JS Test Automation Workshop

Introducing NightwatchJS & DalekJS

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https://www.softwerkskammer.org/groups/testing

Goals of the workshop

- Learn rapid tests development from scratch

- NightwatchJS & DalekJS: compare for same tasks

- real-world examples: ING-DiBa Bank

URLs

- http://nightwatchjs.org

- http://dalekjs.com

- http://docs.seleniumhq.org/download/

- http://nodejs.org/

- https://github.com/vinogradoff/nightwatch-workshop

- http://phantomjs.org/download.html

- http://github.com/distilledhype/softwerkskammer-dalekjs

CSS Selectors

SELECTORS

	Styles apply to:
*	All elements
div	\<div\>
div *	Elements within \<div\>
div span	\<span\> within \<div\>
div, span	\<div\> and \<span\>
div > span	\<span\> with \<div\> as parent
div + span	\<span\> preceded by \<div\> ... \</div\>
.class	Elements of class "class"
div.class	\<div\> of class "class"
#itemid	Element with id "itemid"
div#itemid	\<div\> with id "itemid"
a[class]	\<a\> with class attribute
a[class='x']	\<a\> when class is "x"
a[class~='x']	\<a\> when class is a list of space-seperated values and one of those is 'x'
a[lang|='en']	\<a\> when lang begins with "en"

PSEUDO-SELECTORS

	Styles apply to:
:first-child	First child of element
:first-line	First line of element
:first-letter	First letter of element
:hover	Element when mouse over
:active	Active element
:focus	Element with focus
:link	Non-active, unvisited links without mouse over.
:visited	Visited links
:lang(lang)	Element with text of language "lang"

from CSS Cheat Sheet https://www.addedbytes.com/

XPath

Expression	Description
nodename	Selects all nodes with the name "*nodename*"
/	Selects from the root node
//	Selects nodes in the document from the current node that match the selection no matter where they are
.	Selects the current node
..	Selects the parent of the current node
@	Selects attributes

Path Expression	Result
bookstore	Selects all nodes with the name "bookstore"
/bookstore	Selects the root element bookstore **Note:** If the path starts with a slash (/) it always represents an absolute path to an element!
bookstore/book	Selects all book elements that are children of bookstore
//book	Selects all book elements no matter where they are in the document
bookstore//book	Selects all book elements that are descendant of the bookstore element, no matter where they are under the bookstore element
//@lang	Selects all attributes that are named lang

from XPath Tutorial http://www.w3schools.com/XPath/

XPath

Path Expression	Result
/bookstore/book[1]	Selects the first book element that is the child of the bookstore element. **Note:** In IE 5,6,7,8,9 first node is[0], but according to W3C, it is [1]. To
/bookstore/book[last()]	Selects the last book element that is the child of the bookstore element
/bookstore/book[last()-1]	Selects the last but one book element that is the child of the bookstore element
/bookstore/book[position()<3]	Selects the first two book elements that are children of the bookstore element
//title[@lang]	Selects all the title elements that have an attribute named lang
//title[@lang='en']	Selects all the title elements that have an attribute named lang with a value of 'en'
/bookstore/book[price>35.00]	Selects all the book elements of the bookstore element that have a price element with a value greater than 35.00
/bookstore/book[price>35.00]/title	Selects all the title elements of the book elements of the bookstore element that have a price element with a value greater than 35.00

from XPath Tutorial http://www.w3schools.com/XPath/

XPath

Wildcard	Description
*	Matches any element node
@*	Matches any attribute node
node()	Matches any node of any kind

Path Expression	Result
/bookstore/*	Selects all the child nodes of the bookstore element
//*	Selects all elements in the document
//title[@*]	Selects all title elements which have any attribute

Path Expression	Result
//book/title | //book/price	Selects all the title AND price elements of all book elements
//title | //price	Selects all the title AND price elements in the document
/bookstore/book/title | //price	Selects all the title elements of the book element of the bookstore element AND all the price elements in the document

from XPath Tutorial http://www.w3schools.com/XPath/

Tools & Debugging

- SelectorGadget (Chrome extension)

- `$$(„<css selector>")` in Web Developer Console

- `$x(„<xpath expr>")` in Web Developer Console

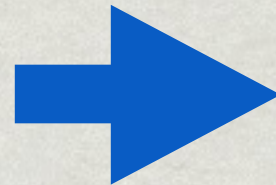# NightwatchJS: setup

- Download & install node.js (incl. npm)

- npm install -g nightwatch

- download selenium-server-standalone-2.x.y.jar

- create nightwatch.json

- create tests, logs, reports,screenshots folders

- install Firefox or Chrome

NightwatchJS: setup

```
logs
reports
screenshots
tests
nightwatch.json
selenium-server-standalone-2.42.2.jar
```

nightwatch.json ➡️

```json
{
"src_folders" : ["tests"],
"output_folder" : "reports",

"selenium" : {
  "start_process" : true,
  "server_path" : "selenium-server-standalone-2.42.2.jar",
  "log_path" : "logs",
  "host" : "127.0.0.1",
  "port" : 4444
},

"test_settings" : {
  "default" : {
    "launch_url" : "http://www.ing-diba.de",
    "selenium_port"  : 4444,
    "selenium_host"  : "localhost",
    "silent": true,
    "disable_colors": false,
    "screenshots" : {
      "enabled" : true,
      "path" : "screenshots"
    },
    "desiredCapabilities": {
      "browserName": "firefox",
      "javascriptEnabled": true,
      "acceptSslCerts": true
    }
  }
}
}
```

Hello World

```javascript
module.exports = {
  "Demo test ING-DiBa" : function (browser) {
    browser
      .url("http://www.ing-diba.de")
      //.waitForElementVisible('body', 1000)
      .assert.visible('.header__logo')
      .end()
  }
};
```

```
Alexeis-MacBook-Air-2:nightwatch-workshop vinogradov$ nightwatch
Starting selenium server... started - PID:  12690

Demo Test Suite
===============

Running:  Demo test ING-DiBa

✔ Testing if element <.header__logo> is visible.

OK. 1 total assertions passed. (14819 ms)
```

Example: Fails

`.assert` - when an assertion fails, the test ends, skipping all other assertions.

`.verify` - when an assertion fails, the test logs the failure and continues with other assertions.

```javascript
module.exports = {
    "Demo test ING-DiBa" : function (browser) {
        browser
            .url("http://www.ing-diba.de")
            //.waitForElementVisible('body', 1000)
            .assert.visible('.header__logo')
    },
    "Demo fail" : function (browser) {
        browser
            .verify.elementPresent('.not_exists', "Element .not_exists does not exist")
            .click('.button_not_exists')
            .verify.elementNotPresent('.not_exists')
    },
    "Demo fail 2" : function (browser) {
        browser
            .assert.elementPresent('.not_exists')
            .verify.elementNotPresent('.not_exists')
            .click('.header__logo')
            .end();
    }
};
```

optional msg

Fail
Error

Fail

Skipped

Example: Fails

```
Alexeis-MacBook-Air-2:nightwatch-workshop vinogradov$ nightwatch

Demo Test Suite
===============


Running:   Demo test ING-DiBa

✔  Testing if element <.header__logo> is visible.

OK. 1 assertions passed. (7371 ms)

Running:   Demo fail

✖  Element .not_exists does not exist  - expected "present" but got: null
ERROR: Unable to locate element: ".button_not_exists" using: css selector
✔  Testing if element <.not_exists> is not present.

Unable to locate element: ".button_not_exists" using: css selector
FAILED:   1 assertions failed, 1 errors and 1 passed (4261 ms)

Running:   Demo fail 2

✖  Testing if element <.not_exists> is present.   - expected "present" but got: null

FAILED:   1 assertions failed and 3 skipped (1569 ms)


TEST FAILURE: 1 error during execution, 2 assertions failed, 2 passed and 3 skipped.. (13248 ms)
```

Optimization tips

- learn configuration and running command line options from http://nightwatchjs.org/guide

- start selenium with „`java -jar selenium-server-standalone-2.x.y.jar`" and set selenium "start_process" to false in nightwatch.json

- run only selected tests with options `--test` (`-t`), `--group` (`-g`), `--skipgroup` (`-s`), `--filter`(`-f`)

- run different environments in parallel: `nightwatch -e default,chrome`

Nightwatch API

- Reference at http://nightwatchjs.org/api

Assertions

attributeEquals
containsText
cssClassPresent
cssClassNotPresent
cssProperty
elementPresent
elementNotPresent
hidden
title
urlContains
urlEquals
value
valueContains
visible

Commands (…excerpt…)

click
deleteCookie
end
getAttribute
getCookie
getText
getTitle
getValue
moveToElement
pause
resizeWindow
saveScreenshot
setValue
submitForm
switchWindow
waitForElementVisible

Protocol (…excerpt…)

doubleClick
element
execute
frame
keys
mouseButtonDown
mouseButtonUp
moveTo
refresh
session
status
timeouts
title
url
windowSize

Case 1

- Check the Logo and „Start"-Link

- run as a new group -g (create new folder in tests)

- do a screenshot

Case 2

- Click to „Kontakte" and check if the 3rd tab is „Anschrift"

- run as a single test -t

- use XPath and CSS-Selector

- do some proper logging (optional params)

Case 3

- test a mouseover event (without click)

- different browsers with environments

- run tests in parallel, live_output setting

- extra challenge: IE :-)

Case 4

- test a page, that opens in the new tab

- use setUp and tearDown methods

- use callbacks (e.g. to change screenshot filename)

- use asynchronous setUp, tearDown (?)

Case 5

- type in text in forms, use „Tab"-Key simulation

- use globals (nightwatch.json)

Case 6

- test page that opens in the new window

- use headless browsing (PhantomJS)

Case 7+...

- test checkboxes and/or radioboxes

- test closing a window

- test visible/invisible elements

- test dropdowns

- write custom commands

- write custom assertions

- use of Selenium authorization (?)

Topics for future sessions

- Continuous Integration (Jenkins)

- Reporting

- Management of the test cases

- Usage in SCRUM (?)

- Frameworks for video generation (?)

The End.
Questions?

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