

Selenide - Bandersnatch

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testing, test management, test automation,
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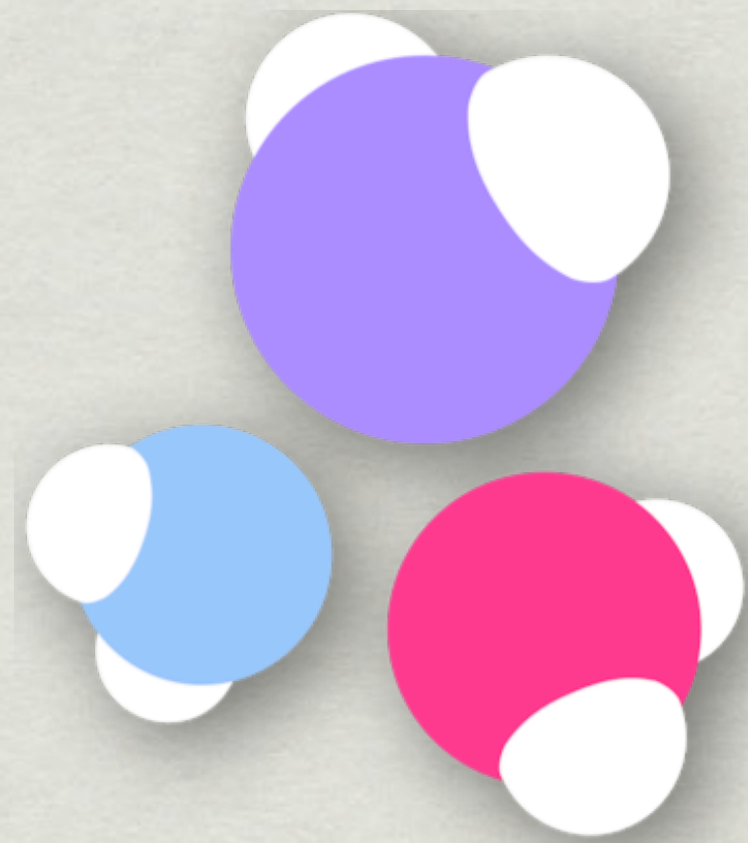
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blog: <http://qa-blog.alexei-vinogradov.de> (Brainual Tester)



Library for UI test automation



selenide



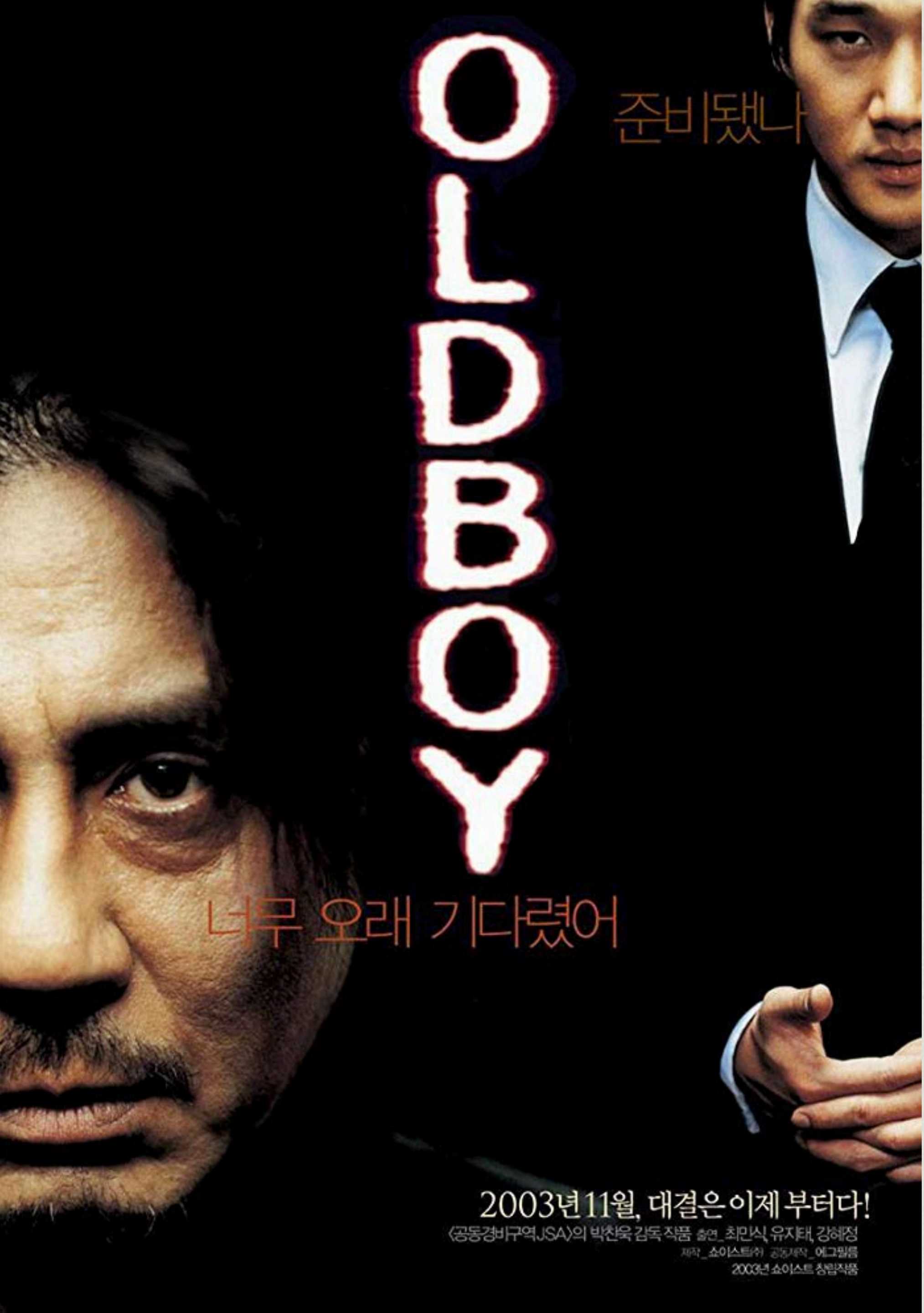
Est. 2011



Selenium inside

<http://selenide.org>





Part 1

Features of Selenide

Let's start testing with Chrome

```
Configuration.browser="chrome";
```

Just write your code!

Default Browser



Google Chrome

Test is running with



Google Chrome



CONTINUE

Test is running with



Google Chrome



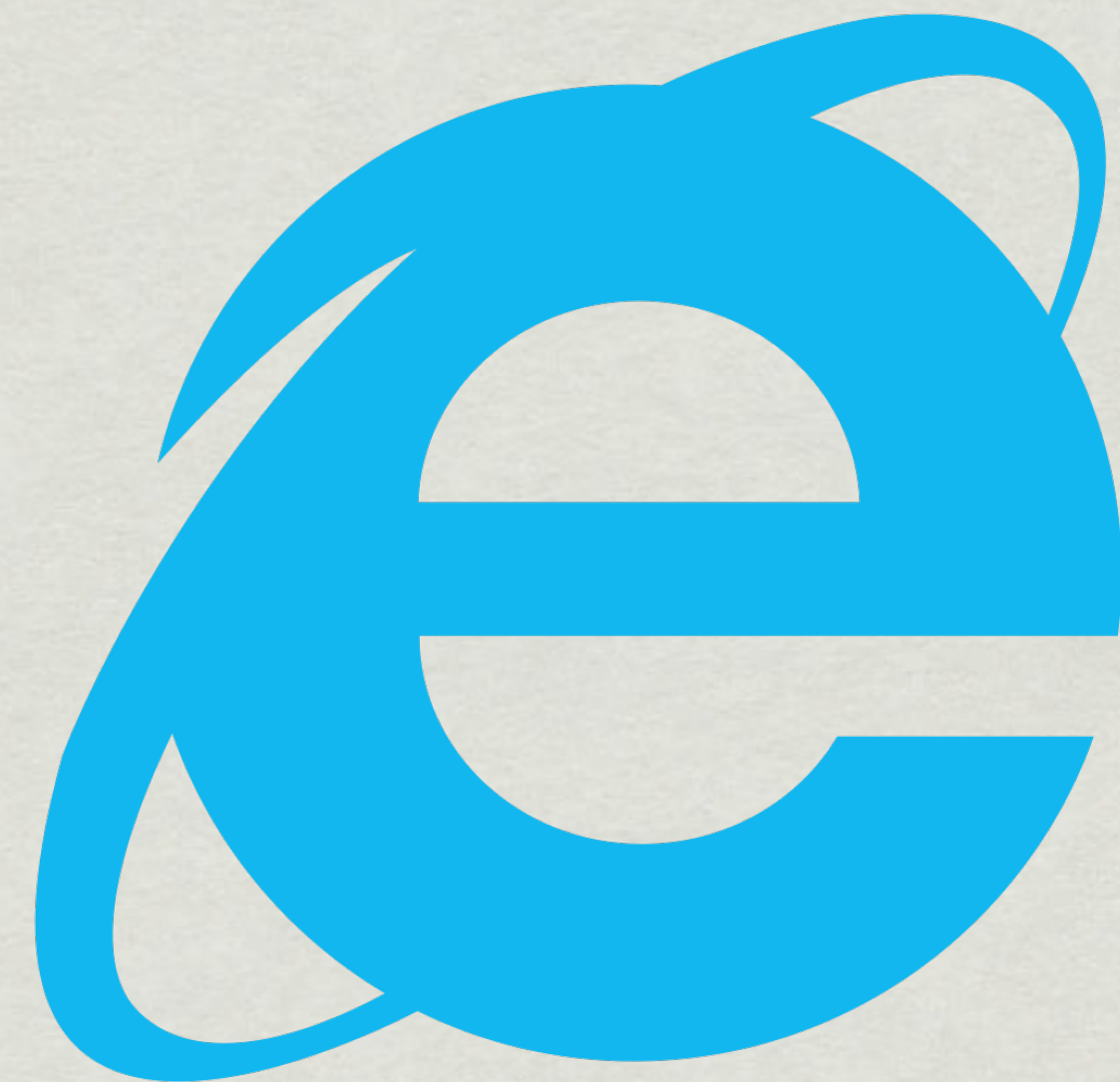
Need IE, Firefox, Edge...

1. install the browser
2. configure Selenide to use it

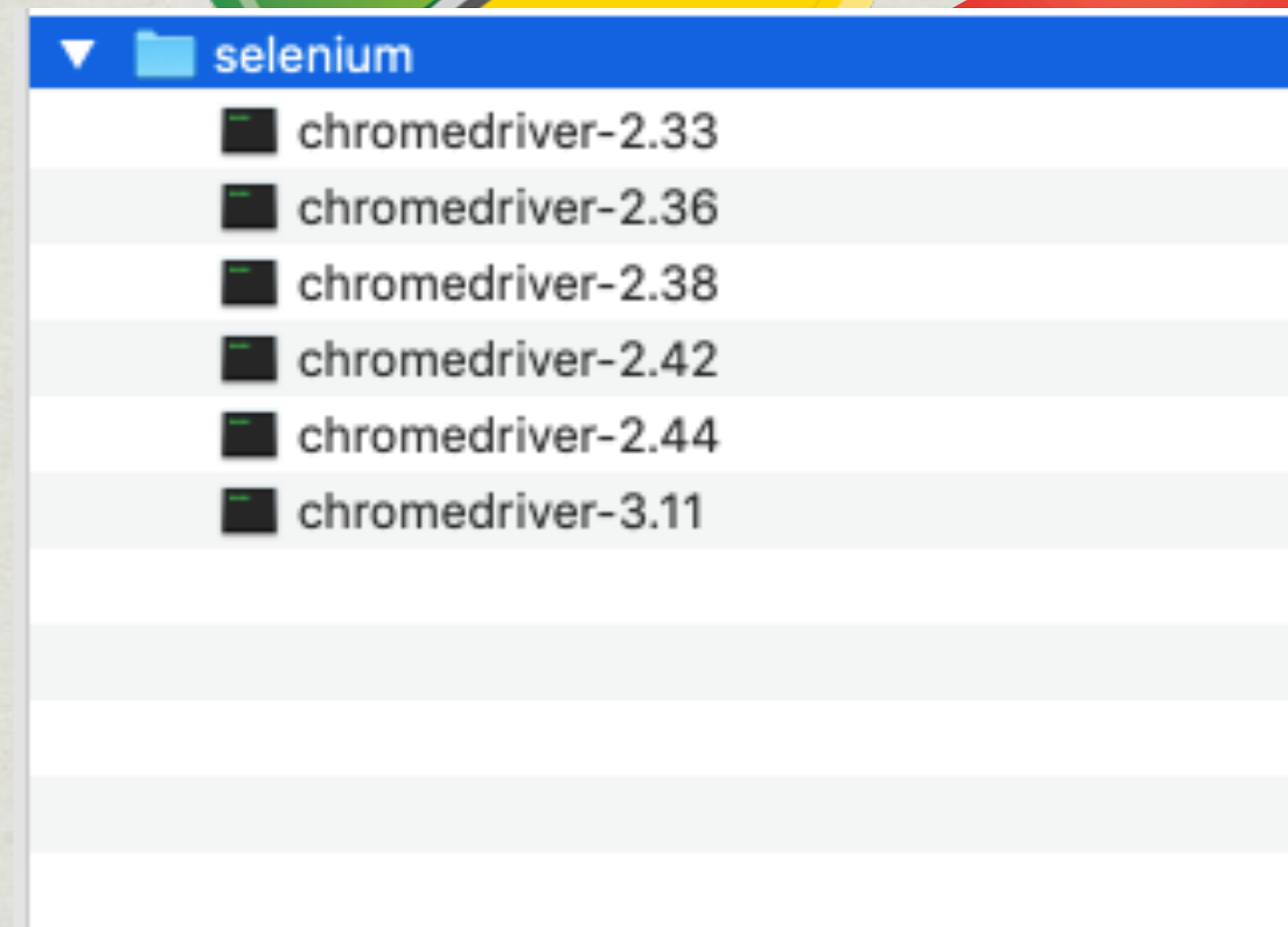
3. Download WebDriver for the browser

3. Just write your code

Everything is fine (first)

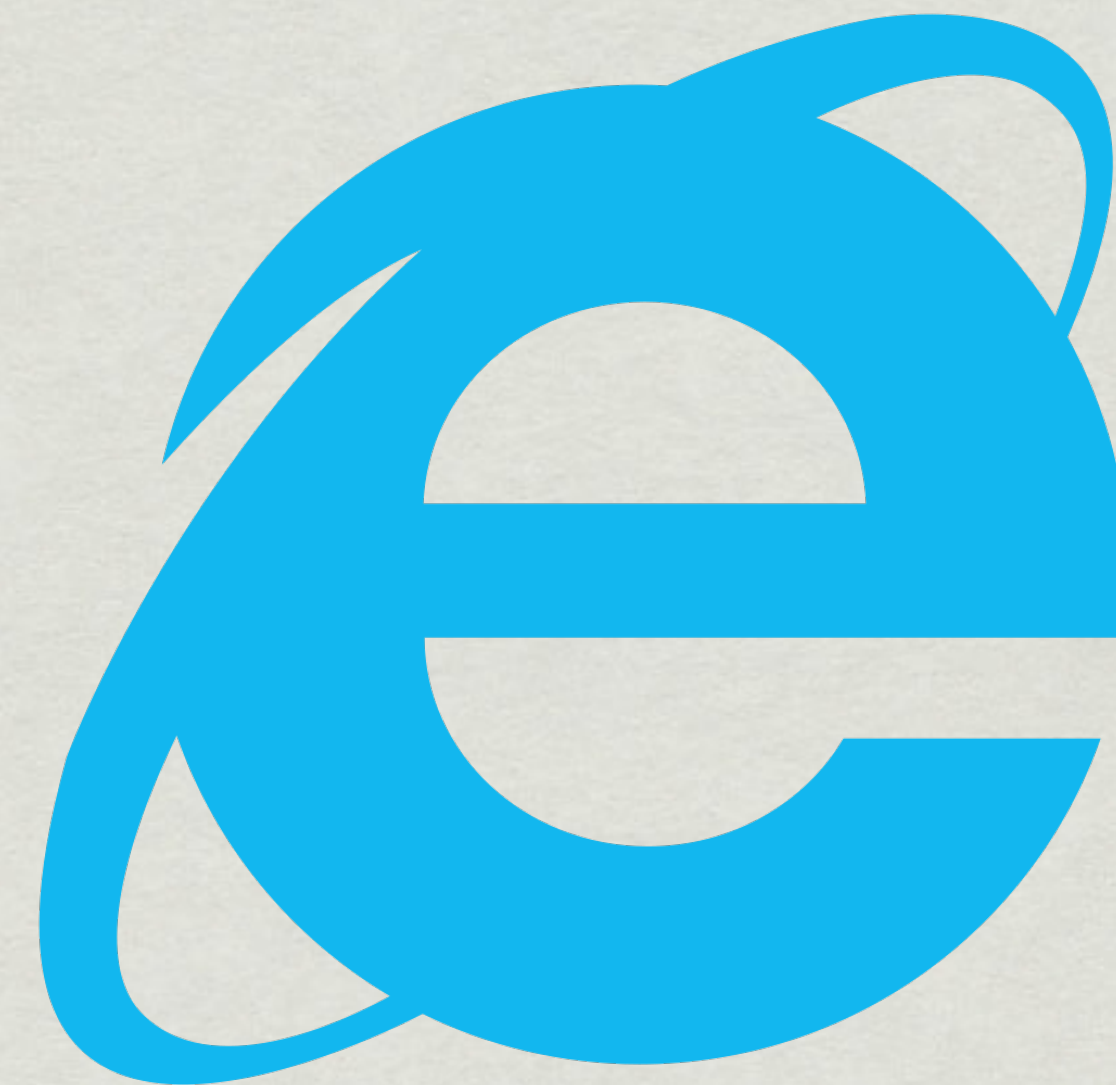


Driver Hell



TRY
AGAIN

WebDriverManager



Browser

Code:

```
Configuration.browser="firefox"; // edge,ie,safari,chrome,legacy_firefox
```

System properties:

```
selenide.browser=firefox
```



CONTINUE

Test is running OK with



Firefox ESR

Selectors

The image shows a screenshot of an Amazon website's account menu. At the top, there is a search bar with a magnifying glass icon and the text "24/7 Customer service. Learn more". Below this, the user's name "Hello, Julija" is displayed next to a globe icon labeled "EN". The "Account & Lists" menu is open, showing two main sections: "Your Lists" and "Your Account".

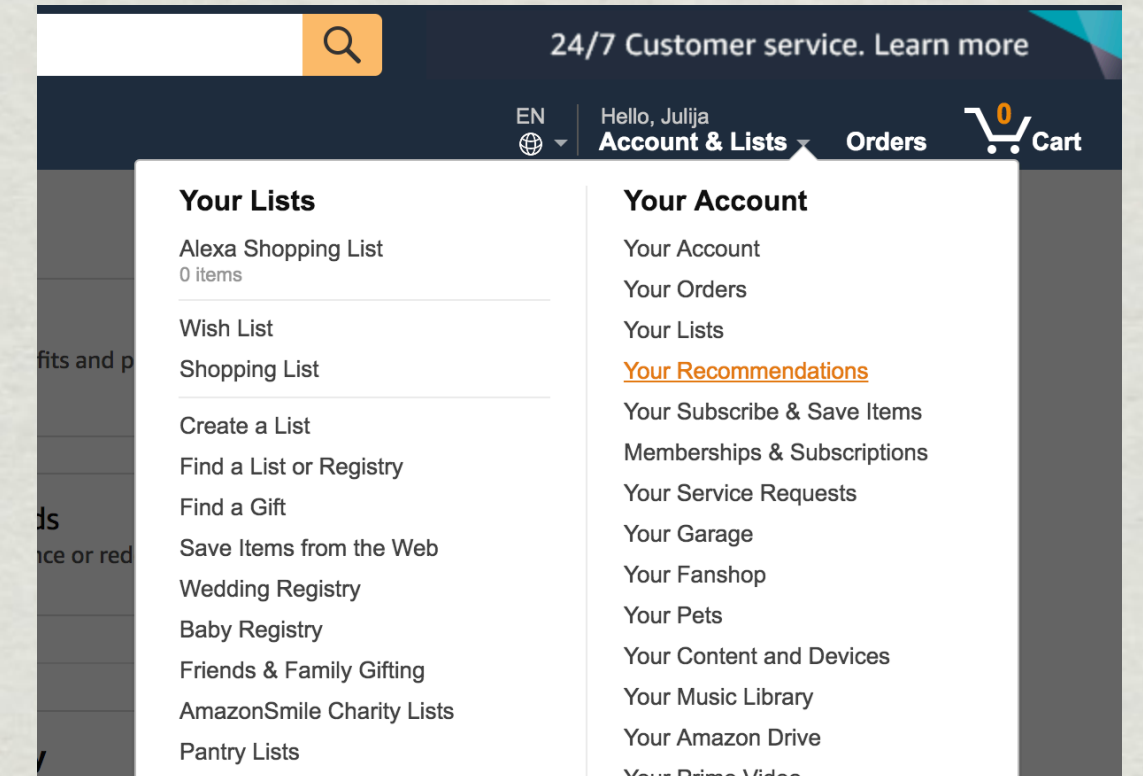
Your Lists

- Alexa Shopping List
0 items
- Wish List
- Shopping List

Your Account

- Your Account
- Your Orders
- Your Lists
- Your Recommendations
- Your Subscribe & Save Items
- Memberships & Subscriptions
- Your Service Requests
- Your Garage
- Your Fanshop
- Your Pets
- Your Content and Devices
- Your Music Library
- Your Amazon Drive
- Your Prime Video

Selectors



```
Elements Console Sources Network Performance Memory Application Security Audits
▼ <div id="nav-al-your-account" class="nav-al-column nav-template nav-flyout-content nav-tpl-itemList">
  <div class="nav-title">Your Account</div>
  ▶ <a href="/gp/css/homepage.html/ref=nav_youraccount_ya" class="nav-link nav-item">...</a>
  ▶ <a href="/gp/css/order-history/ref=nav_youraccount_orders" class="nav-link nav-item" id="nav_prefetch_yourorders">...</a>
  ▶ <a href="/gp/registry/wishlist/ref=nav_youraccount_wl?ie=UTF8&requiresSignIn=1" class="nav-link nav-item">...</a>
  ▶ <a href="/gp/yourstore/ref=nav_youraccount_recs" class="nav-link nav-item">...</a>
  ▶ <a href="/gp/subscribe-and-save/manager/viewsubscriptions/ref=nav_youraccount_sns" class="nav-link nav-item">...</a>
  ▶ <a href="/yourmembershipsandsubscriptions/ref=nav_youraccount_digital_subscriptions" class="nav-link nav-item">...</a>
  ▶ <a href="/localservices/ya/servicerequests/ref=nav_youraccount_desktop_vas_requestlist" class="nav-link nav-item">...</a>
  ▶ <a href="/gp/your-garage/ref=nav_youraccount_au_pf_as_GNO" class="nav-link nav-item">...</a>
  ▶ <a href="/fanshop/ref=nav_youraccount_yfs" class="nav-link nav-item">...</a>
  ▶ <a href="/yourpets/ref=nav_youraccount_pet_profiles" class="nav-link nav-item">...</a>
  ▶ <a href="/mn/dcw/myx.html/ref=nav_youraccount_myk" class="nav-link nav-item">...</a>
  ▶ <a href="/gp/dmusic/mp3/player/ref=nav_youraccount_cldplyr" class="nav-link nav-item">...</a>
  ▶ <a href="/clouddrive/ref=nav_youraccount_clddrv" class="nav-link nav-item">...</a>
  ▶ <a href="/Prime-Instant-Video/s/browse/ref=nav_youraccount_piv?encoding=UTF8&node=2676882011" class="nav-link nav-item">...</a>
```

How do you select?

XPath: 4th-child in menu

XPath: text "Your Recommendations"

I know something better

XPath

```
$(byXpath("//div/a[4]"));
```

Your Account

Your Account

Your Orders

Your Lists

Your Recommendations

Your Subscribe & Save Items

Memberships & Subscriptions

Your Service Requests

Your Garage

Your Fanshop

Your Pets

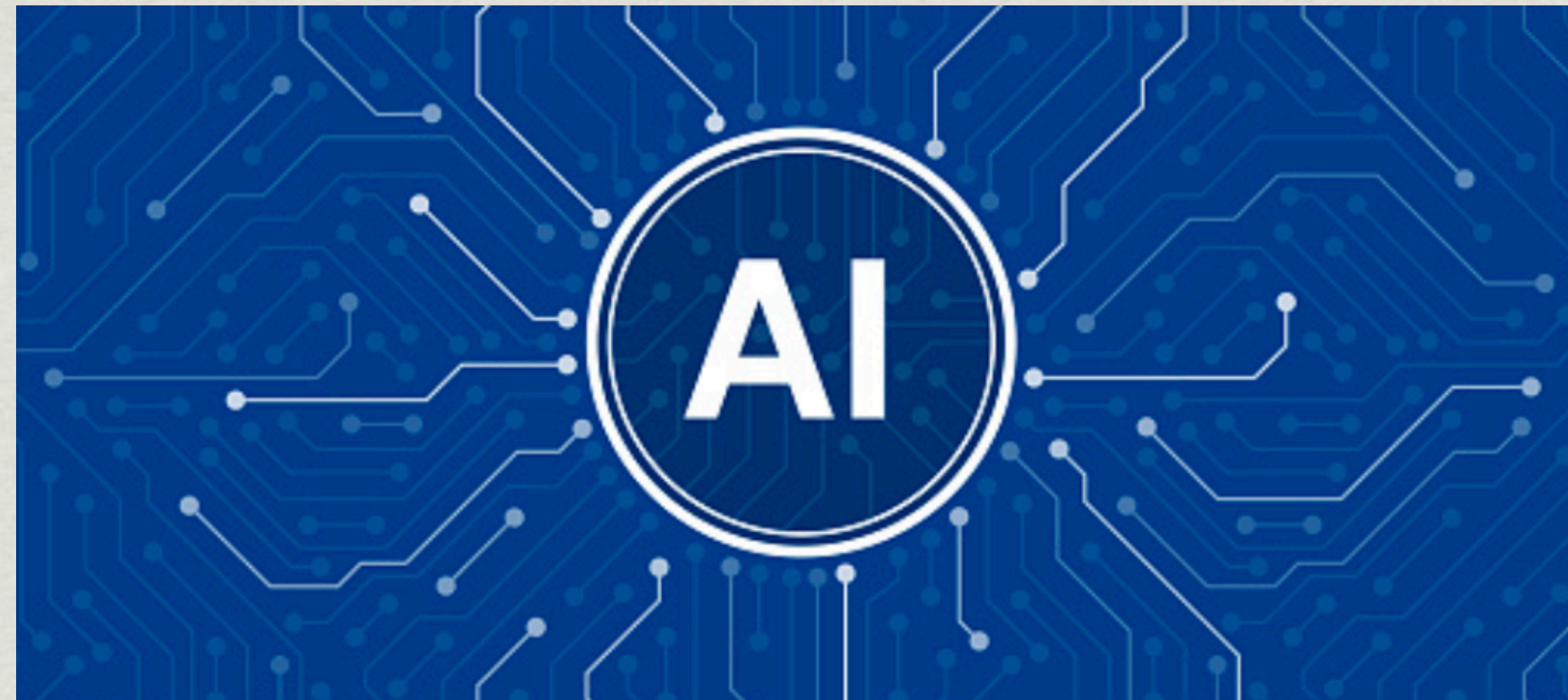
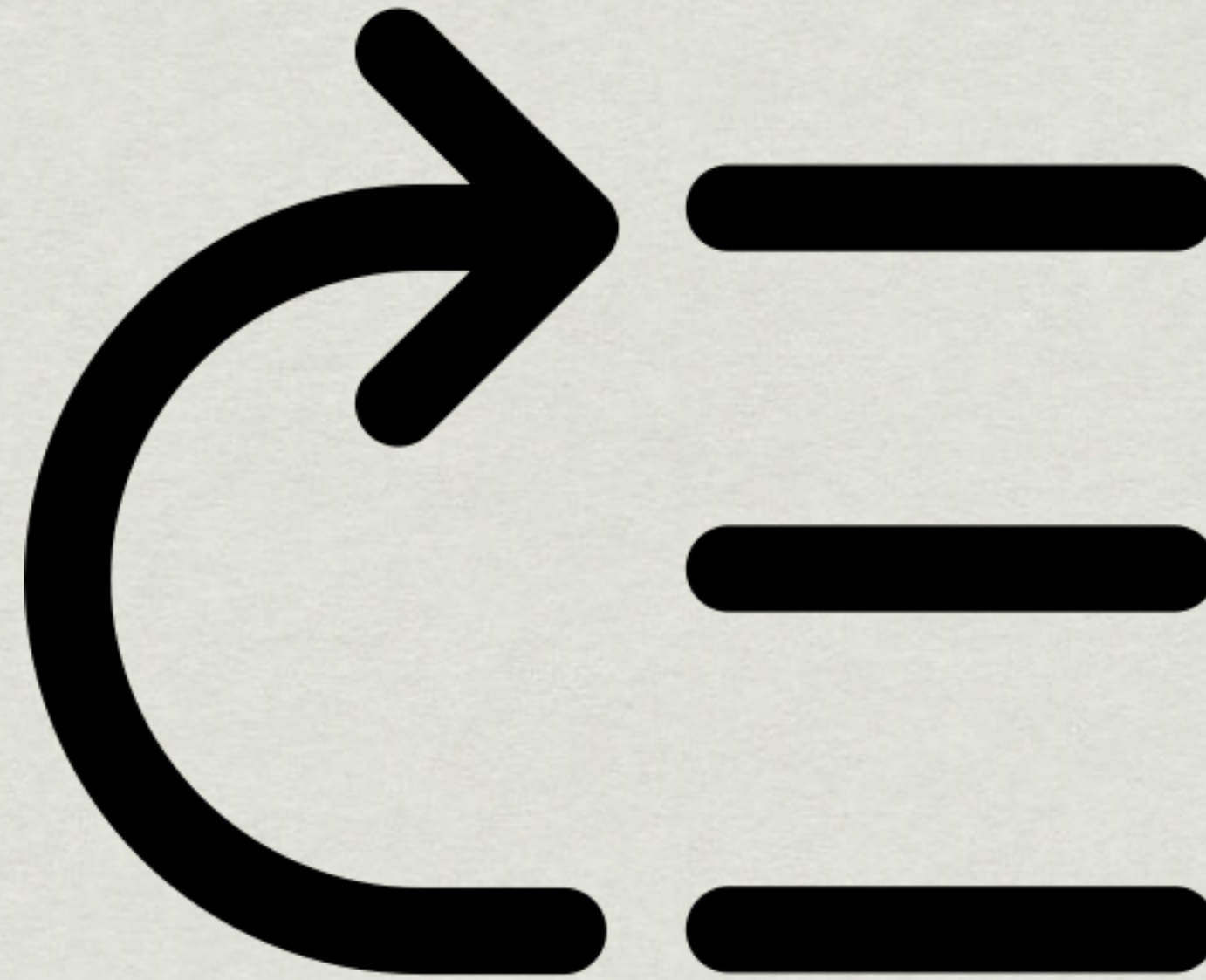
Your Content and Devices

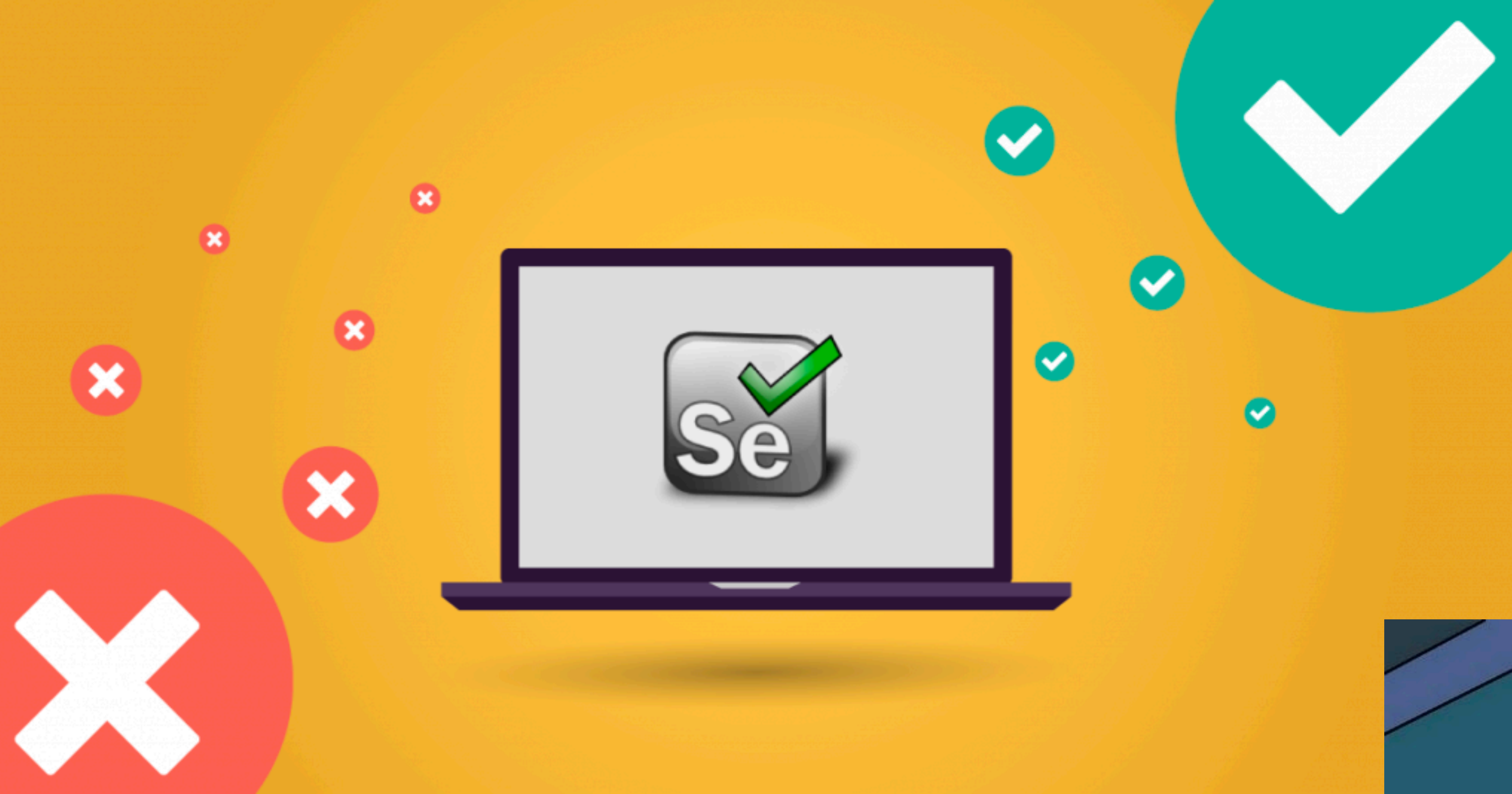
Your Music Library


Your Amazon Drive

Your Amazon Music Library

Reorder & filter based on user





A person wearing a black blazer over a blue collared shirt is seated at a dark wooden desk. They are holding a white sign with the words "YOU'RE FIRED!" written in large, bold, black marker. The person's left hand, which has a ring on the ring finger, rests on the desk. The background shows a blurred office environment with a blue chair, a potted plant, and a window with blinds.

YOU'RE
FIRED!

GAME OVER

Restart?

Yes

[NO]

XPath

```
$(byXpath("//div/*[normalize-space(text()) = 'My  
Recommendations']"));
```

XPath

```
#include<stdio.h>

int main(int argc, char *argv[])
{
    char c[] = "C言語"
    char ruby[] = "ルビー";

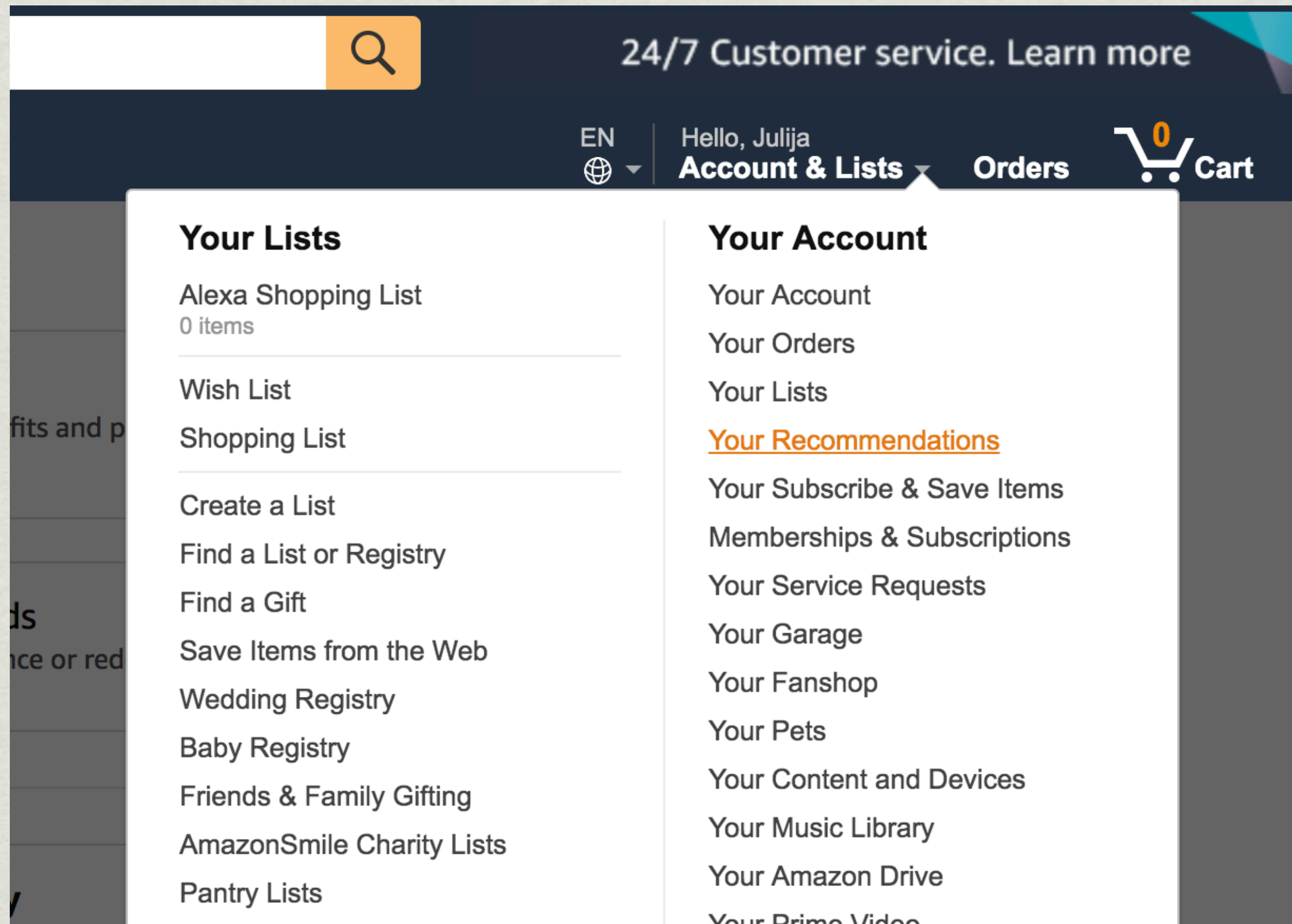
    printf("私は%sを理解していません\n");
    printf("私は%sがより好きです\n", ruby);

    return 0;
}
~
```

You can do better



Selectors



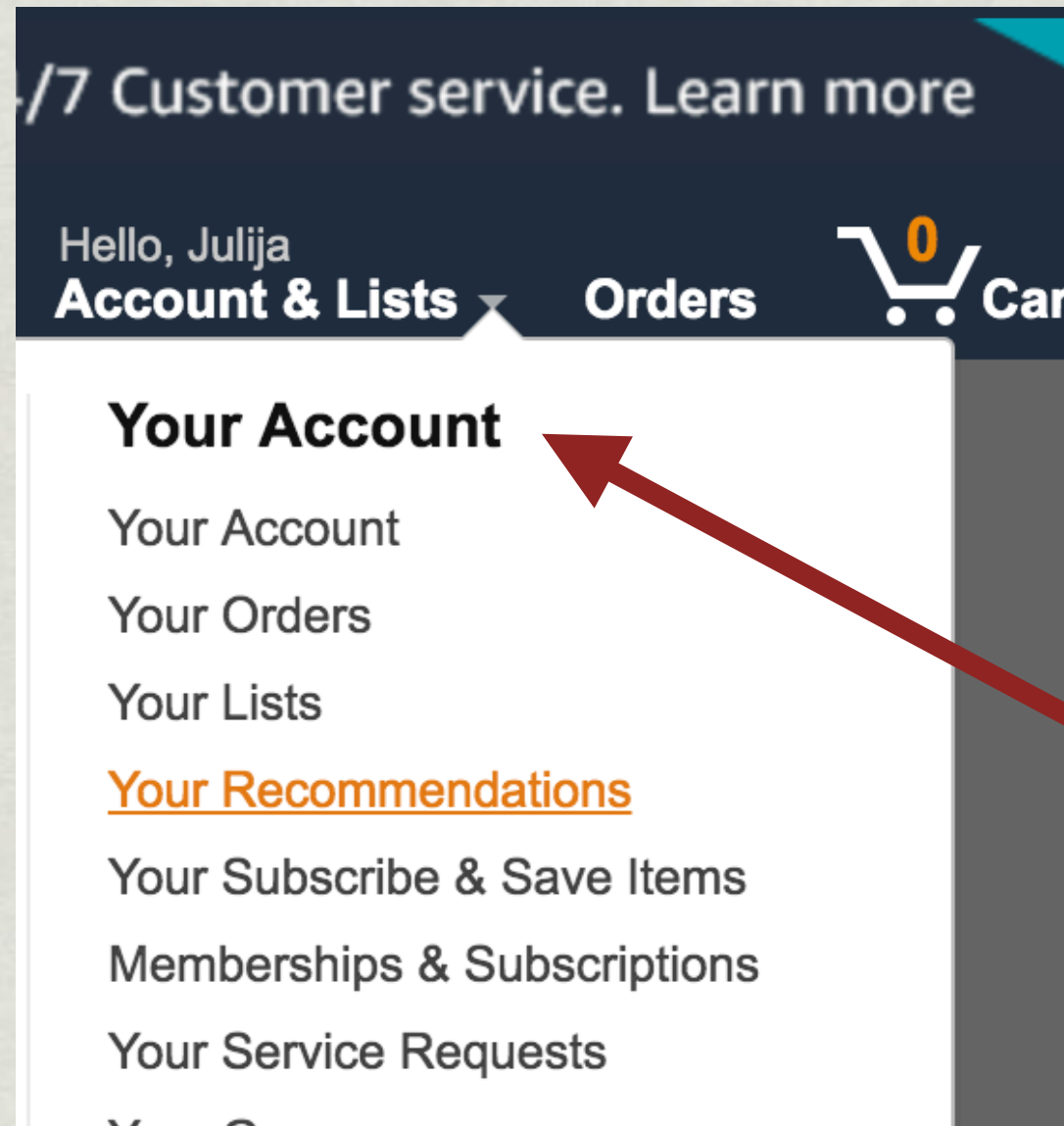
Selectors.byText()

Selectors.withText()

```
$(byText("Your Recommendations"))
```

```
$(withText("Recommend"))
```

Selectors



```
$("#nav-al-your-account").$(byText("Your Recommendations"))
```

```
$("#nav-al-your-account").$(withText("ecommand"))
```

```
ents Console Sources Network Performance Memory Application Security Audits
▼ <div id="nav-al-your-account" class="nav-al-column nav-template nav-flyout-content nav-tpl-itemList">
  <div class="nav-title">Your Account</div>
  ▶ <a href="/gp/css/homepage.html/ref=nav_youraccount_ya" class="nav-link nav-item">...</a>
  ▶ <a href="/gp/css/order-history/ref=nav_youraccount_orders" class="nav-link nav-item" id="nav_prefetch_yourorders">...</a>
  ▶ <a href="/gp/registry/wishlist/ref=nav_youraccount_wl?ie=UTF8&requiresSignIn=1" class="nav-link nav-item">...</a>
  ▶ <a href="/gp/yourstore/ref=nav_youraccount_recs" class="nav-link nav-item">...</a>
  ▶ <a href="/gp/subscribe-and-save/manager/viewssubscriptions/ref=nav_youraccount_sns" class="nav-link nav-item">...</a>
  ▶ <a href="/yourmembershipsandsubscriptions/ref=nav_youraccount_digital_subscriptions" class="nav-link nav-item">...</a>
```


How to debug the selectors

DevTools

Selenide has something

Selectors - Debugging

```
System.out.println($("#nav-link-accountList"));
```

Output:

```
<a class="nav-a nav-a-2" data-nav-ref="nav_ya_signin" data-nav-  
role="signin" data-ux-jq-mouseenter="true" href="https://www.amazon.com/  
ap/signin?openid.pape.max_auth_age=0" id="nav-link-accountList"  
tabindex="61">Hello, Sign in  
Account & Lists</a>
```

Only for debugging! Don't do it in working code!

DevTools console

```
$$("<css selector>")
```

```
$x("<xpath>")
```

Conditions

`Condition.visible`

`Condition.hidden`

`Condition.attribute(name)`

...

```
$("div.ok_icon").shouldBe(visible);
```

```
$("div.summary").shouldHave(text("Success"));
```

```
$$("div.items").filterBy(visible).shouldHaveSize(5);
```

How to assert the element is red?

use `cssClass` Condition

use `cssValue` Condition

cssClass

Condition.cssClass



```
Elements Console Sources Network Performance Memory Application Security Audits
▶ <div id="apostrophes-and-quotes" class="container">...</div>
▶ <div id="radioButtons">...</div>
  <br>
  <br>
▶ <table id="multirowTable" class="table multirow_table" border="1">...</table>
▶ <div id="status">...</div>
▶ <div id="theHiddenElement" style="display: none">...</div>
<br>
```

```
$("#table").shouldHave(cssClass("table"));
```

```
$("#table").shouldHave(cssClass("table"), cssClass("multirow_table"));
```

TRY
AGAIN

cssValue

Condition.cssValue

```
<head>...</head>
<body onload="initBlur(); scheduleFillTextArea();">
  <div style="display: none">abcd</div>
  <div id="non-clickable-element" style="z-index: -100; position: absolute; top: 10px; right: 200px; width: 190px; height: 50px; background-color: lightgrey;">...</div>
  <div id="clickable-element" style="z-index: -90; position: absolute; top: 10px; right: 200px; width: 190px; height: 50px; background-color: lightgrey;">...</div>
  <h1>Page with selects</h1>
  <div class="container">
    <div class="container">
      <div id="domain-container" class="container">
        <h2>Dropdown list</h2> == $0
        <h6 id="selectedDomain"></h6>
        <div id="dropdown-list-container" class="container">...</div>
      </div>
    </div>
  <div id="apostrophes-and-quotes" class="container">...</div>
  <div id="radioButtons">...</div>
  <br>
  <br>
  <table id="multirowTable" class="table multirow_table" border="1">...</table>
  <div id="status">...</div>
  <div id="theHiddenElement" style="display: none">...</div>
  <br>
  <div style="width: 400px">...</div>
```

Styles Computed Event Listeners DOM Breakpoints Properties Accessibility

margin 19.920
border -
padding -
1508 x 28.800
19.920

Filter Show all

display	block
font-size	24px
font-weight	700
height	28.8px
margin-block-end	19.92px
margin-block-start	19.92px
margin-inline-end	0px
margin-inline-start	0px
width	1508px

Rendered Fonts

```
$("#h2").shouldHave(cssValue("display", "block"));
```

```
$("#h2").shouldHave(cssValue("font-size", "24px"));
```

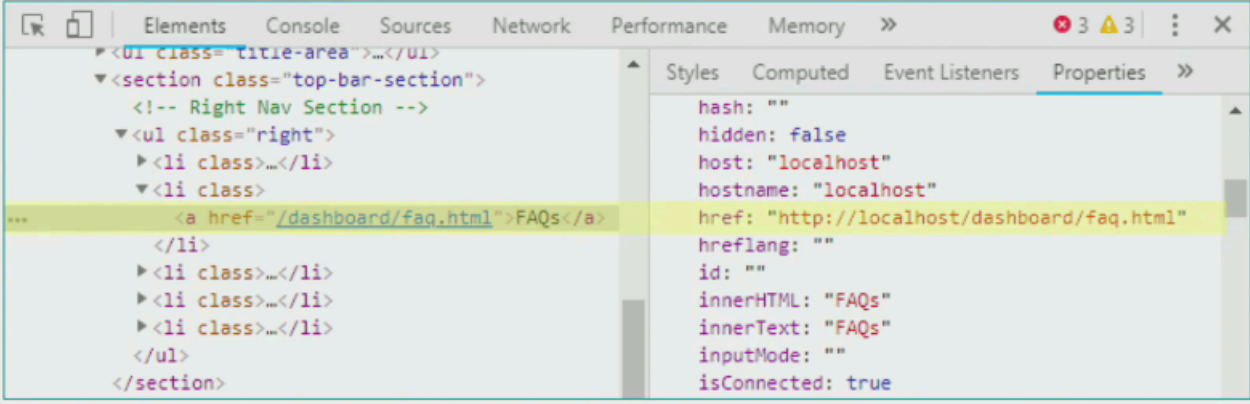
```
$("#h2").shouldHave(cssValue("color", "rgba(1, 0, 0, 1)"));
```

Condition Attributes-Properties

Condition.attribute(...)

```
$("#div.link").shouldHave(attribute("href", "/login"));
```


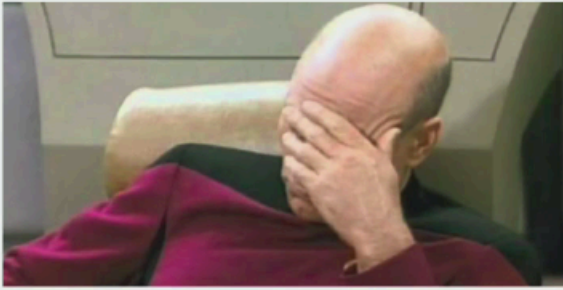
№8: Атрибуты и свойства



Алексей Баранцев Software-Testing.Ru Selenium2.Ru facebook.com/groups/selenium.ru/ barancev@gmail.com skype:barancev

№8: Атрибуты и свойства

- getProperty
- getDomAttribute
- getAttribute
[or property, I'm not sure which, but I know it's something]
- «Вы чё там курите?!»



Алексей Баранцев Software-Testing.Ru Selenium2.Ru facebook.com/groups/selenium.ru/ barancev@gmail.com skype:barancev

https://youtu.be/4M55s_YqKc4?t=24000 (4 minutes)

Алексей Баранцев "Заморочки в Selenium WebDriver", Heisenbug Moscow 2018

How do you explain complex assertions?

write comments in code

Selenide has something

Explaining assertions

```
$("#div.summary").shouldHave(text("Failed")); // invalid credit card
```

```
// Visa, MasterCard, AmEx  
$$("div.payments").shouldHave(size(3));
```

Explaining assertions

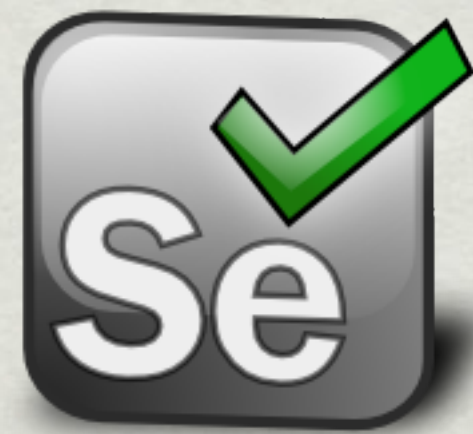
```
<condition>.because(...)
```

```
$("#div.summary").shouldHave(text("Failed").because("invalid credit card"));
```

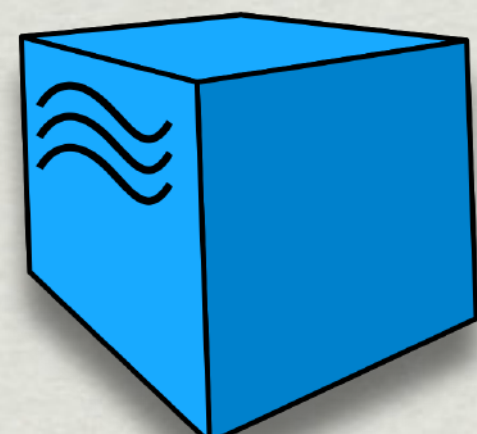
Element should have text 'Failed' (because invalid credit card) {div.summary}
Element: '<div>Transaction succeeded</div>'

```
$$("div.payments").shouldHave(size(3).because("Visa, MasterCard, AmEx"));
```

Scaled Execution



Selenium Grid



Selenoid



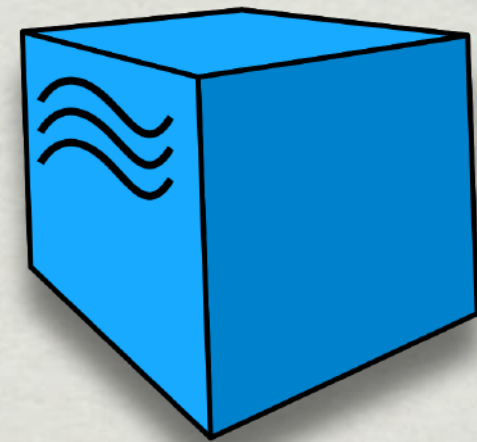
We don't need it

Let's do it

Remote Execution



Selenium Grid



Selenoid



Code:

```
Configuration.remote="https://<selenium-server-address>/wd/hub";
```

System properties:

```
selenide.remote=https://<selenium-server-address>/wd/hub
```

Cloud Services



SAUCELABS



BrowserStack

Cloud Services



SAUCELABS

MavenTM

Surefire Plugin configuration:

```
<systemPropertyVariables>  
  <selenide.remote>http://<username>:<api-key>@ondemand.saucelabs.com:80/wd/hub</selenide.remote>  
  <capabilities.platform>macOS 10.14</capabilities.platform>  
  <capabilities.version>12.0</capabilities.version>  
  <selenide.browser>Safari</selenide.browser>  
</systemPropertyVariables>
```

Non-Standard Browser Setup

Implement custom WebDriver

Selenide Configuration

Chrome Options



Surefire Plugin configuration:

```
<systemPropertyVariables>  
  <chromeoptions.args>--incognito,--disable-infobars</chromeoptions.args>  
  <chromeoptions.mobileEmulation>deviceName=iPhone X</chromeoptions.mobileEmulation>  
  <chromeoptions.prefs>key1=value1,key2=value2</chromeoptions.prefs>  
</systemPropertyVariables>
```

Headless mode (Chrome/Firefox)

Code:

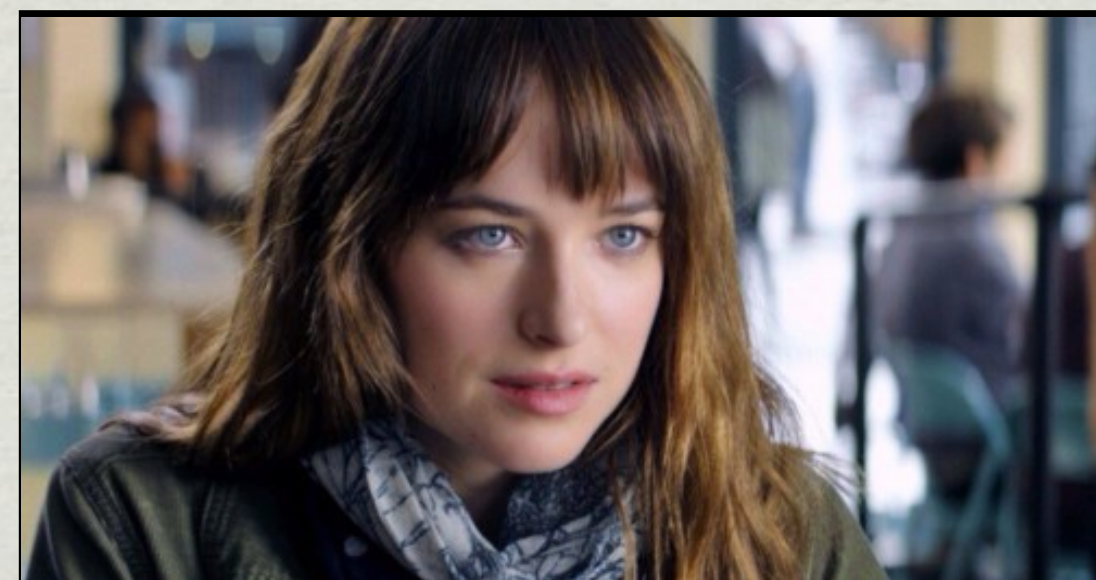
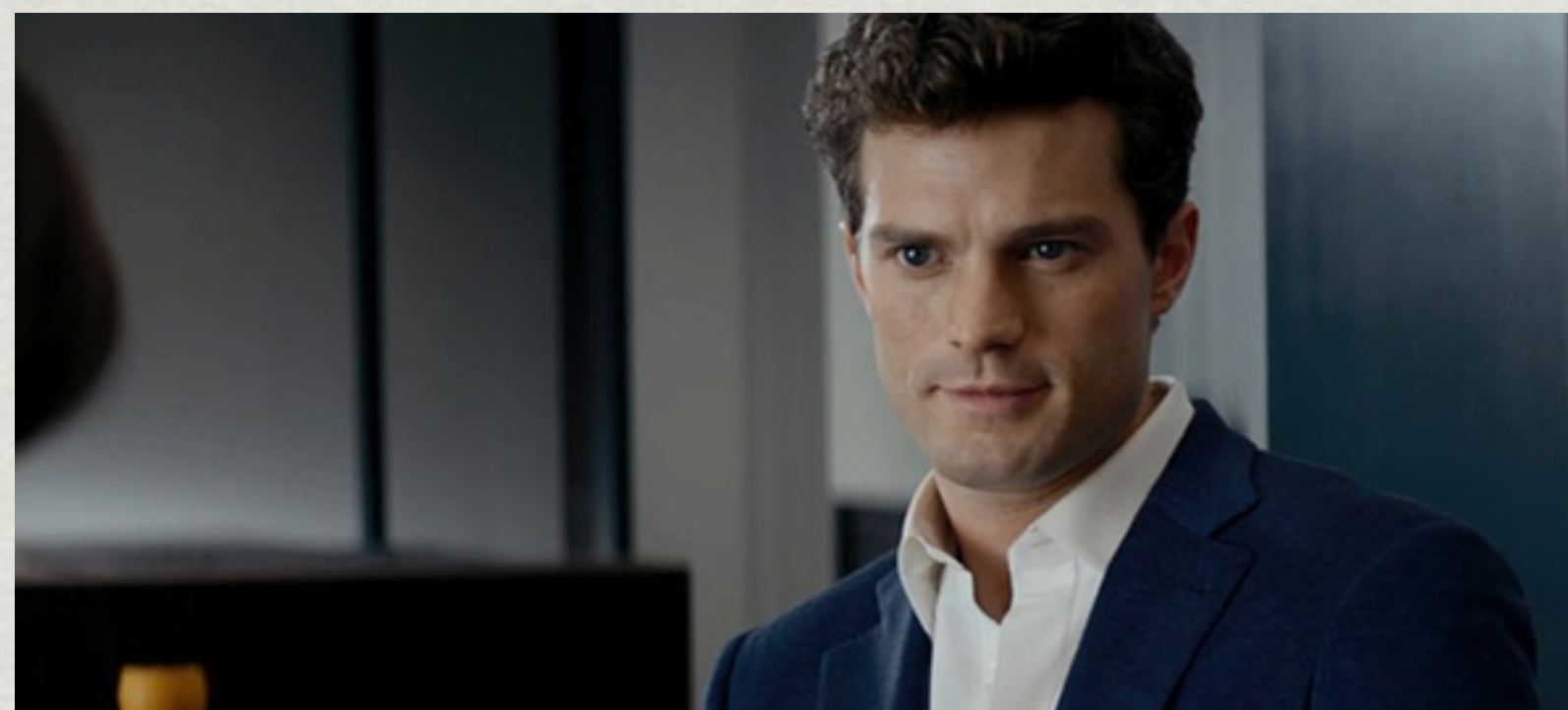
```
Configuration.headless=true;
```



Surefire Plugin configuration:

```
<systemPropertyVariables>  
  <selenide.headless>>true</selenide.headless>  
</systemPropertyVariables>
```

My desires are... unconventional
(custom WebDriver)



You sick bastard

So show me



Custom WebDriver Implementation

```
import com.codeborne.selenium.WebDriverProvider;

public class MyCustomWebDriver implements WebDriverProvider {
    @Override
    public WebDriver createDriver(DesiredCapabilities capabilities) {
        Map<String, Object> prefs = new HashMap<String, Object>();
        prefs.put("credentials_enable_service", false);
        prefs.put("profile.default_content_setting_values.notifications", 2);
        ChromeOptions chromeOptions = new ChromeOptions();
        chromeOptions.setExperimentalOption("prefs", prefs);
        WebDriverManager.chromedriver().setup();
        ChromeDriver chromeDriver = new ChromeDriver(chromeOptions);
        return chromeDriver;
    }
}
```

Custom WebDriver Implementation

```
package com.example;

public class MyCustomWebDriver implements WebDriverProvider {
    @Override
    public WebDriver createDriver(DesiredCapabilities capabilities) {
        ...
    }
}
```

System properties:

```
selenide.browser = com.example.MyCustomWebDriver
```

Your tests are too slow

I switch to Cypress

Let's try profiling



End-to-end tests

cypress

All-in-one testing framework,
assertion library, with mocking and
stubbing, all without Selenium.



CONTINUE

Profiling

```
@ExtendWith({TextReportExtension.class})
class GoogleTest {
...
}
```



Element	Subject	Status	ms.
open	http://localhost/page_with_selects_without_jquery.html	PASS	3536
By.name: domain	is displayed()	PASS	100
#theHiddenElement	is displayed()	PASS	22
By.name: non-existing-element	is displayed()	PASS	24
#theHiddenElement	should be(hidden)	PASS	21
#theHiddenElement	should(hidden)	PASS	19
#theHiddenElement	wait until([hidden, 1000])	PASS	15
#theHiddenElement	should(exist)	PASS	15
.non-existing-element	should(not exist)	PASS	13
.non-existing-element	should not(exist)	PASS	10

My test should continue running
after failed assertions

Bad idea!

Use SoftAssertions

Andrei Solntsev approves!





CONTINUE

Soft Asserts



Soft Asserts

```
@ExtendWith({SoftAssertsExtension.class})  
class GoogleTest {  
...  
}
```



Soft Asserts

```
@ExtendWith({SoftAssertsExtension.class})
class GoogleTest {

    @Test
    void someTest(){
        Configuration.assertionMode=AssertionMode.SOFT;
        ...
        $(...).shouldBe(visible);
        $(...).shouldHave(text());
        ...
    }
}
```



Soft Asserts

Tests failed: 2 of 2 tests

MacQA.fritz.box/192.168.178.50

com.codeborne.selenium.ex.SoftAssertionError: Test method3_searchForSelenide() failed.

2 checks failed

FAIL #1: Element not found {abc}

Expected: visible

Screenshot: <file:/Users/vinogradov/Downloads/test/build/reports/tests/1553344823268.0.png>

Page source: <file:/Users/vinogradov/Downloads/test/build/reports/tests/1553344823268.0.html>

Timeout: 4 s.

Caused by: NoSuchElementException: no such element: Unable to locate element: {"method":"css selector","selector":"abc"}

FAIL #2: Element not found {kde}

Expected: visible

Screenshot: <file:/Users/vinogradov/Downloads/test/build/reports/tests/1553344828117.1.png>

Page source: <file:/Users/vinogradov/Downloads/test/build/reports/tests/1553344828117.1.html>

Timeout: 4 s.

Caused by: NoSuchElementException: no such element: Unable to locate element: {"method":"css selector","selector":"kde"}

at com.codeborne.selenium.logevents.ErrorsCollector.failIfErrors(ErrorsCollector.java:42)

⊞ at com.codeborne.selenium.junit5.SoftAssertsExtension.afterEach(SoftAssertsExtension.java:49) <3 internal calls>

⊞ at java.util.ArrayList.forEach(ArrayList.java:1249) <8 internal calls>

⊞ at java.util.ArrayList.forEach(ArrayList.java:1249) <5 internal calls>

⊞ at java.util.ArrayList.forEach(ArrayList.java:1249) <17 internal calls>

|

Soft Asserts

```
@ExtendWith({SoftAssertsExtension.class})
class GoogleTest {

    @Test
    void softTest(){
        Configuration.assertionMode=AssertionMode.SOFT;
        ...
    }

    @Test
    void otherTest(){
        Configuration.assertionMode=AssertionMode.STRICT;
        ...
    }
}
```



GARY
OLDMAN

BRUCE
WILLIS

MILLA
JOVOVICH



THE FIFTH ELEMENT

There is no future without it.

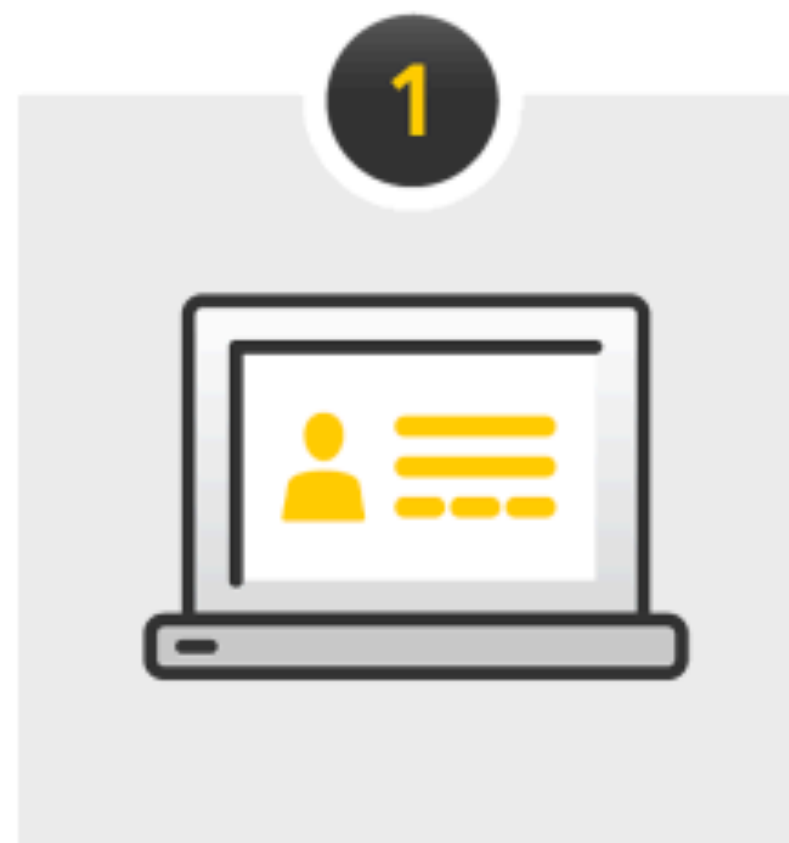
COLUMBIA PICTURES PRESENTS
A GAUMONT PRODUCTION A FILM BY LUC BESSON STARRING BRUCE WILLIS "THE FIFTH ELEMENT" GARY OLDMAN IAN HOLM CHRIS TUCKER AND MILLA JOVOVICH MUSIC BY ERIC SEIRA EDITOR JEAN-PAUL GAULTIER PRODUCTION DESIGNER MARK STETSON EXECUTIVE PRODUCERS JAIN SMITH AND STEVE WOLFE
SOUNDTRACK ON VHS, CD, AND CASSETTES EDITOR SYLVIE LANDRA PRODUCTION DESIGNER DAN WEIL DIRECTOR OF PHOTOGRAPHY THIERRY ARBOGAST EXECUTIVE PRODUCERS LUC BESSON & ROBERT MARK KAMEN PRODUCED BY PATRICE LEDOUX DIRECTED BY LUC BESSON
COLUMBIA PICTURES
SPECIAL THANKS TO THE DIGITAL DOMAIN
www.sony.com

Part 2

Selenide 5.x

A test needs multiple browsers

This is how the online video identification works



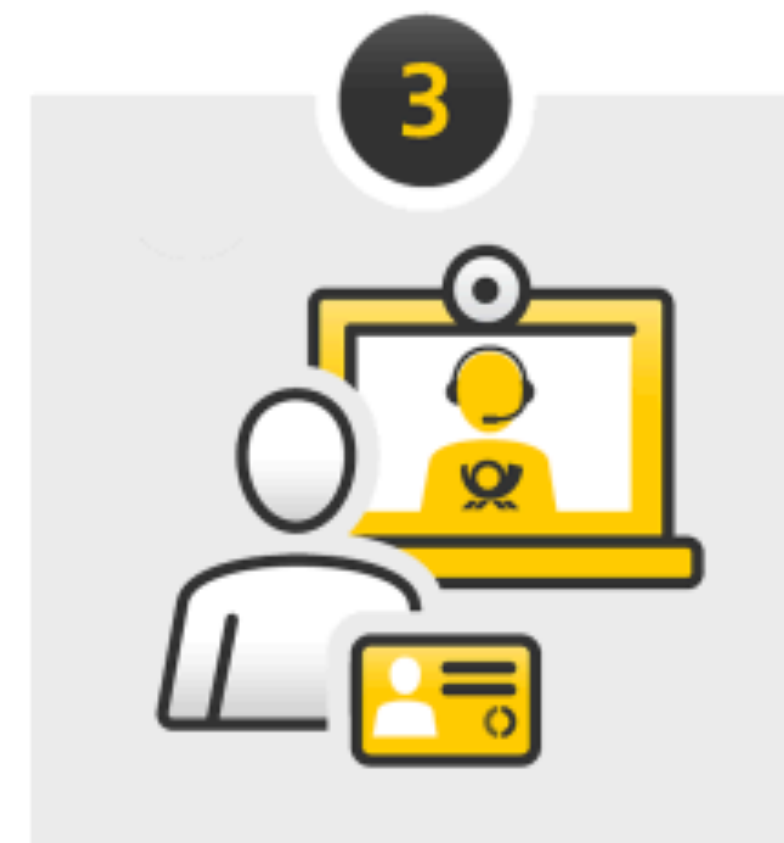
Start the identity verification process on your website

Transfer customers from your website to the
› **identity verification process on the POSTID portal.**



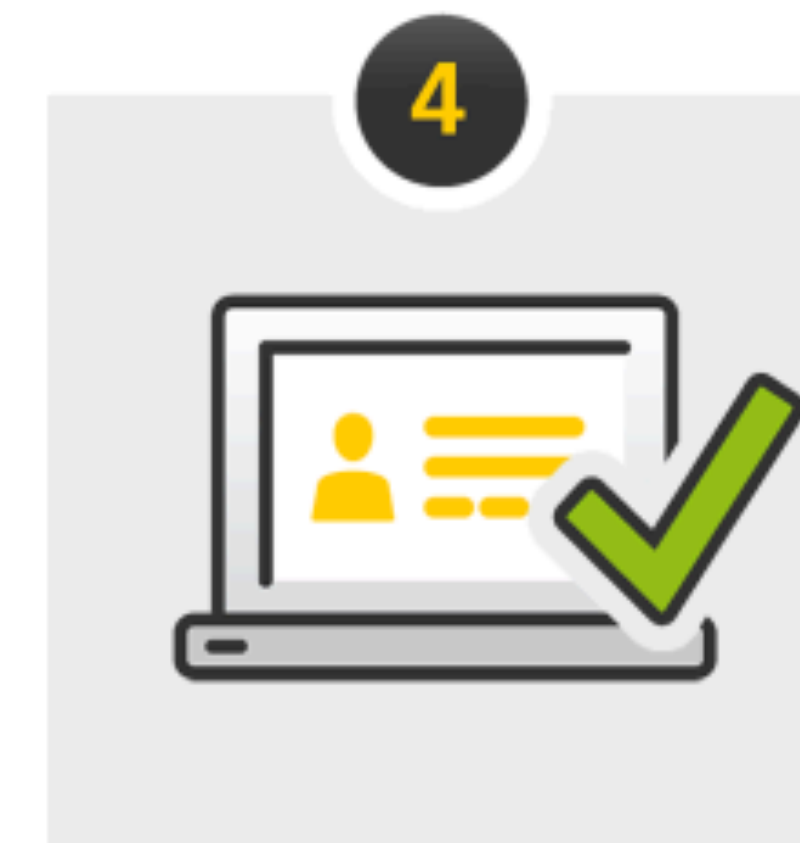
Select POSTIDENT via video chat

Input personal data and select the identity document to be provided



Video chat

With the help of a webcam, a call centre agent from Deutsche Post will use the Video-Ident procedure to securely check the identifying data and take photos of the customer.



Provision of identifying data

By entering an SMS TAN, the identity verification process is confirmed and completed.

A test needs multiple browsers

```
SelenideDriver userChrome=new SelenideDriver(  
    new SelenideConfig().browser("chrome")  
);  
SelenideDriver operatorFF=new SelenideDriver(  
    new SelenideConfig().browser("firefox")  
);  
userChrome.open("http://portal.com/authorization");  
operatorFF.open("http://support.com/confirmation");  
userChrome.$("#user.token").setValue("<some token>").pressEnter();  
operatorFF.$("#token_correct").shouldBe(visible);  
operatorFF.$("#confirm_user_button").click();  
userChrome.$("#authorization_successful").shouldBe(visible);
```

\$ doesn't work in Kotlin!

What the hack is Kotlin?

Yes, help me

Многие знания -
многие печали





CONTINUE

Aliases (Kotlin)

`$() = element()`

`$$() = elements()`

```
element("div.button").shouldBe(visible)
```

```
element("div.button").click()
```

```
SelenideElement checkoutButton=element("div.button")
```

```
checkoutButton.click()
```

film japonés en cinemascopio, dirección: masaki kobayashi. con tatsuya nakadai, shima iwashita, akira ishikawa. premios san giorgio y pasinetti en el festival de venecia. segundo premio en el festival cinematográfico de cannes, 1963



The title 'HAKURA KIRI' is rendered in a bold, black, sans-serif font. The characters are arranged in two rows: 'HA' and 'RA' on the top row, and 'KI' and 'RI' on the bottom row. A large, irregular red splatter graphic, resembling a bloodstain or a tear, is centered over the text, extending from the top edge of the page down to the bottom edge. A small red circle is positioned above the 'RA' characters. The background is white.

HA RA
KI RI

Part 3



**DON'T
DO IT**

I use ... very often

... Collections ...

...PageFactory & @FindBy ...

nothing of both

(over-) use collections

AddressBook - Microsoft Internet Explorer

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Address http://aspdotnet/ContactInfo.aspx

Contacts

Contact List Date: 11/30/2004 2:19:14 PM

Add Contact


A B C D E F G H I J K L M N O P Q R S T U V W X Y Z


Search Results

S.No	Name	Email(Office)	Email(Personal)	Phone(Office)	Phone(Personal)	Edit	Delete
1	Bhuvaneshwari		rrbhuvan@yahoo.co.in		044-26340228		
2	Murali K K		muralikrishnan_54@yahoo.com	25566299	04268224712		
3	Murali Krishnan K	kmkrishna1@hotmail.com	kmkrishna_ms@yahoo.co.in	080-5601234	04268-224712111		
4	Raghu Bhaskar	srbhaski@yahoo.com	raghubhaskar@hotmail.com		080-57662730		
5	Saravanan Jodgee		shansaravan12@yahoo.com		9845425214		
6	Sriram EE		sriram_auto@yahoo.com	53454545	9844455323		
7	Sriram N		nsri22@yahoo.com		080-57678158		
8	Surojit Das		surojit_das@yahoo.com				

Done Local intranet


(over-) use collections


 `$$("#items").find(text("Example123"));`


 `$$("#items").filter(text("Example")).first();`





(over-) use collections

 `$$("#items").find(text("Example123"));`

 `$(byText("Example123"));`

 `$("#container").$(withText("Example123"));`

 `$$("#items").filter(text("Example")).first();`

 `$("#container").$(withText("Example"));`

iterate collections

```
ElementsCollection elements=$$("...");  
for (SelenideElement element:elements){  
    element.shouldBe(visible);  
    element.click();  
}
```



evaluate ~~iterate~~ collections

```
ElementsCollection elements=$$("...");
```

✓

```
elements.filterBy(visible).shouldHave(size(8));
```

✓

```
elements.filterBy(hidden).shouldHave(size(0));
```

✓

```
elements.shouldHave(texts("this", "that", "all"));
```

✓

```
elements.shouldHave(textsInAnyOrder("Alice", "Bob", "Charles"));
```

I use ... very often

... System.out.println ...

...PageFactory & @FindBy ...

nothing of both

use page factory

WebElements are identify by
@FindBy Annotation

static initElements method of
PageFactory class for
initializing WebElement

```
@FindBy(xpath="//table//tr[@class='heading3']")  
WebElement homePageUserName;  
  
public Guru99HomePage(WebDriver driver){  
    this.driver = driver;  
    //This initElements method will create all WebElements  
    PageFactory.initElements(driver, this);  
}
```

**DON'T
DO
IT.**

use ~~page factory~~ simple java



```
LoginPage loginPage = new LoginPage();
```




```
@FindBy("div.button")
```

```
SelenideElement button;
```



```
SelenideElement button = $("div.button");
```

use page method

 LoginPage loginPage = Selenium.page(LoginPage.class);



use ~~page method~~ simple java



```
LoginPage loginPage = Selenium.page(LoginPage.class);
```



```
LoginPage loginPage = new LoginPage();
```


I use ... very often

... System.out.println ...

...Collections ...

nothing of both

"logging"



```
SelenideElement button = $("div.button");  
System.out.println(button.getText());
```



the test logs enough!



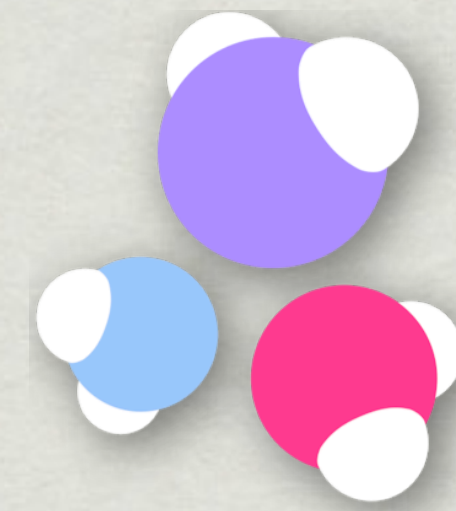
```
SeleniumElement button = $("div.button");  
System.out.println(button.getText());
```



```
SeleniumElement button = $("div.button");  
button.shouldHave(text("text to check"));
```



HAVE FUN!



selenide



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**The End.
Questions?**