Selenium

{ Browser app testing automation suite }
What is Selenium?

✅ Suite of tools for automation of testing web applications
✅ Open-source
✅ Supports multiple browsers
✅ API available for multiple languages
Jason Huggins – ThoughtWorks
- (2004) JavaScript Test Runner → Selenium Core
  - Open-source
  - Name origin
- Same-origin policy
  - Need to install web server and tested application on the local machine
- Selenium RC – Uses Selenium Core
- (2006) Selenium IDE
  - Firefox add-on, donated to Selenium project

Selenium – History
✅ Simon Stewart – ThoughtWorks
  ✅ (2009) merged with RC → Selenium WebDriver
    ✅ A.K.A. Selenium 2.0
  ✅ (2008) An effort to minimize test execution time
    ✅ Selenium Grid

Selenium – History
Selenium

- Selenium IDE
- Selenium WebDriver

Selenium components
Old Selenium IDE

✅ Full-fledged IDE
✅ Useful for getting acquainted with Selenium commands
✅ Record-and-playback functionality
✅ Bug reproduction scripts

✅ Incompatible with Firefox 55+
  ✗ Caused by Firefox switching extension formats

Old Selenium IDE
✅ Both Chrome and Firefox
   🔄 Other modern browsers (in theory)
✅ Currently just a shadow of its former glory
✅ Under heavy construction
✅ Semi-active Github community

New Selenium IDE
Actions

- open <URL>
- click at <LOCATOR> X,Y
- mouse down/up at <LOCATOR>
- type <LOCATOR> TEXT
✅ Accessors

✅ store title VAR
✅ store text <LOCATOR> VAR

Selenese
Assertions

assert vs. verify

checked <LOCATOR>

selected <LOCATOR>

element present <LOCATOR>

text <LOCATOR> PATTERN

text <LOCATOR> ${VAR}
✅ Driving done using native browser API
  ✅ As opposed to Selenium 1.0’s JS injections

✅ Use Selenium Server if:
  ✅ you want to use Selenium Grid
  ✅ the tested application is running on a different machine (you need the RC functionality)

Selenium WebDriver
Setting up WebDriver

- Java: Maven
- C#: NuGet
- Python: pip
- Ruby: gem
- PHP: official binding by Facebook
- Node.js: npm
WebDriver interface

- get(String url)
- findElement(By strategy)
- quit()
- switchTo()
  - window(String windowHandle)
  - frame(String frameHandle)
  - alert()
- navigate()
  - forward()
  - back()
Java WebDriver bindings

**WebDriver interface**
- `getText()`
- `sendKeys()`
- `click()`
- `submit()`
- ...
By strategy factory

- static id(String id)
- static className(String name)
- static tagName(String name)
- static name(String name)
- static cssSelector(String selector)
- ...

Java WebDriver bindings
✅ Cookies
✅ Profiles
✅ Screenshots
✅ Explicit waits

Other functionality
Demo
✓ Selenium 3.0
  ✓ Many changes since version 2.0
  ✓ Original Selenium Core replaced by WebDriver
  ✓ Drivers provided by vendors of browsers
  ✓ New W3C specification for browser automation
✓ New Selenium IDE

What future holds