



Keyword-Driven Testing with Robot Framework and Playwright

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imbus Germany



PREPARATION

GitHub Account

- Open your Notebook or Tablet
- Login to Github.com with your Github account.
 - If not existing, please create one.
- Relax & Listen



#AutomationSTAR

```
4 setuptools-65.5.1.vir...
5
6 *** Test Cases ***
7
8 Erfolgreiche Anmeldung
9   [Tags]    positive    smoke
10  CarConfig Öffnen
11  Benutzer Anmelden  admin  @RBTFRMWKO
12  Anmeldung Prüfen
13  [Teardown]  CarConfig Beenden
14
15
16 Fehlerhafte Anmeldung
17   [Tags]    negative   smoke
18  CarConfig Öffnen
19  Benutzer Anmelden  admin  1234567
20  Abgewiesene Anmeldung Prüfen
21  [Teardown]  CarConfig Beenden
22
23
24 *** Keywords ***
```

KEYWORD-DRIVEN TESTING

#AutomationSTAR

KEYWORD-DRIVEN TESTING?

- Testing specification methodology
- Descriptive keywords
- Keyword == Step == Actions
- Keywords can be composite
- Human Readable
- Imperative Programming

```
5 *** Test Cases ***
6 Default Config
7 Open VSR Dream Car As Customer
8 Configure New Car
9 Select Basic Model      Model 3 (Rassant)
10 Click Next
11 Select Motor           ECotech with Hybrid
12 Click Next
13 Select Special Model   Gomera
14 Click Next
15 Select Accessories     Floor mats
16 ...
17 ...
18 Click Next
19 Choose Color           Blue
20 Click Next
21 Verify Prices
22 ...      finalPrice=26.873,40
23 ...      basePrice=17.000,00
24 ...      enginePrice=4.999,00
25 ...      editionPrice=1.413,00
26
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```



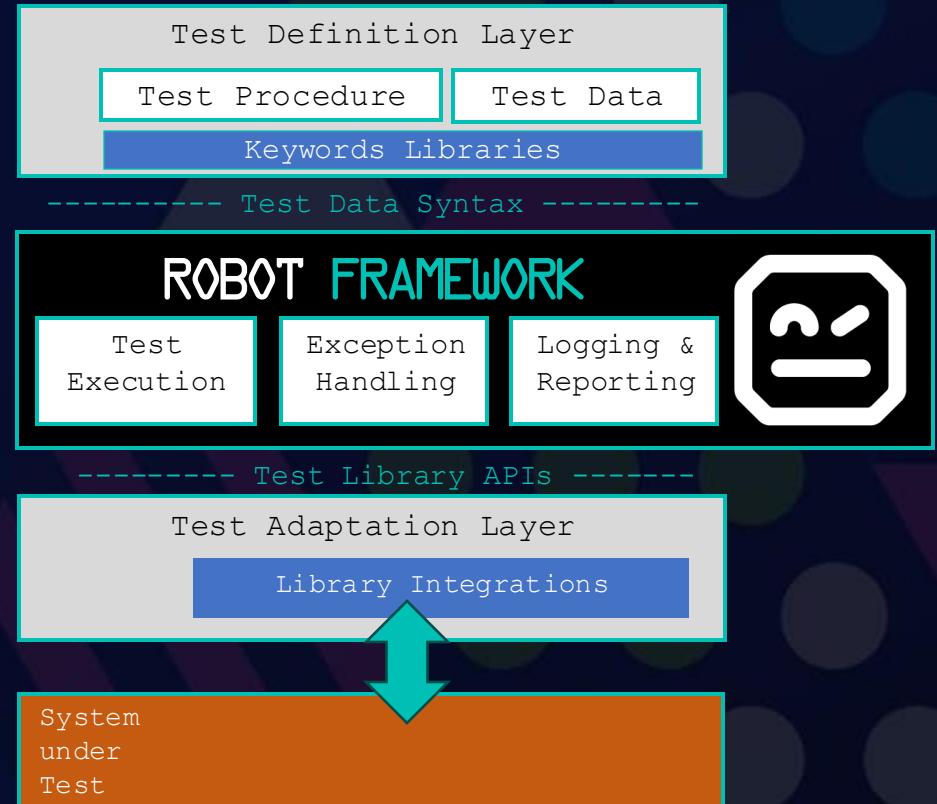
```
4 setuptools-65.5.1.vir...
5 *** Test Cases ***
6 Erfolgreiche Anmeldung
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22
23
24 *** Keywords ***
```

ROBOT FRAMEWORK®

#AutomationSTAR

ROBOT FRAMEWORK®

- Generic Automation Framework
 - Test Automation
 - Robotic Process Automation
- 100% Open-Source (Apache 2.0)
- Keyword-Driven Testing
- Behaviour-Driven Testing
- Technology Independent
 - From Web To Embedded-Testing
- Financed by Robot Framework Foundation



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ROBOT FRAMEWORK FOUNDATION

Robot Framework ry

Non-Profit Organisation

- Registered association (rekisteröity yhdistys)
- located in Finland (Helsinki)
- 74 international Companies as Members
- Founded in 2015 (7 Firmen)
- Finences Development & Community / Eco-system



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> 70 MEMBERS (SOME KNOWN...)



KUKA



KONE

ABB

CISCO

am

OSRAM

F-Secure

ING



SLOVENSKÁ Š
sporiteľňa



München

#AutomationSTAR

ibus



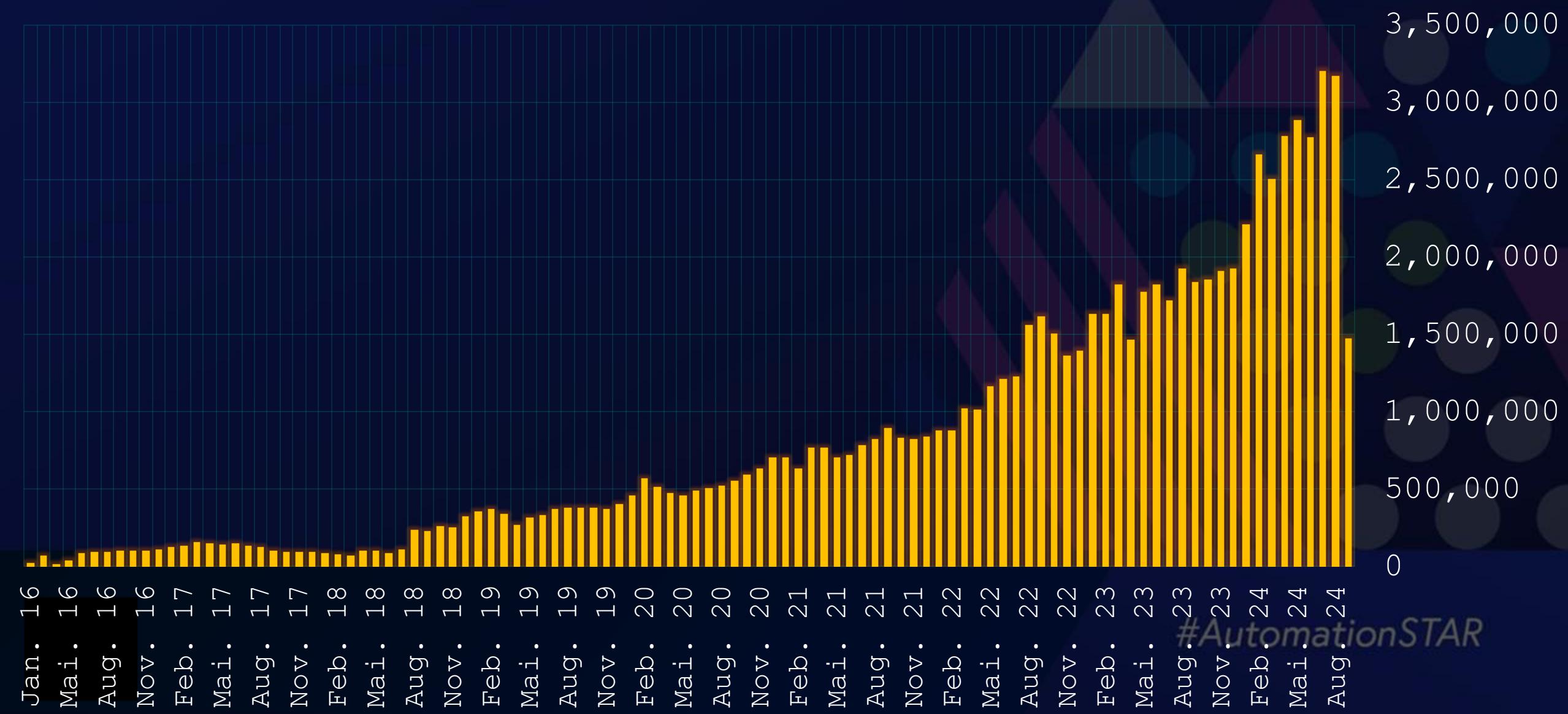
NRW.BANK
Wir fördern Ideen

PROVINZIAL

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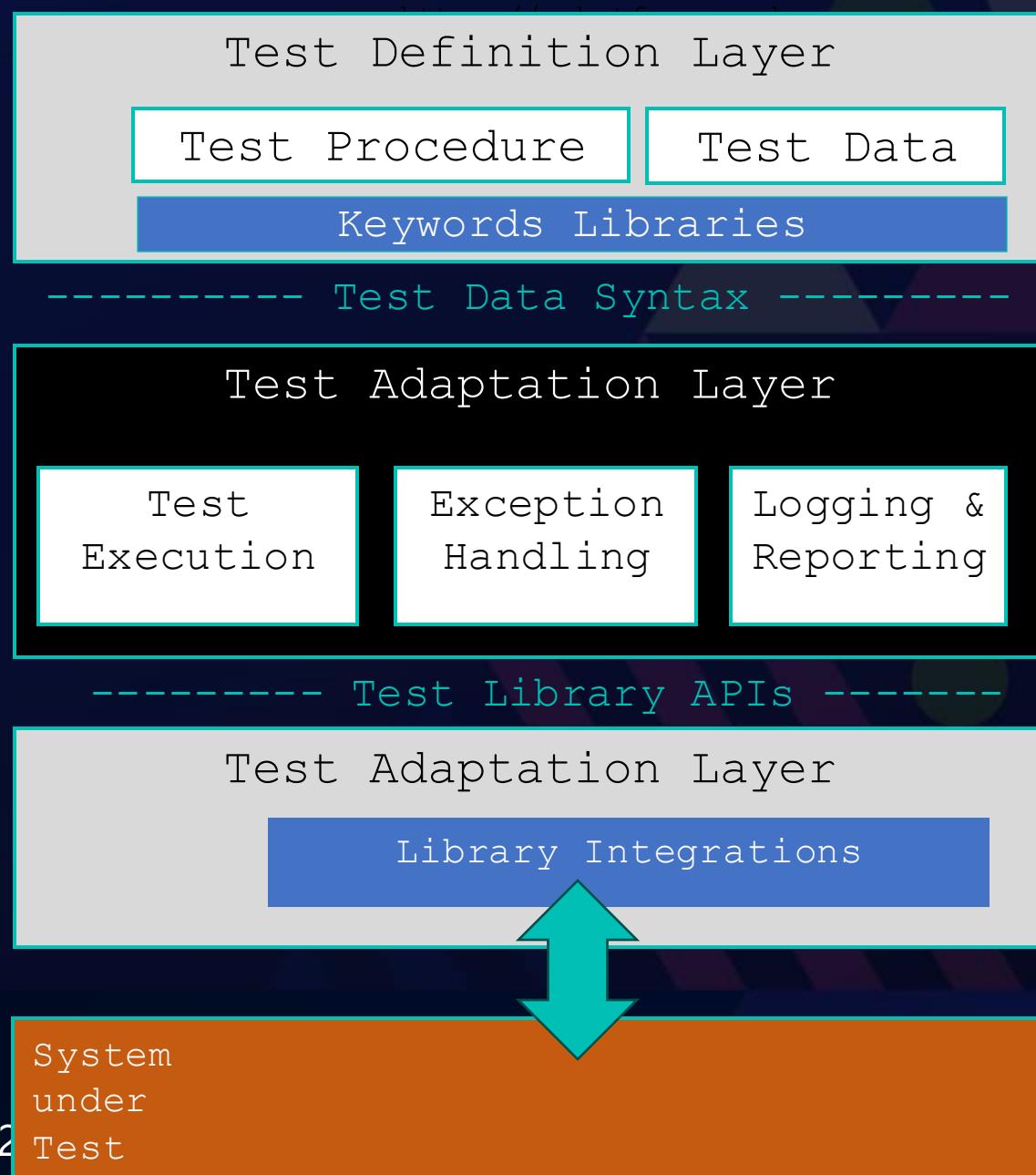
NOKIA

DOWNLOADS/MONAT



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Generic Test Automation Architecture



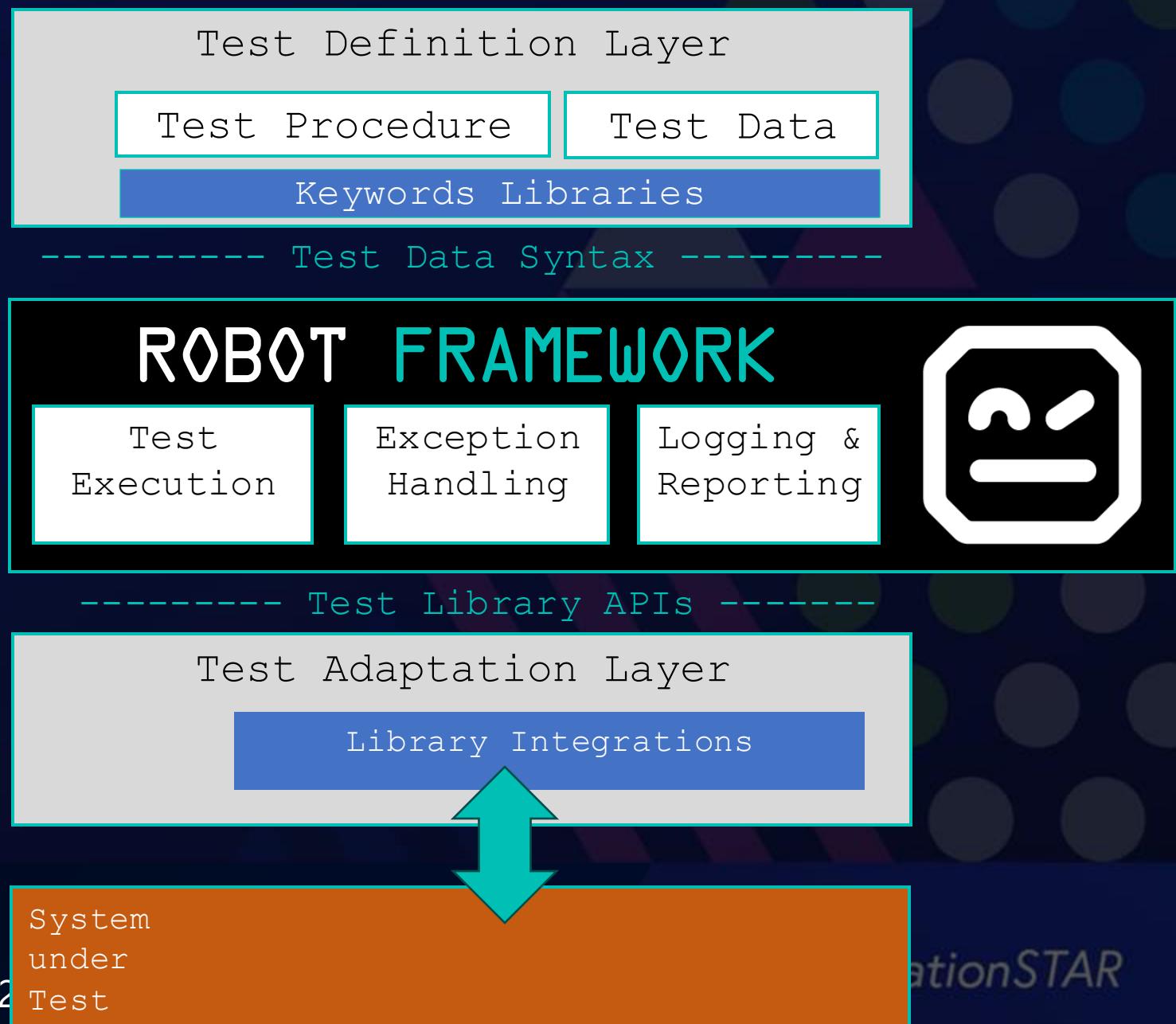
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Generic Test Automation Architecture



Editor

```
*** Test Cases ***
Default Config as User
  Open VSR Dream Car
  Login User    customer_c01    password_c01
  Configure New Car
  Select Basic Model      Model 3 (Rassant)
  Select Motor            ECotech with Hybrid
  Select Special Model   Gomera
  Select Accessories     Floor mats
  ...
  ...
  Choose Color           Blue
  Verify Prices
  ...
  finalPrice=26.873,40
  ...
  basePrice=17.000,00
  ...
  enginePrice=4.999,00
  ...
  editionPrice=1.413,00
```



Test Definition Layer

Test Procedure

Test Data

Keywords Libraries

----- Test Data Syntax -----

ROBOT FRAMEWORK

Test
Execution

Exception
Handling

Logging &
Reporting



----- Test Library APIs -----

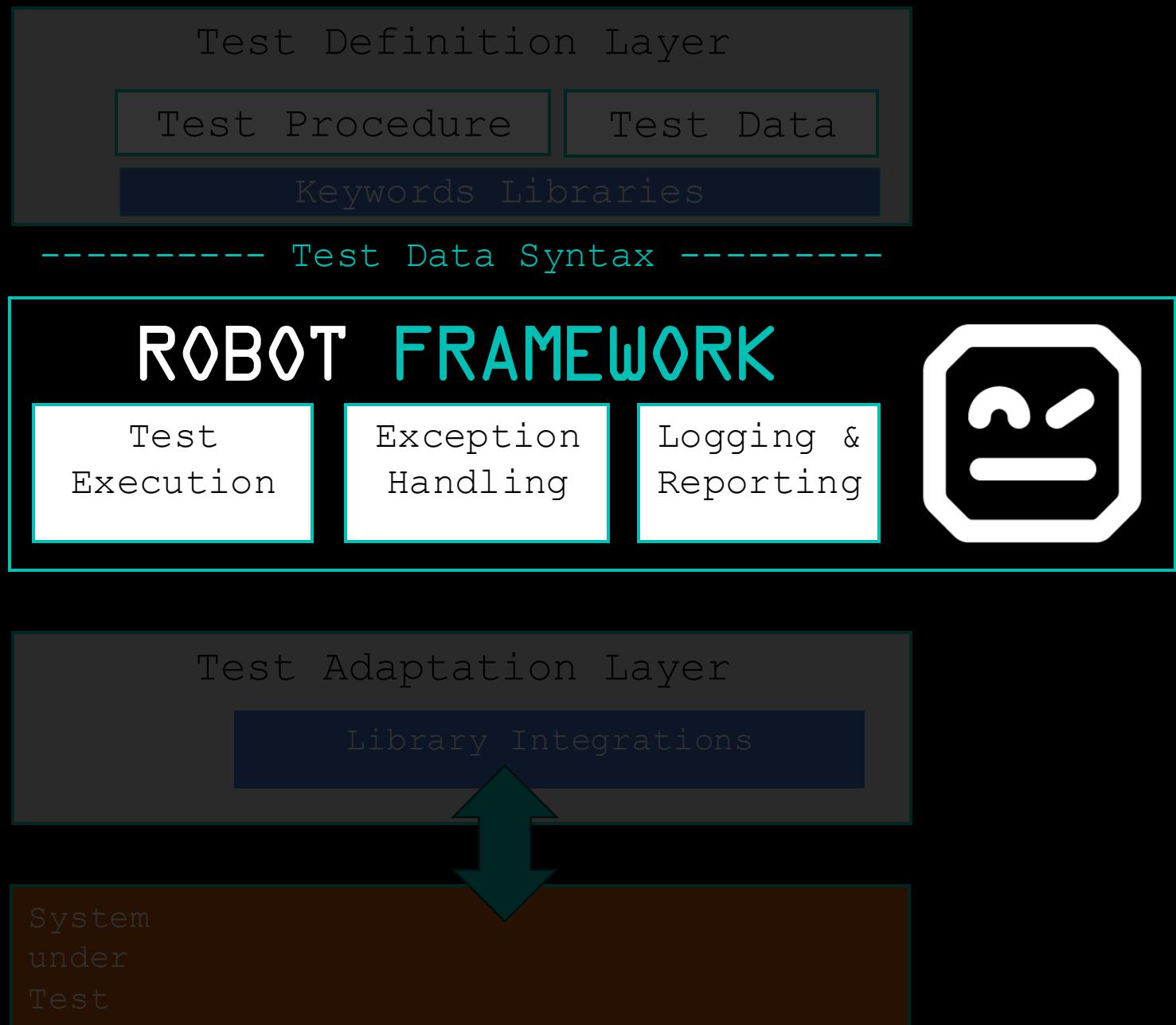
Test Adaptation Layer

Library Integrations

System
under
Test

Robot Framework

```
rener@Salsa:~/Source/RF-Schulung/AutomationStar$ 02_RobotFiles * 14:33:57 $  
robot -d results .
```



Editor

```
class Interaction(LibraryComponent):
    @keyword(tags=("Setter", "PageContent"))
    def click(self, selector: str, button: MouseButton = MouseButton.left):
        """Simulates mouse click on the element found by ``selector``. -.
        self.click_with_options(selector, button)

    @keyword(tags=("Setter", "PageContent"))
    def click_with_options(
            self,
            selector: str,
            button: MouseButton = MouseButton.left,
            *modifiers: KeyboardModifier,
            clickCount: int = 1,
            delay: Optional[timedelta] = None,
            force: bool = False,
            noWaitAfter: bool = False,
            position_x: Optional[float] = None,
            position_y: Optional[float] = None,
            trial: bool = False,
        ):
        """Simulates mouse click on the element found by ``selector``. -.
        selector = self.presenter_mode(selector, self.strict_mode)
        with self.playwright.grpc_channel() as stub:
            options = {
                "button": button.name,
                "clickCount": clickCount,
                "force": force,
                "noWaitAfter": noWaitAfter,
                "trial": trial,
            }
            if delay:
                options["delay"] = self.get_timeout(delay)
        # Without the != None @ being falsy causes issues
        if position_x is not None and position_y is not None:
            positions: Dict[str, object] = {"x": position_x, "y": position_y}
```



Test Definition Layer

Test Procedure

Test Data

Keywords Libraries

----- Test Data Syntax -----

ROBOT FRAMEWORK

Test
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----- Test Library APIs -----



RF BROWSER



Playwright

Adaptation
Layer

System Under Test

ROBOT FRAMEWORKS SUPERPOWER

Eco System and Keyword Libraries

765 projects for "robotframework" @ PyPi.org

Vast variety of readymade keyword libraries:

- SeleniumLibrary
- Browser Library
- DatabaseLibrary
- RequestsLibrary
- SSHLibrary
- DocTest Library



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SPECIFICATION FILE SYNTAX

SPACE MATTERS

```
Tutorial > TestCases > 03_Browser_Tests > 02_Car  
1 *** Settings ***  
2 Metadata    Conference    https://www.conference.com  
3  
4 Resource    00_technical_keywords.resource  
5  
6  
7 *** Variables ***  
8 space =    }    http://car  
9 Value  
10  
11 *** Test Cases ***  
12 Configure Car with Pass  
13     [Setup]    Open Web Page    ${TEST_URL}  
14     Login User    admin    @RBTFRMWRK@  
15     Click New_Car  
16     Select Base Model    Minigolf  
17     Select Special Model    Jazz  
18     Select Accessories    ABS    Außenspiegel  
19     Verify Total Price    05-Oct-2022    16,619.00    €  
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5535333333333322  
5535333333333323  
5535333333333324  
5535333333333325  
5535333333333326  
5535333333333327  
55353333333333
```

*.ROBOT / *.RESOURCE - SECTIONS

*** SETTINGS ***

```
Tutorial > TestCases > 03_Browser_Tests > 02_CarConfig.robot > ...
1  *** Settings ***
2  Metadata    Conference    RoboCon
3
4  Resource    00_technical_keywords.resource
5
6  Type        Value
7  *** Variables ***
8  ${TEST_URL}  http://car.keyword-driven.de
9
10
11 *** Test Cases ***
12 Configure Car with Pass
13     [Setup]  Open Web Page  ${TEST_URL}
14     Login User  admin  @RBTFRMWRK@
15     Click New_Car
16     Select Base Model  Minigolf
17     Select Special Model  Jazz
18     Select Accessories  ABS  Außenspiegel
19     Verify Total Price  05-Oct-2022  16,619.00  €
          Fußmatten  lenkrad  Radio
          René Rohner (imbus AG)
```



Configuration of a Suite:

- Library
- Resource
- Metadata
- Etc.

*.ROBOT / *.RESOURCE - SECTIONS

*** VARIABLES ***

Tutorial > TestCases > 03_Browser_Tests > 02_CarConfig.robot > ...

```
1  *** Settings ***
2  Metadata    Conference    RoboCon
3
4  Resource    00_technical_keywords
5
6
7  *** Variables ***
8  ${TEST_URL}    http://car.keyword-driven.de
9
10
11 *** Test Cases ***
12 Configure Car with Pass
13     [Setup]    Open Web Page    ${TEST_URL}
14     Login User    admin    @RBTFRMWRK@
15     Click New_Car
16     Select Base Model    Minigolf
17     Select Special Model    Jazz
18     Select Accessories    ABS    Außenspiegel
19     Verify Total Price    05-Oct-2022    16,619.00    €
          Fußmatten    lenkrad    Radio
          René Rohner (imbus AG)
```

Variables of test suite

- Values that are used often
- Values that configures test cases

Type

Name

Value

*.ROBOT / *.RESOURCE - SECTIONS

*** TEST CASES ***

Test Case Name

```
11 *** Test Cases ***
12 Configure Car with Pass
13 [Setup] Open Web Page ${TEST_URL}
14 Login User admin @RBTFRMWRK@
15 Click New_Car
16 Select Base Model Minigolf
17 Select Special Model Jazz
18 Select Accessories ABS Außenspiegel Fußmatten lenkrad Radio
19 Verify Total Price 16,619.00 €
20 Set Car Name My New Car
21 Save New_Car
```

Keyword call

Test Cases Section

- Test cases
- Test case specification

Keyword argument values

*.ROBOT / *.RESOURCE - SECTIONS

*** KEYWORDS ***

```
9  
10  
11 *** Test Cases ***  
12 Configure Car with Pass  
13 [Setup] Open Web Page ${TEST_URL}  
14 Login User admin @RBTFRMWRK@  
15 Click New_Car  
16 Select Base Model Minigolf  
17 Select Special Model Jazz  
18 Select Accessories ABS Außenspiegel  
19 Verify Total Price 16,619.00 €  
20 Set Car Name My New Car  
21 Save New_Car  
22  
23 *** Keywords ***  
24 Login User  
25 [Arguments] ${user} ${password}  
26 Set Username ${user}  
27 Set Password ${password}  
28 Click Login Btn
```

called Keywords

Keyword name

Keyword arguments

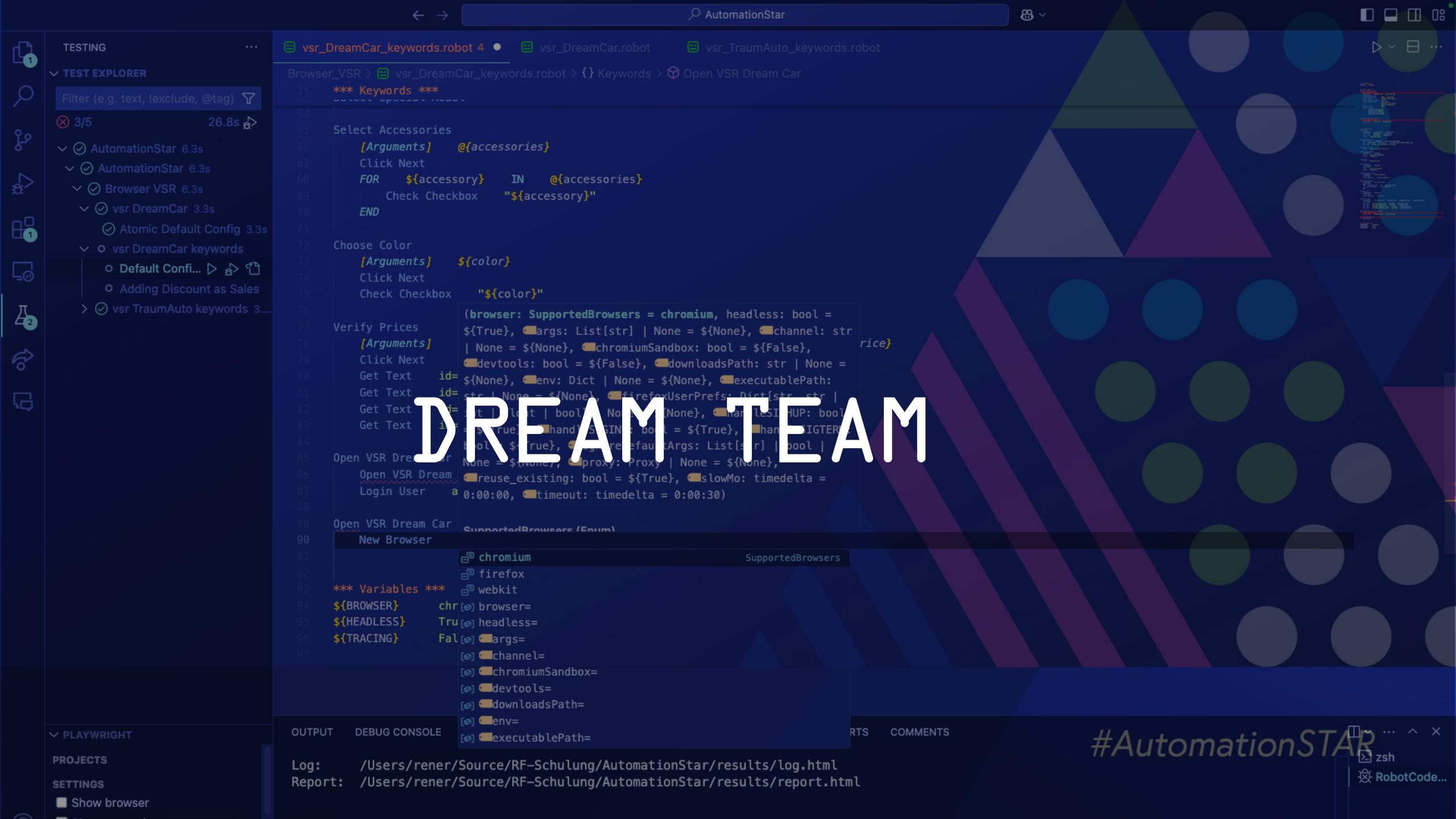
Keyword Section

- Local keywords
- Keywords specification

KEYWORD LAYER FROM TECHNOLOGY TO BUSINESS LAYER

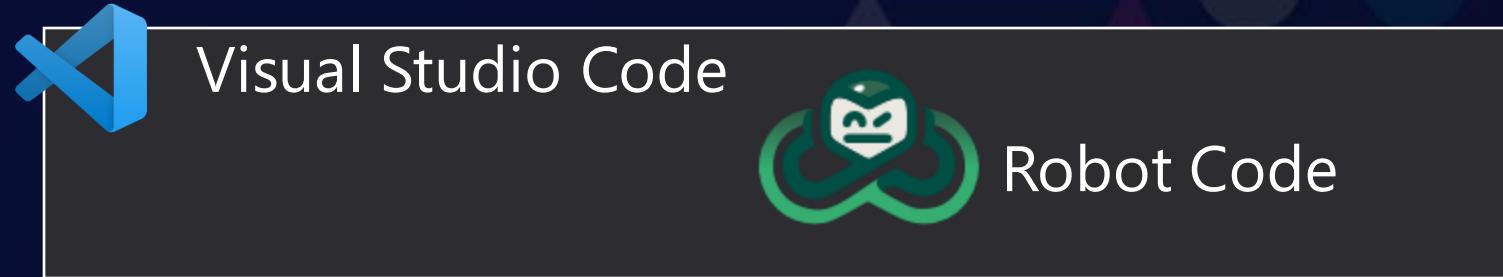
```
23 *** Keywords ***
24 Start CarConfig as Administrator
25     [Tags]    business
26     Open CarConfigurator
27     Login User    admin    @RBTFRMWRK@
28
29 Login User
30     [Tags]    functional
31     [Arguments]  ${user}    ${pwd}
32     Type Username    ${user}
33     Type Password    ${pwd}
34     Click Login Button
35
36 Type Username
37     [Documentation]  Types the given \${username} into the user
38     [Tags]    technical
39     [Arguments]  ${username}
40     Type Text    id=input_username    ${username}
41
```

```
722     @keyword(tags=("PageContent",))
723     def type_text(
724         self,
725         selector: str,
726         txt: str,
727         delay: timedelta = timedelta(microseconds=0),
728         clear: bool = True,
729         log_response: bool = True,
730         strict: bool = True,
731     ):
732         selector = self.presenter_mode(selector, str)
733         with self.playwright.grpc_channel() as stub:
734             delay_ms = self.get_timeout(delay)
735             response = stub.TypeText(
736                 Request().TypeText(
737                     selector=selector,
738                     text=txt,
```



DREAM TEAM WEB AUTOMATION

YES
WE'RE
OPEN
SRC



----- Test Data Syntax -----

ROBOT FRAMEWORK

Test Execution

Exception Handling

Logging & Reporting



----- Test Library APIs -----



RF BROWSER



Playwright

Adaptation Layer



 renerohner



Snooz82

#AutomationSTAR

System Under Test

TUTORIAL ENVIRONMENT



- Kubernetes Based
- Served via Web
- Free to use (50h)
- Free for Open Source





Gitpod

POP-UP DEV-ENV

http://bit.ly/robocon-de

02_CarConfig.robot – robocor

Simple Browser

https://6080-imbus-robocondetutoria-2am69929b8b.ws-eu67.gitpod.io

Thu 29 Sep, 21:04, gitpod

CarConfigurator

Liste Basismodell Edition Zusatzausstattung Zusammenfassung Logout

Basismodell Neues Auto

Minigolf

Preis Basismodell: 15,000.00€ Vorausgesetztes Gesamtpreis: 15,000.00€

Select Options By "Basismodell" >> ... >> select text Minigolf

Elements Console Sources Network Performance

Robot Framework Layout: U.S. Ports: 3100, 5900, 6080, 45773, 37373, 37759

PROBLEMS OUTPUT DEBUG CONSOLE PORTS TERMINAL

Robocon-De-Tutorial

Robocon-De-Tutorial.Tutorial

Robocon-De-Tutorial.Tutorial.TestCases

Robocon-De-Tutorial.Tutorial.TestCases.03 Browser Tests

Robocon-De-Tutorial.Tutorial.TestCases.03 Browser Tests.02 CarConfig

Configure Car with Pass

VARIABLES

- Local
 - TEST_DOCUMENTATION: 'Tutorial > TestCases > 03_Browser_Tests > 02_CarConfig.robot > ...'
 - TEST_URL: 'http://car.keyword-driven.de' TEST_URL = 'http://car.keyword-driven.de'
 - TEST_NAME: 'Configure Car with Pass'
 - TEST_TAGS: []
- Suite
- Global

WATCH

CALL STACK Paused on step

- Robocon-De-Tutorial.Tutor
- Robocon-De-Tutorial.Tutor
- Robocon-De-Tutorial.Tutor
- Robocon-De-Tutorial.Tutor
- Robocon-De-Tutorial.Tutor
- Robocon-De-Tutorial.Tutor
- Robocon-De-Tutorial.U

BREAKPOINTS

- Failed Keywords
- Uncaught Failed Ke...
- Failed Test
- Failed Suite
- 02_CarConfig.ro... 14
- 02_CarConfig.ro... 29

Gitpod main* Running tests... Share

Ln 22, Col 1 Spaces: 4 UTF-8 LF Robot Framework Layout: U.S. Ports: 3100, 5900, 6080, 45773, 37373, 37759

The screenshot shows a developer's environment with multiple windows open:

- Left Window (Robot Framework Test Script):** A code editor displaying a Robot Framework test script. The script includes variables, test cases, keywords, and a call stack. A breakpoint is set on the line "Select Options By".

```
*** Variables ***
${TEST_DOCUMENTATION}: 'Tutorial > TestCases > 03_Browser_Tests > 02_CarConfig.robot'
${TEST_NAME}: 'Configure Car with Pass'
@{TEST_TAGS}: []

*** Test Cases ***
Configure Car with Pass
    [Setup]  Open Web Page  ${TEST_URL}  ${TEST_URL} = 'http://car.keyword-driven.de'
    Login User  admin  @RBTFRMWRK@
    Click New_Car
    Select Base Model  Minigolf
    Select Special Model  Jazz
    Select Accessories  ABS  Außenspiegel  Fußmatten  lenk
    Verify Total Price  17,453.00  €
    Set Car Name  My New Car
    Save New_Car

*** Keywords ***
Login User
    [Arguments]  ${user}  ${password}
    Set Username  ${user}
    Set Password  ${password}
    Click Login Btn

Select Base Model
    [Arguments]  ${basemodel}
    Wait For Elements State  ${select_CarBaseModel}
    Select Options By  ${select_CarBaseModel}  text  ${basemodel}

Select Accessories
    [Arguments]  @{accessory_list}
    Go To Accessories
    FOR  ${acc}  IN  @{accessory_list}
        |  Select Accessory  ${acc}
    END
```
- Middle Window (Browser Preview):** A screenshot of a car configurator application. It shows a "Basismodell" (Base Model) configuration page for a "Minigolf" car. The car model is selected in a dropdown menu. The total price is listed as 15,000.00 €.
- Right Window (Developer Tools):** A browser developer tools window showing the DOM structure of the car configurator page. The DOM tree is visible on the left, and the CSS styles applied to the elements are shown on the right.
- Bottom Terminal:** A terminal window with several tabs open, including "prepare: bash", "install System: bash", "Command: bash", and "RobotCode: Run Tests".

The status bar at the bottom indicates "Running tests..." and shows file paths like "02_CarConfig.robot" and "00_technical_keywords.resource".



> Suite
> Global



▽ WATCH

▽ CALL STACK Paused on step

Robocon-De-Tutorial.Tutor
Robocon-De-Tutorial.Tutor
Robocon-De-Tutorial.Tutor
Robocon-De-Tutorial.Tutor
Robocon-De-Tutorial.Tutor
Robocon-De-Tutorial.Tutor
Robocon-De-Tutorial.U

```
11 *** Test Cases ***
12 Configure Car with Pass
13 [Setup] Open Web Page ${TEST_URL} ${TEST_URL} = 'http://
● 14 Login User admin @RBTFRMWRK@
15 Click New_Car
16 Select Base Model Minigolf
17 Select Special Model Jazz
18 Select Accessories ABS Außenspiegel Fußmatten lenk
19 Verify Total Price 17,453.00 €
20 Set Car Name My New Car
21 Save New_Car
22
23
24 *** Keywords ***
25 Login User
26 [Arguments] ${user} ${password}
27 Set Username ${user}
28 Set Password ${password}
● 29 Click Login Btn
30
31 Select Base Model
32 [Arguments] ${basemodel}
33 Wait For Elements State ${select_CarBaseModel}
34 Select Options By ${select_CarBaseModel} text ${basem
35
36 Select Accessories
37 [Arguments] @{accessory_list}
38 Go To Accessories
```

Applications CarConfigurator - Chro... Thu 29 Sep, 21:04 gitpod

CarConfigurator Not secure | car.keyword-driven.de/config/basemodel

Liste Basismodell Edition Zusatzausstattung Zusammenfassung Logout

Basismodell

Neues Auto

Minigolf >



Preis Basismodell: 15,000.00€ Vorläufiger Gesamtpreis: 15,000.00€

Select Options By "Basismodell" >> . . . >> select text Minigolf

Elements Console Sources Network Performance

```
<!DOCTYPE html>
<html lang="en">
  <head>_</head>
  <body>
    :before
    <app-root _nghost-c0 ng-version="7.2.7">
      <router-outlet _ngcontent-c0></router-outlet>
      <app-baseModel-configurator _nghost-c7 class="ng-star-inserted">
        <app-navigation-line _ngcontent-c7 _nghost-c5>..</app-navigation-line>
        <!-->
        <!-->
        <div _ngcontent-c7 class="pageStyle alignCenter ng-star-inserted">
          <div _ngcontent-c7 class="content">..</div>
          <div _ngcontent-c7 class="displayFlexStyleRow">..</div> flex
          <div _ngcontent-c7 class="extraPaddingRight extraPaddingLeft">
            <!-->
            <!-->
            
            <div _ngcontent-c7 class="clearElement">
              <div _ngcontent-c7 class="divStyle boxShadow roundedEdges floatRight exposedVerticallyTop paddingSmallAllOver">..</div>
            ...
            <div _ngcontent-c7 class="divStyle boxShadow roundedEdges floatRight exposedVerticallyTop paddingSmallAllOver">..</div> == $0
            </div>
            </div>
            </div>
            <!-->
          </app-baseModel-configurator>
...
arElement div.divStyle.boxShadow.roundedEdges.floatRight.exposedVerticallyTop.paddingSmallAllOver ...
Styles Computed Layout Event Listeners DOM Breakpoints Properties Accessibility
```

:hov .cls + ↻

element.style {} styles.707f...db2c3.css:1

.floatRight { float: right; } styles.707f...db2c3.css:1

.roundedEdges { border-radius: 6px; } styles.707f...db2c3.css:1

.exposedVerticallyTop { margin-top: 20px; } styles.707f...db2c3.css:1

.paddingSmallAllOver { padding: 5px; } styles.707f...db2c3.css:1

.divStyle { background-color: #e6e6e6; } styles.707f...db2c3.css:1

```
30
31 Select Base Model
32     [Arguments]    ${basemodel}
33     Wait For Elements State    ${select_CarBaseModel}
34     Select Options By    ${select_CarBaseModel}    text    ${basem
35
36 Select Accessories
37     [Arguments]    @{accessory_list}
38     Go To Accessories
39     FOR    ${acc}    IN    @{accessory_list}
40     |     Select Accessory    ${acc}
41     END
42
```

Select Options By "Basismodell" >> ... >>

PROBLEMS OUTPUT DEBUG CONSOLE PORTS TERMINAL

=====
Robocon-De-Tutorial
=====

=====
Robocon-De-Tutorial.Tutorial
=====

=====
Robocon-De-Tutorial.Tutorial.TestCases
=====

=====
Robocon-De-Tutorial.Tutorial.TestCases.03 Browser Tests
=====

=====
Robocon-De-Tutorial.Tutorial.TestCases.03 Browser Tests.02 CarConfig
=====

=====
Configure Car with Pass

....□



Running tests...



Share

Ln 22, Col 1 Spaces: 4

02_CarConfig.robot — robocon

http://bit.ly/robocon-de

Simple Browser

https://6080-imbus-robocondetutoria-2am69929b8b.ws-eu67.gitpod.io

Thu 29 Sep, 21:04 gitpod

VARIABLES

- Local
- TEST_DOCUMENTATION: 'Tutorial > TestCases > 03_Browser_Tests > 02_CarConfig.robot > ...'
- TEST_NAME: 'Configure Car with Pass'
- TEST_TAGS: []

Suite

Global

WATCH

CALL STACK Paused on step

- Robocon-De-Tutorial.Tutor
- Robocon-De-Tutorial.Tutor
- Robocon-De-Tutorial.Tutor
- Robocon-De-Tutorial.Tutor
- Robocon-De-Tutorial.Tutor
- Robocon-De-Tutorial.Tutor
- Robocon-De-Tutorial.U

BREAKPOINTS

- Failed Keywords
- Uncaught Failed Ke...
- Failed Test
- Failed Suite
- 02_CarConfig.ro... 14
- 02_CarConfig.ro... 29

PROBLEMS

=====
Robocon-De-Tutorial
=====
Robocon-De-Tutorial.Tutorial
=====
Robocon-De-Tutorial.Tutorial.TestCases
=====
Robocon-De-Tutorial.Tutorial.TestCases.03 Browser Tests
=====
Robocon-De-Tutorial.Tutorial.TestCases.03 Browser Tests.02 CarConfig
=====
Configure Car with Pass

OUTPUT

DEBUG CONSOLE

PORTS

TERMINAL

=====
Running tests... Share

Ln 22, Col 1 Spaces: 4 UTF-8 LF Robot Framework Layout: U.S. Ports: 3100, 5900, 6080, 45773, 37373, 37759

Simple Browser

CarConfigurator - Chrome

CarConfigurator

Not secure | car.keyword-driven.de/config/basemodel

Liste Basismodell Edition Zusatzausstattung Zusammenfassung Logout

Basismodell

Neues Auto

Minigolf

Preis Basismodell: 15,000.00€ Vorläufiger Gesamtpreis: 15,000.00€

Select Options By "Basismodell" > ../../> select text Minigolf

Applications : CarConfigurator - Chrome

Elements Console Sources Network Performance

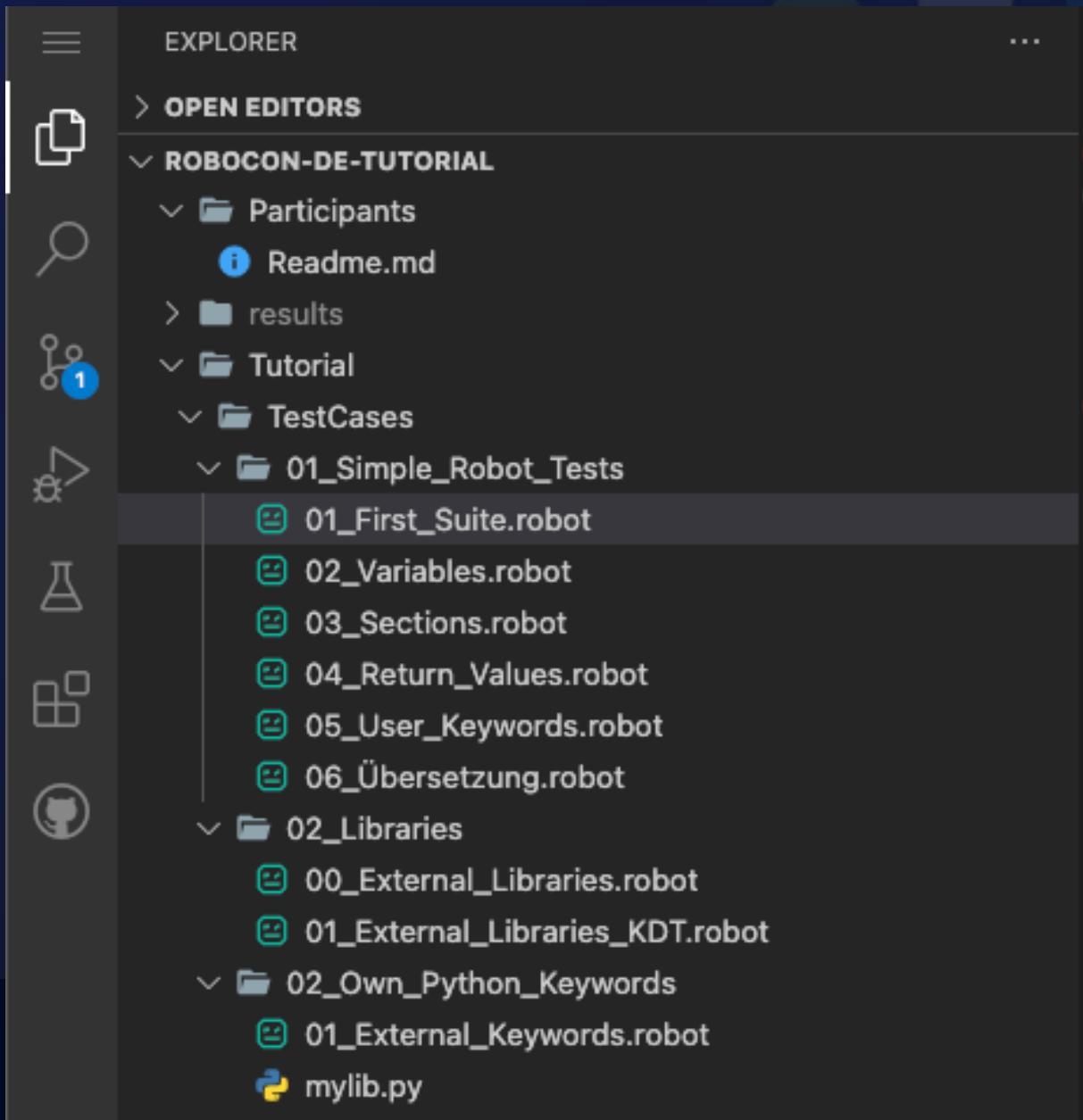
Thu 29 Sep, 21:04 gitpod

=====
/index.html
+html lang="en">
+<head></head>
+<body>
+<before>
+<app-root nghost-c0 ng-version="7.2.7">
+<router-outlet nghost-c0=></router-outlet>
+<app-basemodel-configurator nghost-c7 ng-star-inserted>
+<app-navigation-line nghost-c7 ng-star-inserted>
+<div nghost-c7>
+<div nghost-c7 class="pageStyle alignCenter ng-star-inserted">
+<div nghost-c7 class="content"></div>
+<div nghost-c7 class="displayFlexStyleRow"></div> <
+<div nghost-c7 class="extraPaddingRight extraPaddingLeft">
+<div nghost-c7 class="image" alt="Image" class="basimodeling containImage ng-star-inserted" data="src='assets/minigolf.jpg'>
+<div nghost-c7 class="clearLeft">
+<div nghost-c7 class="divStyle boxShadow roundedEdges floatRight exposedVerticallyTop paddingSmallAllOver" style="border-radius: 6px; margin-top: 20px; padding: 5px; background-color: #e6e6e6; border: 1px solid black; width: fit-content; height: fit-content; vertical-align: middle; text-align: center; font-size: 1em; font-weight: bold; color: black; text-decoration: none; font-family: sans-serif; transition: all 0.3s ease-in-out; position: relative; z-index: 1; ">
+<div nghost-c7 class="arElement divStyle boxShadow roundedEdges floatRight exposedVerticallyTop paddingSmallAllOver" style="border-radius: 6px; margin-top: 20px; padding: 5px; background-color: #e6e6e6; border: 1px solid black; width: fit-content; height: fit-content; vertical-align: middle; text-align: center; font-size: 1em; font-weight: bold; color: black; text-decoration: none; font-family: sans-serif; transition: all 0.3s ease-in-out; position: relative; z-index: 1; ">
+<div nghost-c7 class="floatRight" style="float: right; position: absolute; top: 0; right: 0; width: 10px; height: 10px; border-radius: 50%; background-color: white; border: 1px solid black; box-shadow: 0 0 5px 2px black; transform: rotate(45deg); z-index: 2; ">
+<div nghost-c7 class="roundedEdges" style="border-radius: 6px; margin-top: 20px; padding: 5px; background-color: #e6e6e6; border: 1px solid black; width: fit-content; height: fit-content; vertical-align: middle; text-align: center; font-size: 1em; font-weight: bold; color: black; text-decoration: none; font-family: sans-serif; transition: all 0.3s ease-in-out; position: relative; z-index: 1; ">
+<div nghost-c7 class="exposedVerticallyTop" style="margin-top: 20px; padding: 5px; background-color: #e6e6e6; border: 1px solid black; width: fit-content; height: fit-content; vertical-align: middle; text-align: center; font-size: 1em; font-weight: bold; color: black; text-decoration: none; font-family: sans-serif; transition: all 0.3s ease-in-out; position: relative; z-index: 1; ">
+<div nghost-c7 class="paddingSmallAllOver" style="border-radius: 6px; margin-top: 20px; padding: 5px; background-color: #e6e6e6; border: 1px solid black; width: fit-content; height: fit-content; vertical-align: middle; text-align: center; font-size: 1em; font-weight: bold; color: black; text-decoration: none; font-family: sans-serif; transition: all 0.3s ease-in-out; position: relative; z-index: 1; ">
+<div nghost-c7 class="divStyle" style="background-color: #e6e6e6; border: 1px solid black; width: fit-content; height: fit-content; vertical-align: middle; text-align: center; font-size: 1em; font-weight: bold; color: black; text-decoration: none; font-family: sans-serif; transition: all 0.3s ease-in-out; position: relative; z-index: 1; ">
+<div nghost-c7 class="floatRight" style="float: right; position: absolute; top: 0; right: 0; width: 10px; height: 10px; border-radius: 50%; background-color: white; border: 1px solid black; box-shadow: 0 0 5px 2px black; transform: rotate(45deg); z-index: 2; ">
+<div nghost-c7 class="roundedEdges" style="border-radius: 6px; margin-top: 20px; padding: 5px; background-color: #e6e6e6; border: 1px solid black; width: fit-content; height: fit-content; vertical-align: middle; text-align: center; font-size: 1em; font-weight: bold; color: black; text-decoration: none; font-family: sans-serif; transition: all 0.3s ease-in-out; position: relative; z-index: 1; ">
+<div nghost-c7 class="exposedVerticallyTop" style="margin-top: 20px; padding: 5px; background-color: #e6e6e6; border: 1px solid black; width: fit-content; height: fit-content; vertical-align: middle; text-align: center; font-size: 1em; font-weight: bold; color: black; text-decoration: none; font-family: sans-serif; transition: all 0.3s ease-in-out; position: relative; z-index: 1; ">
+<div nghost-c7 class="paddingSmallAllOver" style="border-radius: 6px; margin-top: 20px; padding: 5px; background-color: #e6e6e6; border: 1px solid black; width: fit-content; height: fit-content; vertical-align: middle; text-align: center; font-size: 1em; font-weight: bold; color: black; text-decoration: none; font-family: sans-serif; transition: all 0.3s ease-in-out; position: relative; z-index: 1; ">
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FILE TREE

Participant folder
& exercise.robot
to try it yourself

Tutorial folder
for prepared examples

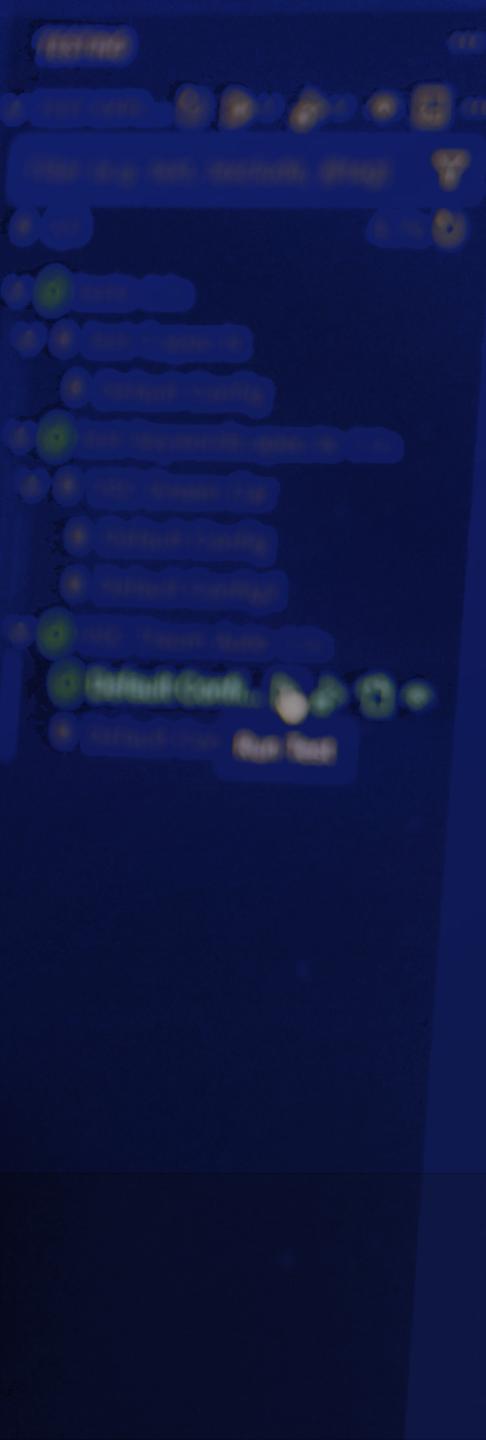


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RBT



Robotframework.org

#AutomationSTAR
René Rohner (imbus AG)



PLAYWRIGHT

```
@step
async openVSRDreamCar_As_Customer() {
    await this.openVSRDreamCar();
    await this.loginUser('avengers_c01', 'password_c01');

}

@step
async configureNewCar() {
    await this.page.getByRole('button', { name: 'New car' }).click(); - 389ms
}

@step
async clickNext() {
    await this.page.locator(...)
```

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PLAYWRIGHT & PLAYWRIGHT TEST

enables reliable end-to-end testing for modern web apps.

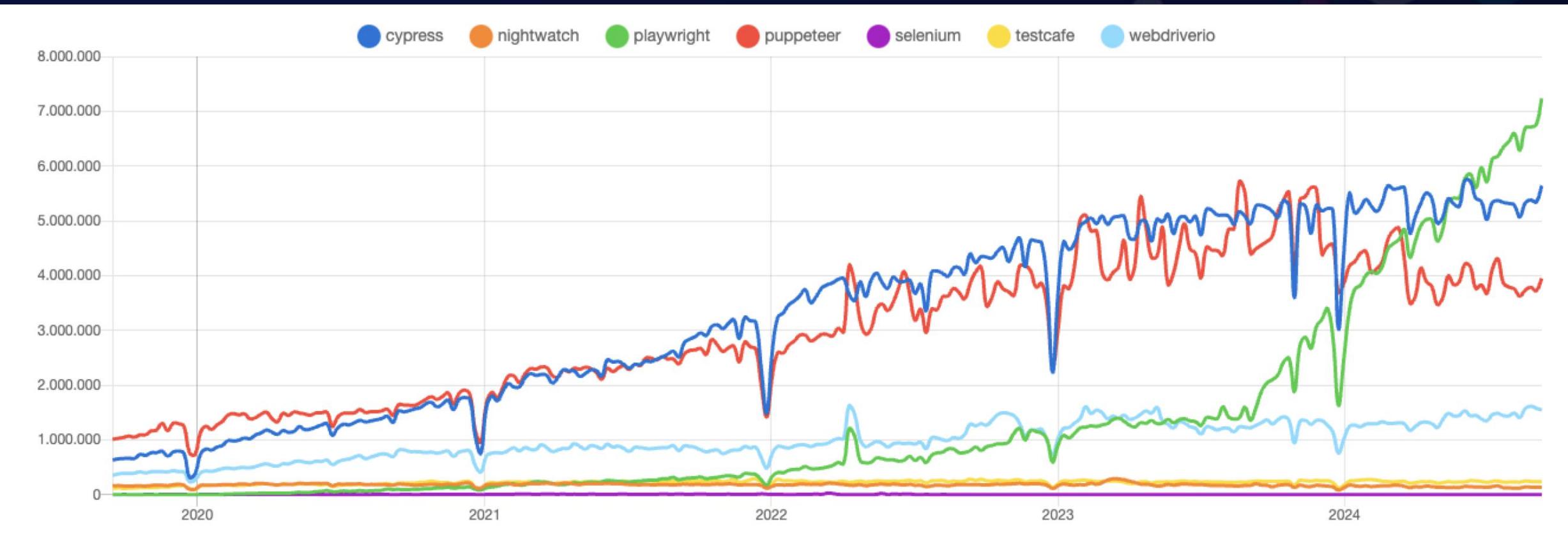
- Any browser • Any platform • One API
- Resilient • No flaky tests
- No trade-offs • No limits
- Full isolation • Fast execution
- Powerful Tooling

Browser automation API (+Test)
Release 2020
Fork of Puppeteer (Google)
Developed by Microsoft
Chromium, Firefox, Webkit
NodeJS (+ some more)



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PLAYWRIGHT & PLAYWRIGHT TEST



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PLAYWRIGHT & PLAYWRIGHT TEST

Why we @ Robot Framework Browser use Playwright API?

- Really fast & modern alternative to Selenium
- Open API for adaptation
- Real solution for ShadowDOM (WebComponents)
- Awesome Selectors (catenation)
- Browser, Context, Page
- We wanted to do some TypeScript



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PLAYWRIGHT TEST VS ROBOT FRAMEWORK

Test Design

```
test('Default Config', async ({ page }) => {
  const vsr = new VSR(page);
  await vsr.openVSRDreamCar_As_Customer();
  await vsr.configureNewCar();
  await vsr.selectBasicModel('Model 3 (Rassant)');
  await vsr.selectMotor('EC0tech with Hybrid');
  await vsr.selectSpecialModel('Gomera');
  await vsr.selectAccessories([
    'Floor mats',
    'Autopilot Don\'tCare',
    'Sports Suspension'
  ]);
  await vsr.chooseColor('Blue');
  await vsr.verifyPrices({
    finalPrice: '26.873,40',
    basePrice: '17.000,00',
    enginePrice: '4.999,00',
    editionPrice: '1.413,00'
  });
});
```



*** Test Cases ***

Default Config as User	
Open VSR Dream Car	
Login User	avengers_c01
Configure New Car	password_c01
Select Basic Model	Model 3 (Rassant)
Select Motor	EC0tech with Hybrid
Select Special Model	Gomera
Select Accessories	Floor mats
...	Autopilot Don'tCare
...	Sports Suspension
Choose Color	Blue
Verify Prices	
...	finalPrice=26.873,40
...	basePrice=17.000,00
...	enginePrice=4.999,00
...	editionPrice=1.413,00

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PLAYWRIGHT TEST vs ROBOT FRAMEWORK

Test Steps

```
@step
async loginUser(username: string, password: string) {
    await this.page.getLabel('Username', { exact: true }).fill(username);
    await this.page.getLabel('Password', { exact: true }).fill(password);
    await this.page.getRole('button', { name: "Log In" }).click();
}

@step
async configureNewCar() {
    await this.page.getRole('button', { name: 'New car' }).click();
}

@step
async selectBasicModel(modelName: string) {
    await this.page.locator('#select_basemodel').click();
    await this.page.getText(modelName).click();
}
```

Login User

```
[Arguments] ${username} ${password}
Fill Text "Username" ${username}
Fill Text "Password" ${password}
Click id=button_login
```

Configure New Car

```
Click button:has-text("New car")
```

Select Basic Model

```
[Arguments] ${model}
Click id=select_basemodel
Click "${model}"
```



[renerohner](#)



Snooz82

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PLAYWRIGHT TEST vs ROBOT FRAMEWORK

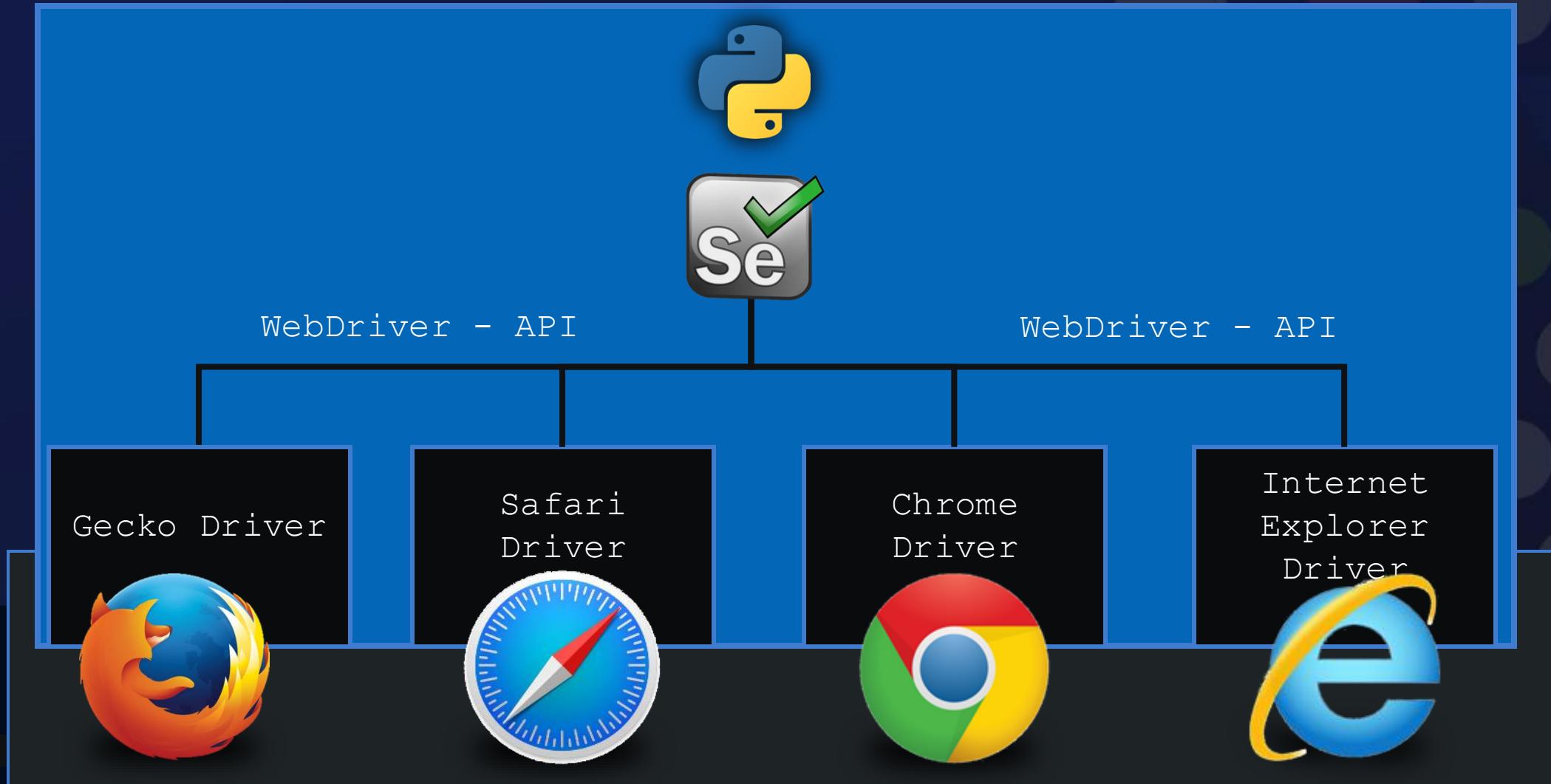
Traces are mindbowing awesome!

The screenshot displays the Playwright Trace Viewer interface. On the left, a timeline shows the sequence of actions taken during a test run, with each step labeled with its duration and a small screenshot. Below the timeline is a detailed log of the actions performed, including 'Before Hooks', 'VSR.openVRSDreamCar_As_Customer', 'VSR.configureNewCar', 'VSR.selectBasicModel', 'VSR.selectMotor', 'VSR.selectSpecialModel', 'VSR.selectAccessories' (which is expanded to show 'Autopilot Don't Care', 'Winter tires (instead of summer tires)', 'label.mdc-label (73.5x20)' checked, and 'Floor mats' checked), 'After Hooks', and 'Worker Cleanup'. The duration for 'VSR.selectAccessories' is highlighted in red at 3.7s. On the right, a browser window shows a car configuration page for 'VSR DREAMCAR'. The 'Extras' tab is selected, displaying various optional features like 'Autopilot Don't Care', 'Winter tires', 'Floor mats', 'Leather steering wheel', 'Sound System OverDrive', 'Sports Suspension', and 'Intelligent lighting system'. The total price for extras is 46.00 €. The 'label.mdc-label' element (73.5x20) is highlighted in the browser's developer tools, specifically in the Elements tab of the Chrome DevTools. The DevTools also show the full DOM structure of the page, with many elements containing class names like 'mat-card', 'mat-card-content', 'mat-form-field', and 'mat-checkbox'. The 'Styles' tab in the DevTools shows the CSS rules applied to the highlighted element.

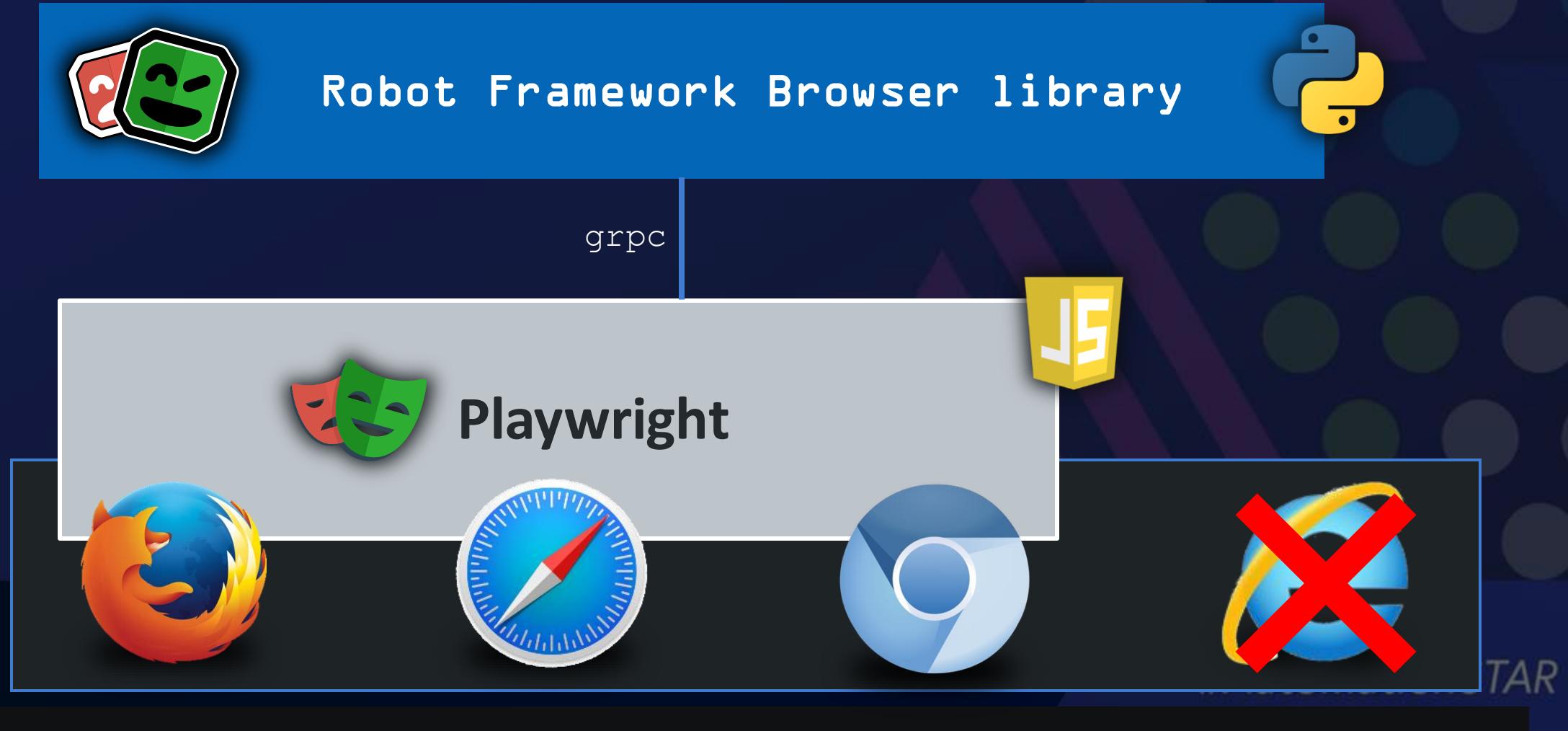


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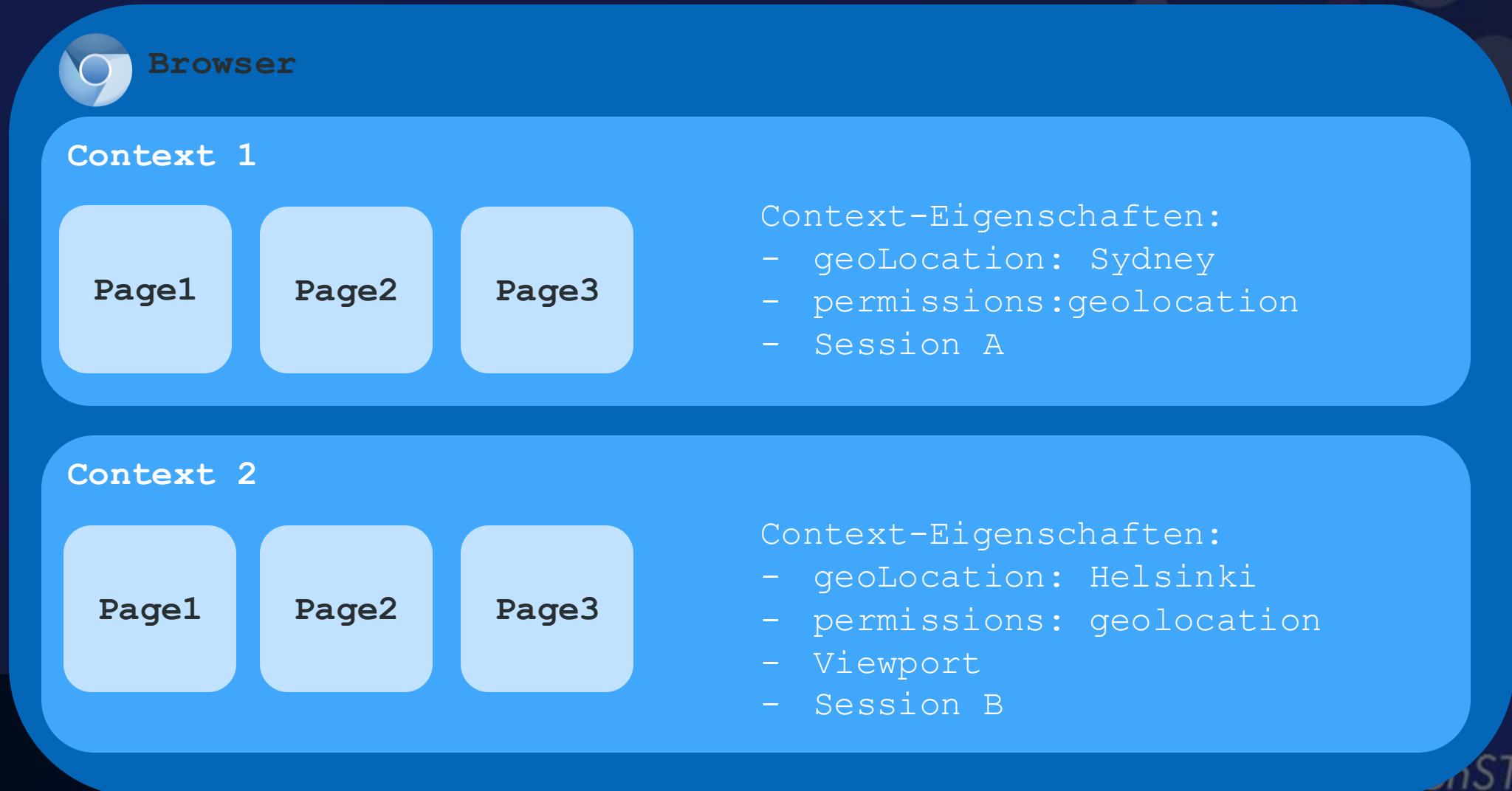
SELENIUM LIBRARY / WEBDRIVER (TECHNOLOGIE STACK)



BROWSER LIBRARY (PLAYWRIGHT) (TECHNOLOGIE STACK)



BROWSER, CONTEXT, PAGE



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System Under Test



Questions?

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