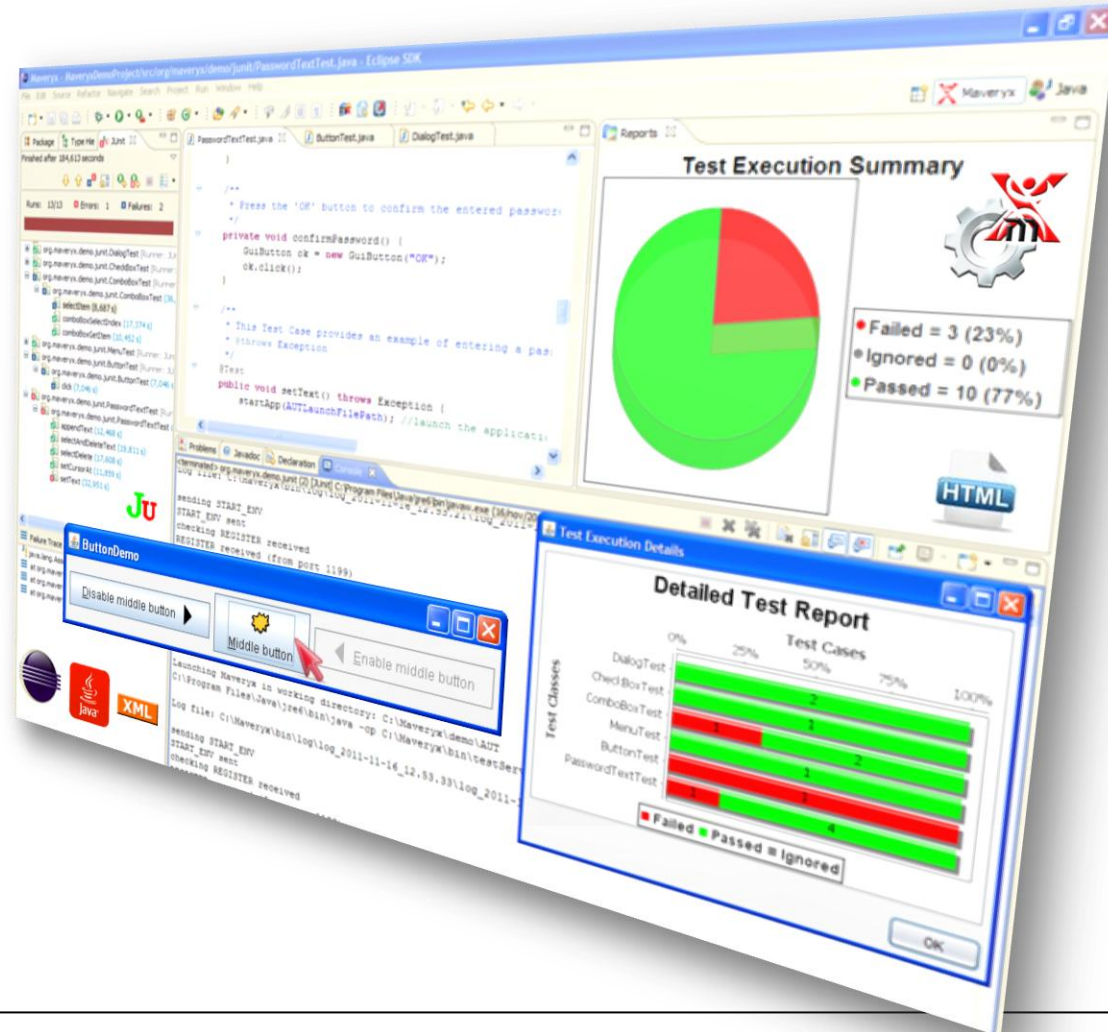
Java Virtual Machine

Eclipse Plugin

- Test Perspective
- Test Views
 - Log & Report
- Test Wizard
- Test Manager (JUnit)
- ...
- Why Eclipse?
 - The most popular Java IDE
 - Large “ecosystem” of plugins
 - Suitable for Android



Demo



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