

Revolution in Page Object

ARTEM SOKOVETS

[@SokovetsArtem](#)

ABOUT ME

SOKOVETS ARTEM

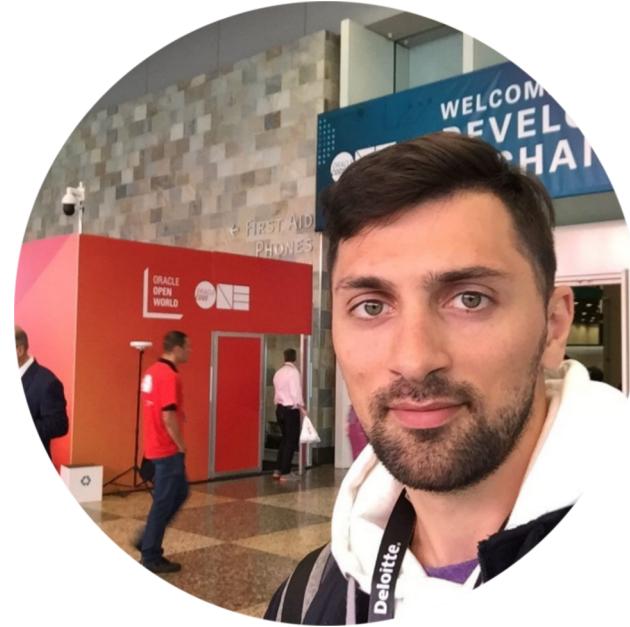
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#java, #kotlin #autoQA

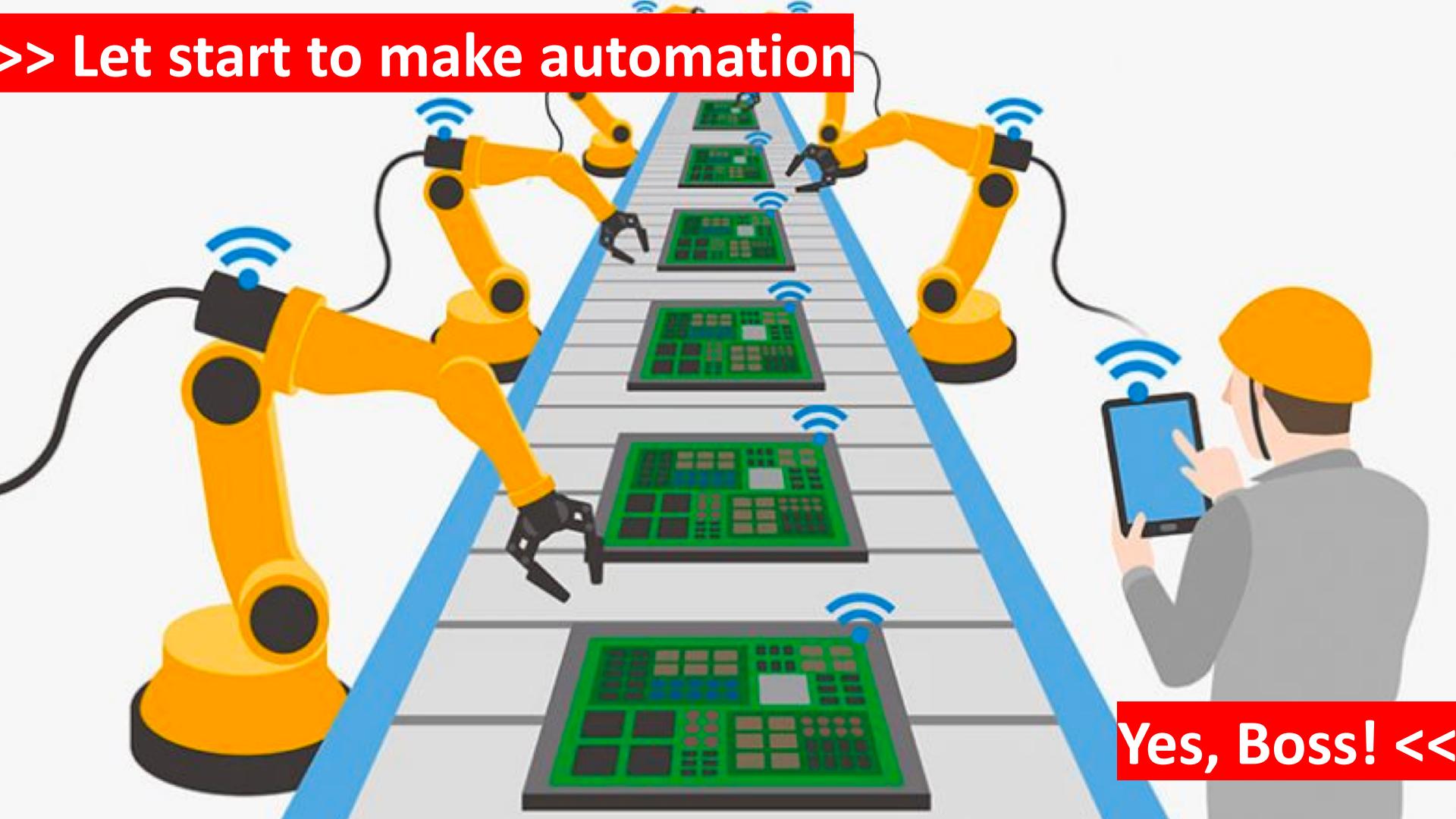
#java OCA&OCP



AGENDA

- **Page Object wrappers**
- **Open questions in Page Object**
- **Page Object through interface**
- **Sample of implementation**

>> Let start to make automation

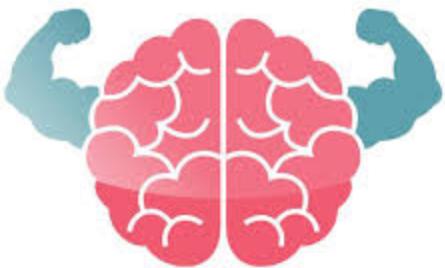


Yes, Boss! <<

WEBDRIVER API

```
@Test  
public void simpleTest() {  
    driver.get("https://github.com/");  
    driver.findElement(By.xpath("//")) .sendKeys("");  
    driver.findElement(By.xpath("//")) .submit();  
    List<WebElement> elementList =  
        driver.findElements(By.xpath("//"));  
    assertEquals(elementList.size(), 10);  
}
```

PAGE OBJECT WRAPPERS



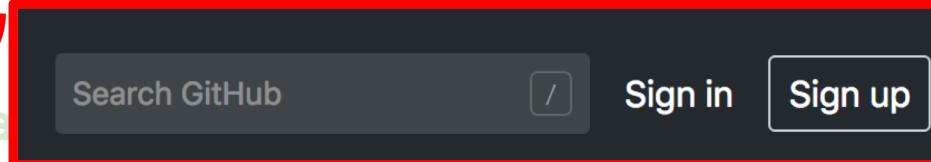
- 1. Fluent/Chain of invocations**
- 2. Page Element**
- 3. Loadable Component**
- 4. ScreenPlay**

PAGE ELEMENT

```
@Name ("Header")
```

```
@FindBy(xpath = "/>head")
```

```
public class Header ...{
```



```
@Name ("Search request input")
```

```
@FindBy(xpath = ".//input[...]")
private WebElement searchInput;
```

```
public void search(String request) {
```

```
    searchInput.sendKeys(request);
```

```
    searchInput.submit();
```

```
}
```

```
}
```

PAGE ELEMENT

```
public class MainPage {  
    @FindBy(xpath = "//div[@class = 'header']")  
    private Header header;  
  
    @FindBy(xpath = "//div[text() = 'Text_1']")  
    private TextBlock textBlock;  
  
    @FindBy(xpath = "//div[@class = table']")  
    private Table table;  
}
```



QUESTION №1

```
public class MainPage {  
    @FindBy(xpath = ".//div[@class = 'header']")  
    private Header header;  
}  
  
public class AnyOtherPage {  
    @FindBy(xpath = ".//div[@class = 'header']")  
    private Header header;  
}
```

QUESTION №1

```
public class MainPage {  
    @FindBy(xpath = ".//div[@class = 'header']")  
    private Header header;
```

Duplicates elements

```
    @FindBy(xpath = ".//div[@class = 'header']")  
    private Header header;  
}
```

QUESTION №2

```
public class UserPage {  
  
    @FindBy(xpath = "//div[text()='Text_1']")  
    private TextBlock lastActivity;  
  
    @FindBy(xpath = "//div[text()='Text_2']")  
    private TextBlock blockReason;  
  
}
```



QUESTION №2

```
public class EditUserPage {  
    @FindBy(xpath = "//div[text()='Text_1'])")  
    private TextBlock lastActivity;  
  
}  
  
No parameterization for elements
```

QUESTION №3

```
public class UserPage {  
    @FindBy(xpath = "//div[text()='Телефон']/input")  
    private TextInput innerPhone;  
  
    @FindBy(xpath = "//div[text()='Email']/input")  
    private TextInput email;  
  
    @FindBy(xpath = "//button[text()='Сохранить']")  
    private Button save;  
  
    @FindBy(xpath = "//button[text()='Список']")  
    private Button toUsersList;  
}
```

QUESTION №3

```
public class UserPage {  
    @FindBy(xpath = "//div[text()='Телефон']/input")  
    private UfsTextInput innerPhone;
```

Boilerplate code

```
@FindBy(xpath = "//button[text()='Сохранить']")  
private UfsButton save;  
  
@FindBy(xpath = "//button[text()='Список']")  
private UfsButton toUsersList;  
}
```

JAVA

1. JDK 7

- A LOT OF SYNTACTIC SUGAR

2. JDK 8

- LAMBDA

3. JDK 9

- MODULES and G1 by default

4. JDK 10

- VAR

5. JDK 11

- CLEANUP



The Next Generation of Page Object is
Coming...

PAGE OBJECT BASED ON INTERFACE

```
public interface MainPage {  
  
    @FindBy(xpath = "//a[contains(text(), 'trial')]")  
    WebElement trial();  
  
}
```

PAGE OBJECT BASED ON INTERFACE

```
public interface MainPage {  
    @FindBy(xpath = "//a[contains(text(), 'trial')]")  
    WebElement trial();  
}
```

DIFFERENCES AND SIMILARITIES

```
public class MainPage {  
  
    @FindBy(xpath = "//xpath1")  
    private WebElement login;  
  
    @FindBy(xpath = "//xpath2")  
    private WebElement password;  
  
    @FindBy(xpath = "//xpath3])"  
    private WebElement submit;  
  
    public MainPage() {...}  
}
```

```
public interface MainPage {  
  
    @FindBy(xpath = "//xpath1")  
    WebElement login();  
  
    @FindBy(xpath = "//xpath2")  
    WebElement password();  
  
    @FindBy(xpath = "//xpath3")  
    WebElement submit();  
}
```

PARAMETERIZATION OF ELEMENTS

The image shows a user interface for logging in. At the top, there is a label "Username or email address" followed by a text input field with a blue border. Below this, there is a label "Password" to the left of a password input field, and a link "Forgot password?" to the right. At the bottom, there is a large green button with the text "Sign in".

Username or email address

Password

Forgot password?

Sign in

PARAMETERIZATION OF ELEMENTS

```
public class MainPage {  
  
    @FindBy("//div[text()='Username']/../input")  
    private WebElement login;  
  
    @FindBy("//div[text()='Password']/../input")  
    private WebElement password;  
    //Button and constructor  
}
```

PARAMETERIZATION OF ELEMENTS

```
public interface MainPage {  
  
    @FindBy("//div[text()='{{ text }}']/input")  
    WebElement input(@Param("text") String text);  
  
}
```

EXAMPLE

```
@Test  
public void simpleTest() {  
    on MainPage().input("Login").sendKeys("*");  
    on MainPage().input("Password").sendKeys("*");  
    on MainPage().submit().click();  
}
```

MULTIPLE INHERITANCE (LAYERS)

```
public class MainPage {  
    private Header header;  
}
```

```
public class AnyPage {  
    private Header header;  
}
```



Why GitHub? ▾ Enterprise Explore ▾ Marketplace Pricing ▾

Search GitHub



Sign in

Sign up

```
public class Header {  
    @FindBy(xpath = ".//input...")  
    WebElement search;  
    //Getter  
}
```

MULTIPLE INHERITANCE (LAYERS)

```
public interface WithHeader {  
    @FindBy("//header[contains(., 'Header')]")  
    Header header();  
}
```



Why GitHub? ▾ Enterprise Explore ▾ Marketplace Pricing ▾

Search GitHub



Sign in

Sign up

```
public interface Header {  
    @FindBy("../input...")  
    WebElement searchInput();  
}
```

EXAMPLE

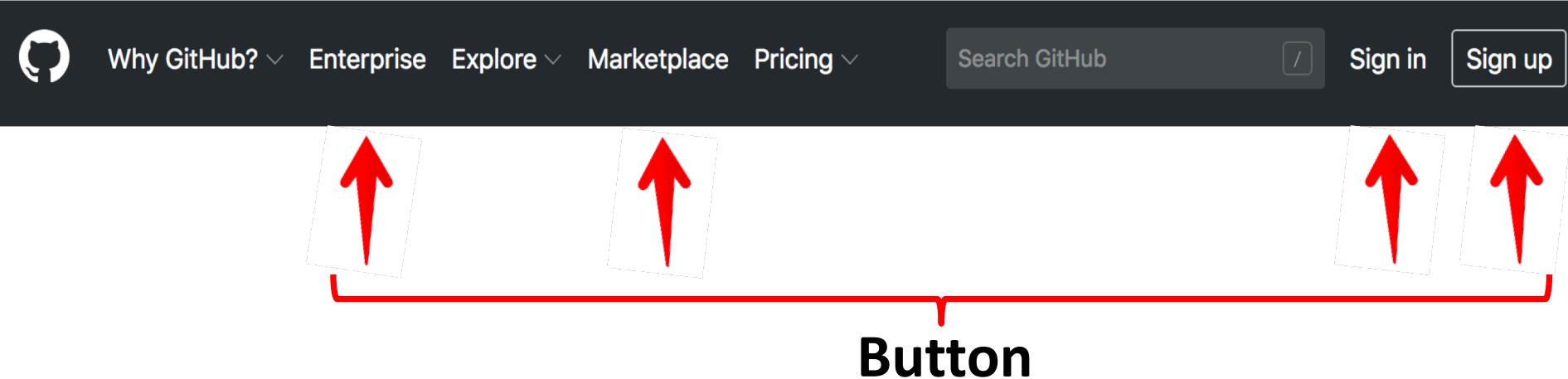
```
public interface MainPage extends WithHeader
```

```
public interface AnyPage extends WithHeader
```

```
public interface MainPage extends WithHeader,  
                                WithFooter,  
                                WithSidebar
```

MULTIPLE INHERITANCE (ELEMENTS)

```
public interface Button {  
    @FindBy("//a[contains(., '{ value }')]")  
    WebElement button(@Param("value") String value);  
}
```



MULTIPLE INHERITANCE (ELEMENTS)

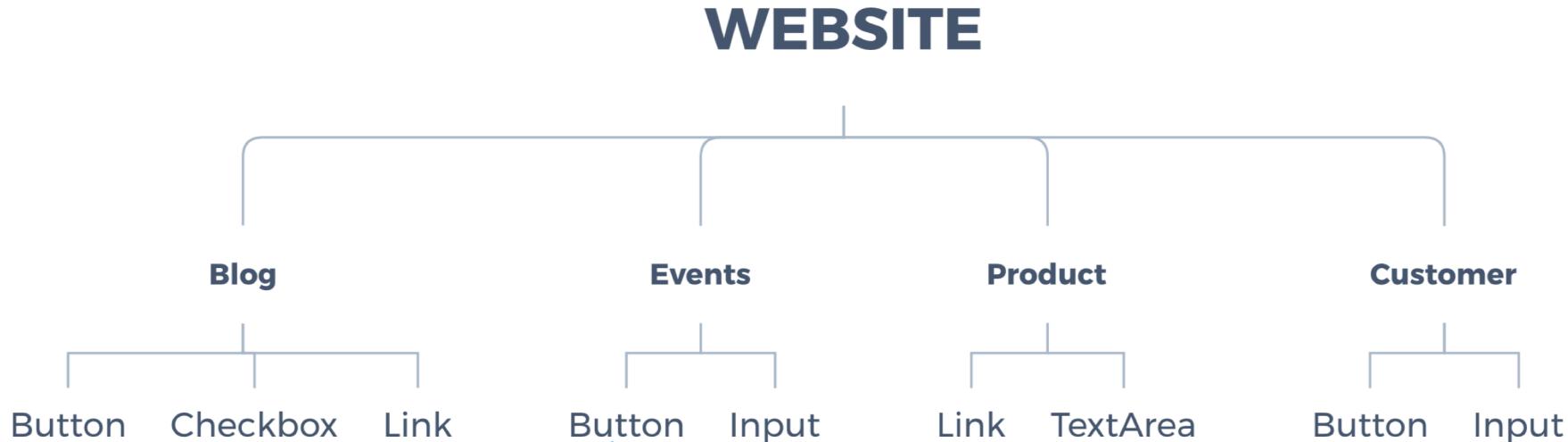
```
public interface Header extends Button {  
    ...  
}
```

```
public interface Footer extends Button, Input {  
    ...  
}
```

EXAMPLE

```
@Test  
public void simpleTest() {  
    on MainPage().header().button("Prise").click();  
    on MainPage().header().input("Search").sendKeys("*")  
}
```

ELEMENT'S TREE



DEFAULT METHOD

```
onMainPage().header().withInput("GitHub").clear();  
onMainPage().header().withInput("GitHub").sendKeys("*");
```

DEFAULT METHOD

```
public interface Input {  
  
    @FindBy("//...")  
    WebElement withInput(@Param("value") String value)  
  
    default WebElement withClearInput(String value) {  
        withInput(value).clear();  
        return withInput(value);  
    }  
}
```

EXAMPLE

```
@Test  
public void simpleTest() {  
    onMainPage().header()  
        .withClearInput("GitHub")  
        .sendKeys("Atlas");  
}
```

BENEFITS

1. Parametrized Element
2. Reduce boilerplate code
3. Multiple inheritance
4. Default methods

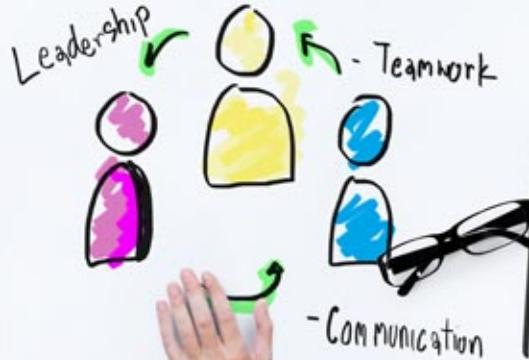
PROVEMENT
 DEVELOPMENT
 SOLUTION



Implementation



MISSION



- Communication

- Teamwork

Leadership

search

ATLAS

Atlas (Application test layouts) - flexible framework
for multiplatform products.

Apr 22, 2018 – Feb 14, 2019

Contributions: Commits ▾

Contributions to master, excluding merge commits



<https://github.com/qameta/atlas>

ARCHITECTURE

Core

Atlas-
WebDriver

Atlas-
Appium

SAMPLE TEST

```
@Test
public void simpleWebSiteTest() {
    onSite().onMainPage().open();
    onSite().onMainPage().header().searchInput().sendKeys("Atlas");
    onSite().onMainPage().header().searchInput().submit();
    onSite().onSearchPage("JUnit 5")
        .repositories().waitFor(hassize(10));
}
```

ATLAS PAGE OBJECT

1

```
@Before public void setUp() {  
    atlas = new Atlas(new WebDriverConfiguration(driver));  
}
```

```
@Test public void simpleTest() {  
    on MainPage().open("YOUR_SITE");  
    on MainPage().login().sendKeys("login");  
    on MainPage().password().sendKeys("pass");  
    on MainPage().submit().click();  
}
```

```
private MainPage on MainPage() {  
    return atlas.create(driver, MainPage.class); }
```

ATLAS PAGE OBJECT

```
@Before public void setUp() {  
    atlas = new Atlas(new WebDriverConfiguration(driver));  
}
```

1

```
@Test public void simpleTest() {  
    on MainPage().open("YOUR_SITE");  
    on MainPage().login().sendKeys("login");  
    on MainPage().password().sendKeys("pass");  
    on MainPage().submit().click();  
}
```

```
private MainPage on MainPage() {  
    return atlas.create(driver, MainPage.class); }  
}
```

2

ATLAS PAGE OBJECT

```
@Before public void setUp() {  
    atlas = new Atlas(new WebDriverConfiguration(driver));  
}
```

1

```
@Test public void simpleTest() {  
    on MainPage().open("YOUR_SITE");  
    on MainPage().login().sendKeys("login");  
    on MainPage().password().sendKeys("pass");  
    on MainPage().submit().click();  
}
```

3

```
private MainPage on MainPage() {  
    return atlas.create(driver, MainPage.class); }
```

2

EMBEDDED RETRY

NotFoundException

StaleElementReferenceException

OtherElementWouldReceiveTheClick



```
on MainPage().header().withClearInput("GitHub").sendKeys("Atlas");
```

Repeat again

GLOBAL RETRY

```
new Atlas(...).timeouts(15000L).polling(1000L);
```

ELEMENT RETRY

```
@Retry (timeout = 30000L, polling = 500L)
@FindBy("//...")
AtlasWebElement button();
```

ASSERTIONS

```
should(Matcher matcher);
```

```
waitUntil(Matcher matcher);
```

SHOULD

```
should(Matcher matcher);
```

```
waitUntil(Matcher matcher);
```



AssertionError

WAITUNTIL

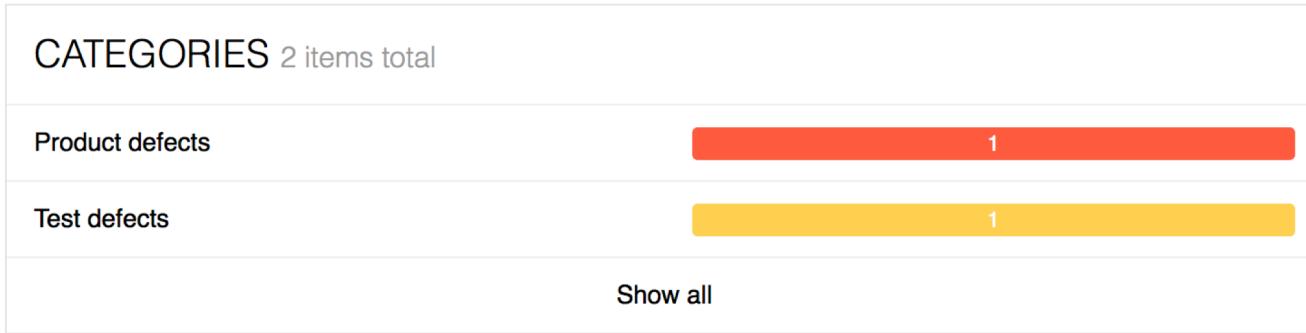
```
should(Matcher matcher);
```

```
waitUntil(Matcher matcher);
```



RuntimeException

GROUP BY ISSUES



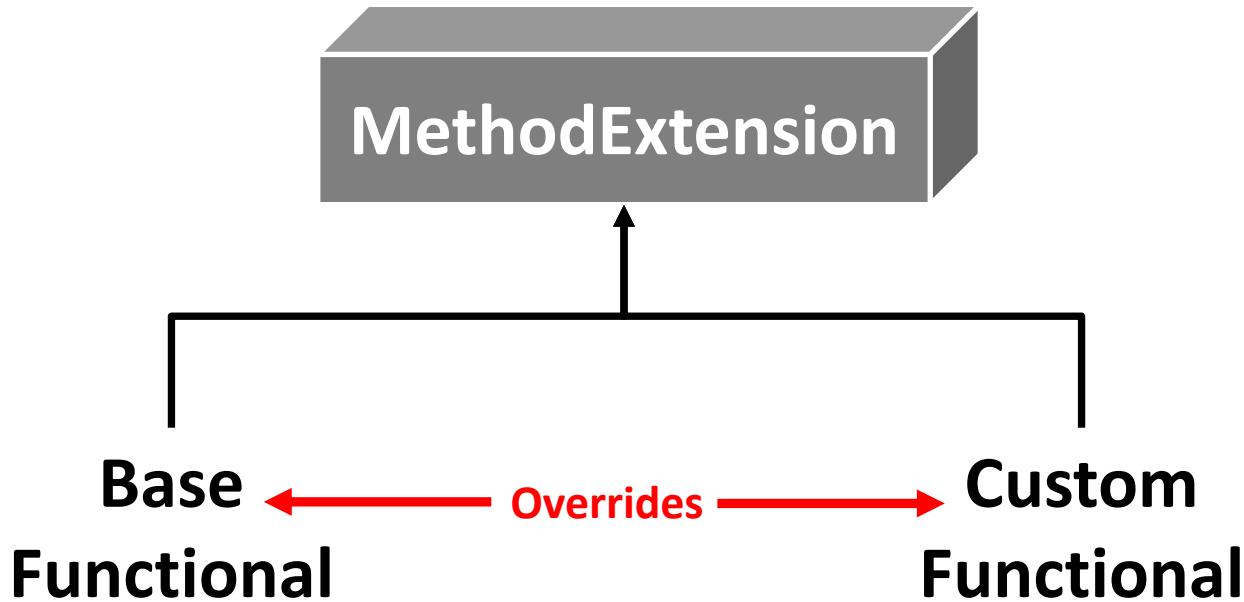
 #4	simpleTestWithShould	12s 179ms
 #2	simpleTestWithWaitUntil	23s 382ms

EXAMPLE

```
onMainPage().header().searchInput().waitUntil(displayed(), 5);
```

```
onMainPage().header().searchInput().should(tagName("input"));
```

EXTENSION MODEL



override of behavior

```
public interface MainPage extends WebPage {  
    @FindBy("//...")  
    AtlasWebElement trial();  
}  
  
onMainPage().header().button("EN").click();  
onMainPage().header().input("RU").clear();  
onMainPage().header().input("LV").sendKeys(".");
```

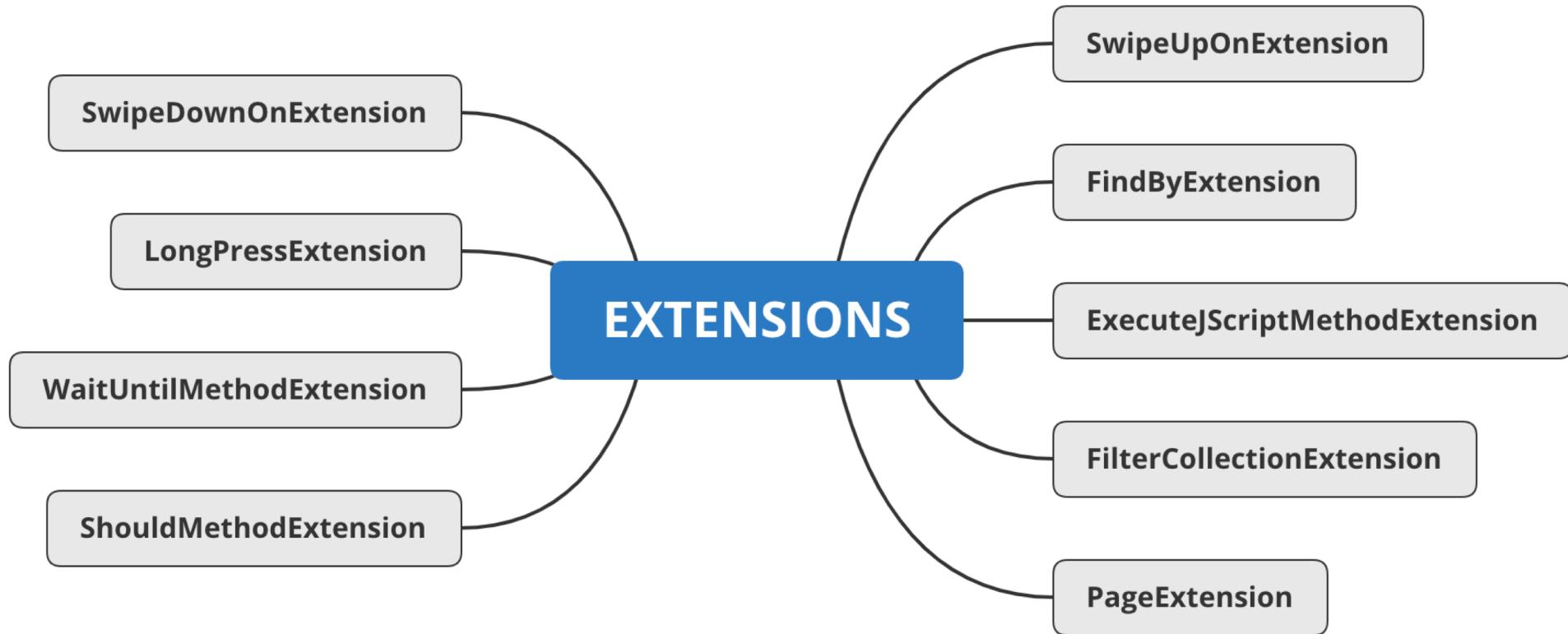
MY EXTENSION

```
public class MyExtension implements MethodExtension {  
  
    @Override  
    public boolean test(Method method) { ... }  
  
    @Override  
    public Object invoke(...) throws Throwable { ... }  
}
```

SETUP EXTENSION

```
atlas = new Atlas(...)  
      .extension(new MyExtension())
```

CORE EXTENSIONS





Microsoft Windows



Windows Explorer has stopped working

Windows is checking for a solution to the problem...

SOLVED

Cancel

CUSTOM CLICK

```
onMainPage() .header() .button("en") .click()
```

EXAMPLE

```
@Override  
public boolean test(Method method) {  
    return method.getName().equals("click");  
}  
  
@Override  
public Object invoke(Object p, MethodInfo m, Configuration c) {  
    final WebDriver driver = c.getContext(WebDriverContext.class);  
    final JavascriptExecutor js = (JavascriptExecutor) driver;  
    js.executeScript("arguments[0].click();", p);  
    return p;  
}
```

SETUP

```
atlas = new Atlas(...)  
        .extension(new JSClickExtension())
```

GRADLE

```
dependencies {  
    compile 'io.qameta.atlas:atlas-appium:1.+'  
}  
  
dependencies {  
    compile 'io.qameta.atlas:atlas-webdriver:1.+'  
}
```

THIRD-PARTY LIBRARIES

JUnit

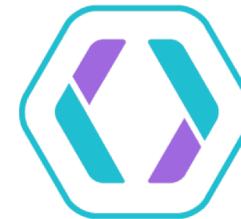
JUnit 5

cucumber



jbehave

TestNG



INTEGRATE WITH YOUR FRAMEWORK

- **Loader;**
- **Decorator;**
- **Your Custom Page.**

QA

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<https://github.com/artsok/training/tree/master/sqadays-eu-2019>

Telegram channel of Atlas Support: t.me/atlashelp