

Tester avec Robot Framework

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APPUYER SUR LA BARRE D'ESPACE OU LES FLÈCHES POUR DÉMARRER

Tour de table

- Expérience testeur
- Expérience avec Robot Framework
- Expérience dev
- Attente vis à vis de cette formation ?

Qui suis-je ?

- Rémi PICARD
- Dev Scala Cobalt
- 4 ans chez Nickel
- 4 ans d'expérience avec Robot Framework 🤖
- Passionné par les technos Web, Data et DevOps
- 13 ans d'expérience dans l'IT 💡
- Joueur d'échecs ♟



Découverte de Robot Framework

Robot Framework => "Robot"
RF / RBF / RBT

Plan

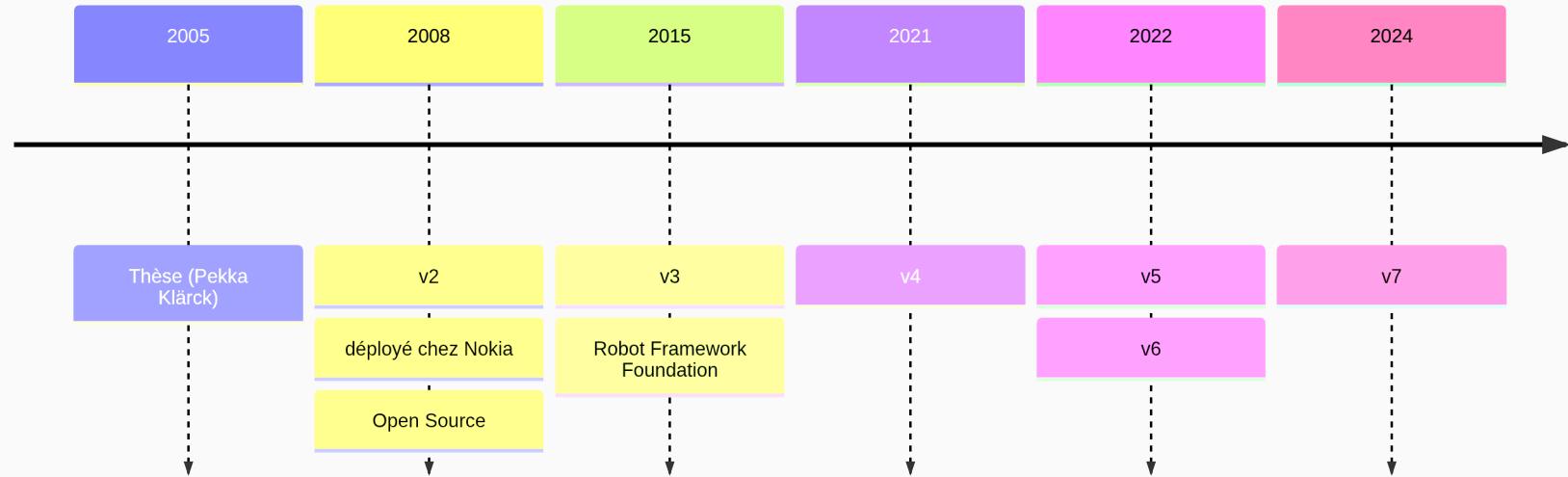
- Généralités
- Rappels Python
- Comprendre le fonctionnement de Robot
- Installer l'env de dev
- Apprendre le langage Robot
- Découvrir la ligne de commande `robot`
- Codelab Tests API
- Codelab Tests UI avec Playwright

Présentation

- Outil d'automatisation
- Langage
- Open Source codé en Python
- Fonctionnalités clefs en main (assertions, rapport de tests...)
- Extensible via des librairies Robot Framework (HTTP, JSON, SQL, Kafka ...)
- Extensible via des librairies Python

Histoire

20 ans déjà !

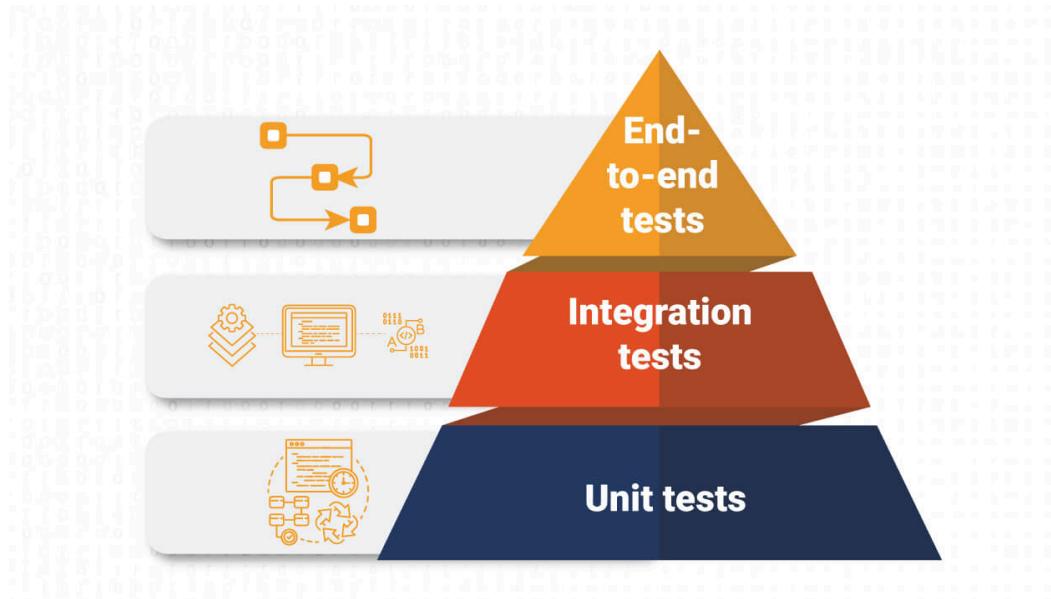


Communauté

- Slack
- RoboCon / RBCN : conférence annuelle à Helsinki 
- [Documentation](#)

Pyramide des tests

Tests End-To-End

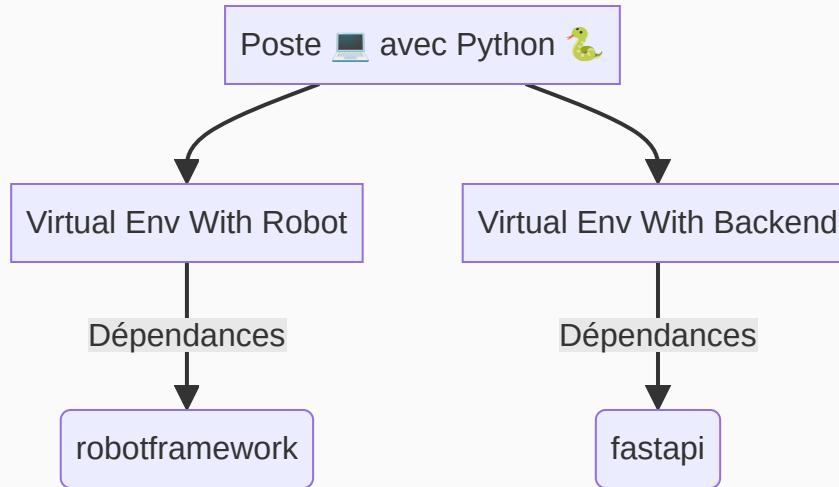


Source: <https://blog.takima.fr/saffranchir-de-la-pyramide-des-tests/>

Env de dev 

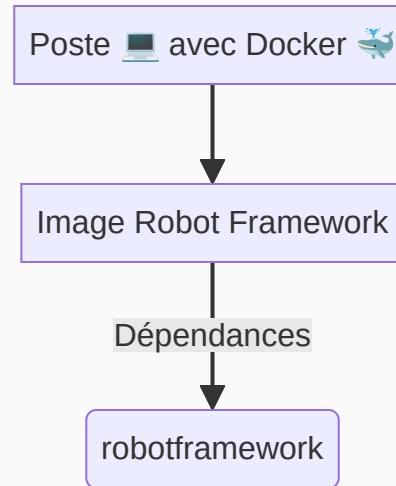
Installation

Python Virtual Environment



Python Virtual Environment

Installation Docker



Installation PyCharm / VSCode

Set up your IDE

Codelab



- [Installation env de dév](#)
- [Hello World](#)
- [Configuration IDE](#)

Développer avec Python 🐍

Rappels

Types natifs

Type	Mot-clé	Exemple
Entier	int	42, -17, 0
Flottant	float	3.14, 2.5e-3
Booléen	bool	True, False
Chaîne	str	"Hello", 'World'
Tableau	list	["Hello", "World"]
Map	dict	{"key": "value", "key2": "value2"}
Aucun	NoneType	None

[Documentation](#)

Méthodes

```
1 def ma_fonction(arg1: int, arg2: str, default_arg="default", *args, **kwargs) -> int:
2     # ...
3     return 42
4
5 ma_fonction(42, "Quarante-deux")
6 ma_fonction(42, "Quarante-deux", "override default value")
7 ma_fonction(42, "Quarante-deux", "default", 1, 2, 3)
8 ma_fonction(42, "Quarante-deux", "default", robot="Nono", john="Doe")
9 ma_fonction(42, "Quarante-deux", "default", 1, 2, 3, robot="Nono", john="Doe")
```

Développer avec Robot Framework

Tests, Variables, Keyword, Python, Structure ...

Tests

- fichier `*.robot`
- indentation comme en Python 
- ensemble de phrases 
- Section `*** Test Cases ***`
- Import librairies dans `*** Settings ***`

Tests

Déclaration

```
1 *** Settings ***
2 Library      String
3
4 *** Test Cases ***
5 Mon Premier Test
6     ${chaine}=  Generate Random String    10
7     Log      Hello ${chaine}
```

Variables

- Même types qu'en Python 
- Syntaxe `${...}` (comme en Bash)
- Création dans un Test ou Keyword
- Création en global dans la section `*** Variables ***`
- Import des variables Python possible

Variables

Section Variables

```
1 *** Variables ***
2 ${nombre}      42
3 ${chaine}      Ma chaîne de caractères
4 @{tab}          1  2  3
5 &{map}          clef1=valeur1    clef2=valeur2
6
7 *** Test Cases ***
8 Teste Variables
9     Log    nombre=${nombre}
10    Log    chaine=${chaine}
11    Log    tab=${tab}
12    Log    map=${map}
```

Variables

Variables

Déclaration

```
1 *** Test Cases ***
2 Creation Variable
3     ${ma_variable}    Set Variable    C3PO
4     Log    ma_variable=${ma_variable}
5
6     # Nouvelle syntaxe RF>=7.0
7     VAR    ${ma_variable}    C3PO
8     Log    ma_variable=${ma_variable}
```

Variables

Portée

- Local \${hi} = Set Variable Hello
- Test Set Test Variable \${HI} Hello
- Suite Set Suite Variable \${HI} Hello
- Global Set Global Variable \${HI} Hello
- 💡 Limiter au maximum la portée
- Nouvelle syntaxe (uniforme): VAR \${variable} scope=SUITE

Variables

Syntaxe VAR

It is recommended to use the VAR syntax introduced in Robot Framework 7.0 for creating variables in different scopes instead of the Set Global/Suite/Test/Local Variable keywords.

BuiltIn

Variables

Import YAML

- option --variablefile / -V
- robot --variablefile conf/local.yaml tests/14-variablefile.robot

Variables

Option CLI

- option --variable / -v
- robot --variable env:LOCAL tests/14-variable.robot

Variables

Import Python

```
1 # resources/mes_variables_python.py  
2 variable_python = 42
```

```
1 *** Settings ***  
2 Variables      resources/mes_variables_python.py  
3  
4 *** Test Cases ***  
5 Utiliser Variable Python  
6     Log      variable_python=${variable_python}
```

Variables

ENV

- Syntaxe `%{VARIABLE_ENV=default_value}`

Injection Python



Evaluate

```
1 *** Test Cases ***
2 Teste Evaluate
3     ${nb}=    Evaluate    41 + 1
4     Log      nb=${nb}
5
6 Teste Evaluate Autre Syntaxe
7     ${nb}=    Set Variable   ${${41 + 1}}
8     Log      nb=${nb}
```

Keyword Concept

- Ensemble de mots clés (séparés par 1 espace)
- Forme une phrase 
- Représente une **action** 
- Déclaré dans la section `*** Keywords ***`
- Robot Framework traduit les phrases en appels Python 

Keyword

Syntaxe Robot Framework

```
1 *** Keywords ***
2 Mon Premier Keyword
3     Log    Hello World
4
5 Mon Premier Keyword Avec Argument
6     [Arguments]    ${name}
7     Log    Hello ${name}
8
9 Mon Premier Keyword Avec Argument Et Return
10    [Arguments]   ${name}
11    Log    Hello ${name}
12    RETURN    42
```

Keyword

Arg dans Keyword

```
1  *** Keywords ***
2  Keyword Avec ${arg1} Intégré
3      Log    Hello ${arg1}
4
5  Keyword Avec ${arg1} Intégré Et Arguments
6      [Arguments]    ${name}
7      Log    Hello ${arg1}, ${name}
8
9  *** Test Cases ***
10 Appel Keywords
11     ${arg1}    Set Variable    Ma Variable
12     Keyword Avec ${arg1} Intégré
13     Keyword Avec ${arg1} Intégré Et Arguments    Arg2
```

Keyword

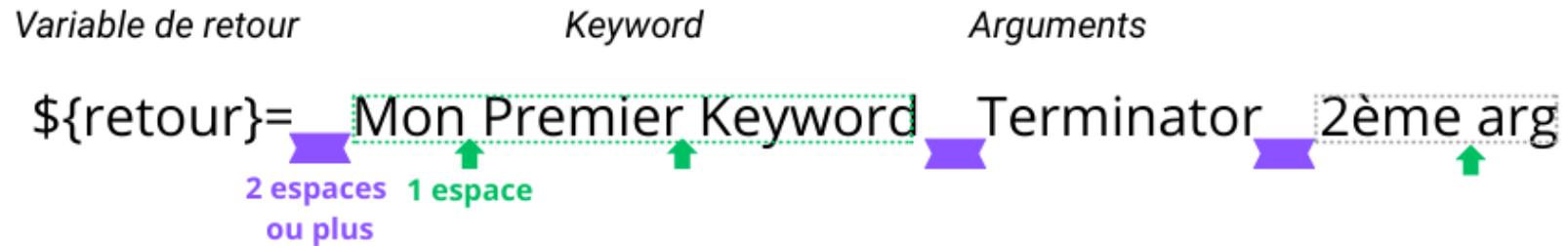
List (args) / Dict (kwargs)

```
1 *** Keywords ***
2 Keyword Avec Args
3     [Arguments]    @{list}
4     FOR    ${i}    IN    @{list}
5         Log    i=${i}
6     END
7
8 Keyword Avec Kwargs
9     [Arguments]    &{map}
10    FOR    ${k}    ${v}    IN    &{map}
11        Log    key=${k}, value=${v}
12    END
13
14 *** Test Cases ***
15 Appel Keywords
16     # ${list}    Create List    1    2    3
17     VAR    @{list}    1    2    3
18     Keyword Avec Args    ${list}
19
20     # ${map}    Create Dictionary    cle1=valeur1    cle2=valeur2
21     VAR    &{map}    cle1=valeur1    cle2=valeur2
22     Keyword Avec Kwargs    &{map}
```

Keyword

Gestion des espaces

- **1 espace** entre chaque mot
- **2 espaces ou +** (ou **tabulation**) entre chaque argument



Keyword

Gestion des chaînes

- inutile de mettre des " ou des ' autour des chaînes de caractère

Keyword Appel

```
1 *** Test Cases ***
2 Mon Premier Test
3     Mon Premier Keyword
4         Mon Premier Keyword Avec Argument      Nono le petit robot
5             ${retour}=    Mon Premier Keyword Avec Argument Et Return    Terminator
6
7 *** Keywords ***
8 Mon Deuxième Keyword
9     Mon Premier Keyword
```

Keyword Syntaxe Python

```
1 # mon_keyword.py
2 # Mon Premier Keyword
3 def mon_premier_keyword():
4     print("Hello World")
5
6 # ${retour}=    Mon Premier Keyword Avec Argument Et Return    ${name}
7 def mon_premier_keyword_avec_argument_et_return(name) -> int:
8     print(name)
9     return 42
```

*** Settings ***

Library mon_keyword.py

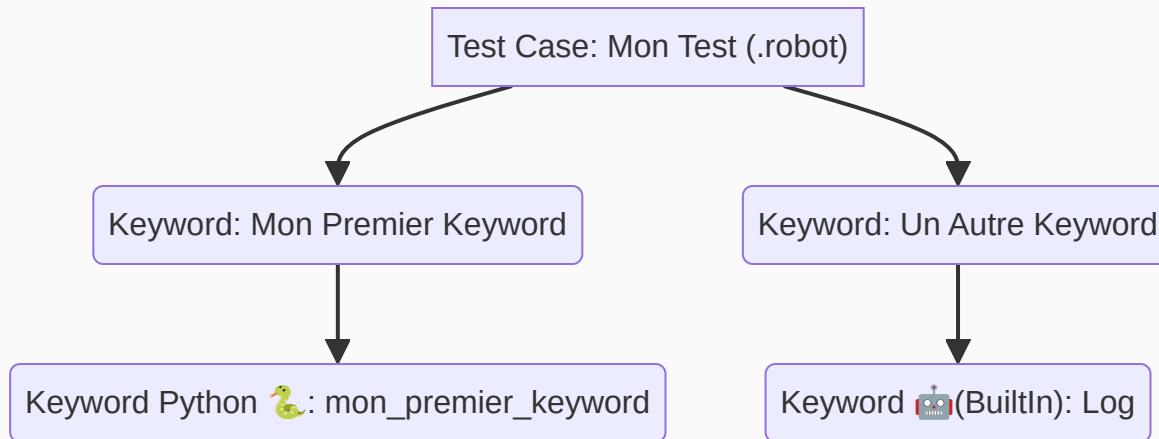
*** Test Cases ***

Mon Test

Mon Premier Keyword

\${retour}= Mon Premier Keyword Avec Argument Et Return R2D2

Test -> Keyword -> Keyword



Sections

- `*** Settings ***` : imports librairies / ressources / variables
- `*** Test Cases ***` : déclarations Tests
- `*** Keywords ***` : déclarations Keywords
- `*** Variables ***` : déclarations Variables

Structures

- boucle FOR
- boucle WHILE
- condition IF / ELSE
- gestion erreur TRY / EXCEPT
- Control structures

Ligne de commande robot

```
1  robot --help  
2  
3  # Lance tous les tests présents dans le dossier tests  
4  robot tests  
5  
6  # Lance le test "Mon Test"  
7  robot -t "Mon Test" tests
```

Résultats

- `log.html` : détails par tests et keywords
 -  ERROR => automatiquement affiché (avec focus sur le keyword en erreur)
 -  SUCCESS
- `output.xml` / `xunit.xml` : sortie technique pour intégration continue / outils

Résultats

log.html

- SUITE Jinja	00:00:00.021
Full Name: Jinja	
Source: /Users/remi/wk/robot-worksheets/tests/file/jinja.robot	
Start / End / Elapsed: 20250902 11:17:57.075 / 20250902 11:17:57.096 / 00:00:00.021	
Status: 1 test total, 0 passed, 1 failed, 0 skipped	
- TEST Creer Fichier Avec Un Template	00:00:00.001
Full Name: Jinja.Creer Fichier Avec Un Template	
Start / End / Elapsed: 20250902 11:17:57.094 / 20250902 11:17:57.095 / 00:00:00.001	
Status: FAIL	
Message: TypeError: write() argument must be str, not list	
+ KEYWORD \${ligne1} = Builtin.Create Dictionary variable=Ligne 1	00:00:00.000
+ KEYWORD \${ligne2} = Builtin.Create Dictionary variable=Ligne 2	00:00:00.000
+ KEYWORD \${data} = Builtin.Create List \${ligne1} \${ligne2}	00:00:00.000
- KEYWORD Creer Fichier data/mon_fichier.csv \${data}	00:00:00.001
Start / End / Elapsed: 20250902 11:17:57.095 / 20250902 11:17:57.096 / 00:00:00.001	
+ KEYWORD \${content} = file_helper.Charger Template \${data}	00:00:00.000
- KEYWORD \${fichier} = OperatingSystem.Create File \${path} \${data}	00:00:00.000
Documentation: Creates a file with the given content and encoding.	
Start / End / Elapsed: 20250902 11:17:57.095 / 20250902 11:17:57.095 / 00:00:00.000	
11:17:57.095 FAIL TypeError: write() argument must be str, not list	
+ RETURN \${fichier}	00:00:00.000

Quizz

[Lien ou passer à la slide suivante](#)



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TP Keyword



Tester les syntaxes

- Keywords
- Tests
- Variables

Requests Library

- Tests d'API
- Wrapper de la lib Python requests
- [Documentation](#)
- Manipulation JSON simple

Requests Library

```
1 pip install robotframework-requests
```

Requests Library

```
1 *** Settings ***
2 Library      RequestsLibrary
3
4 *** Test Cases ***
5 Quick Get Request Test
6     ${response}    GET    https://www.google.com
7
8 Quick Get Request With Parameters Test
9     ${response}    GET    https://www.google.com/search    params=query=ciao    expected_status=200
10
11 Quick Get A JSON Body Test
12     ${response}    GET    https://jsonplaceholder.typicode.com/posts/1
13     Should Be Equal As Strings    1    ${response.json()[id]}
14
15 Create Booking
16     ${booking_dates}    Create Dictionary    checkin=2022-12-31    checkout=2023-01-01
17     ${body}    Create Dictionary
18     ...    firstname=Hans
19     ...    lastname=Gruber
20     ...    totalprice=200
21     ...    depositpaid=false
22     ...    bookingdates=${booking_dates}
23     ${response}    POST    url=https://restful-booker.herokuapp.com/booking    json=${body}
24     ${id}    Set Variable    ${response.json()[bookingid]}
```



API Booker

Browser Library

- Tests UI
- Wrapper de [Playwright](#)
- [Documentation](#)
- [Keywords](#)
- [Exemples / Comparaison](#)

Browser Library

- Rapide 
- Fiable 
- Contrôle du navigateur 
- Remplaçant de [Selenium Library](#)

Browser Library

```
1 # Installer Node https://nodejs.org/en/download/
2
3 pip install robotframework-browser
4
5 # Télécharge le navigateur
6 rfbrowser init
7
8 # Télécharge le navigateur Firefox
9 rfbrowser init firefox
```

Browser Library

```
1 *** Settings ***
2 Library    Browser
3
4 *** Test Cases ***
5 Go To Playwright With Browser Library
6     # Opens a new browser instance. Use this keyword for quick experiments or debugging sessions.
7     Open Browser
8
9     New Page    https://playwright.dev/
10    Get Title   contains   Playwright
11    Take Screenshot
12
13    Click      a >> "Get started"
14    Get Element States  h1 >> "Installation"  contains  visible
15    Take Screenshot
```


Browser Library

Ralentir le navigateur

Ralentir Browser

```
# Remplacer `Open Browser` par `New Browser`  
New Browser    browser=firefox    headless=${False}    slowMo=1 second
```

Sélecteurs

- CSS (type selector => `input` , `div` ...)
- CSS (id selector => `#todo-input`)
- CSS (class selector => `.todo-list`)
- [CSS Selector Reference](#)
- [CSS Selector Tester](#)
- XPATH (`//*[@id="todo-input"]`)
- [XPath Syntax](#)

Selecteurs

DevTools Elements

The screenshot shows the Chrome DevTools Elements tab open on a React application. The application displays the text "todos" in large red letters, followed by a green button with the placeholder "What needs to be done?". Below the button, there is a message: "Double-click to edit a todo", "Created by the TodoMVC Team", and "Part of TodoMVC".

The DevTools sidebar on the left lists "React" and "TypeScript + React" sections, along with a detailed description of what React is.

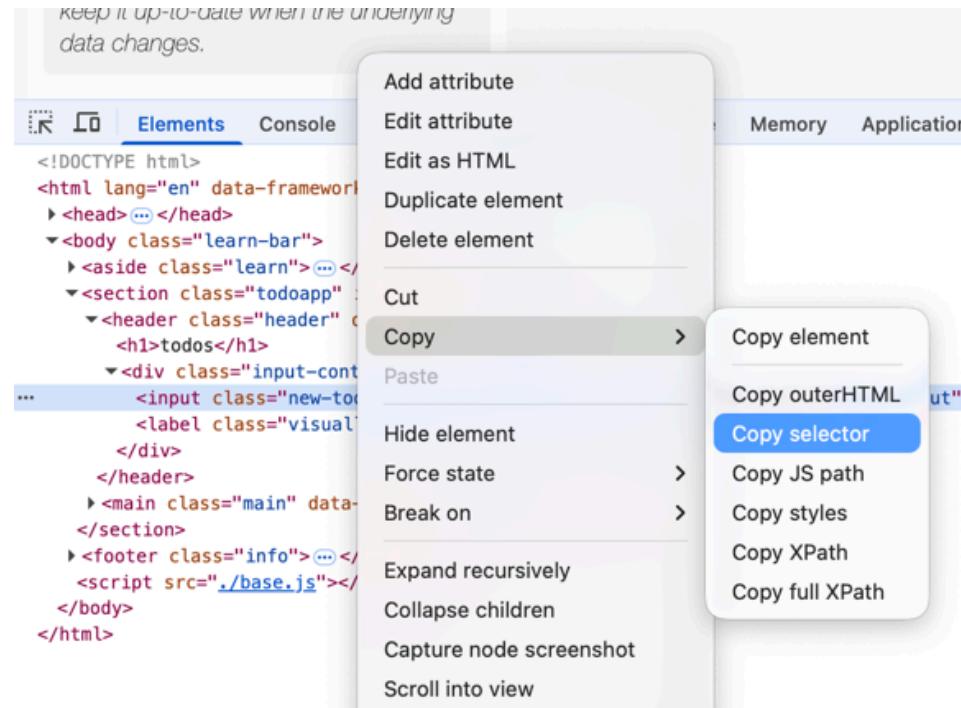
The main pane shows the DOM tree for the "learn-bar" component. The "Elements" tab is selected. The "Styles" panel on the right shows CSS rules from "element.style", "base.css:135", and "index.css:33".

```
<!DOCTYPE html>
<html lang="en" data-framework="react"> scroll
  <head> </head>
  ... <body class="learn-bar"> == $0
    <aside class="learn"> ...
    <section class="todoapp" id="root">
      <header class="header" data-testid="header">
        <h1>todos</h1>
        <div class="input-container">
          <input class="new-todo" id="todo-input" type="text" data-testid="text-input"
            placeholder="What needs to be done?" value>
          <label class="visually-hidden" for="todo-input">New Todo Input</label>
        </div>
```

Style	Computed	Layout	Event Listeners	DOM Breakpoints
element.style {				
@media (min-width: 899px) {				base.css:135
.learn-bar {				
padding-left: 300px;				
width: auto;				
}				
body {				
-webkit-font-smoothing: antialiased;				index.css:33

Selecteurs

DevTools Elements



Selecteurs

DevTools Console

- \$\$ ou document.querySelectorAll pour tester les sélecteurs

The screenshot shows the Chrome DevTools interface with the 'Console' tab selected. In the main pane, the TodoMVC application is displayed, featuring a header 'todos', a central input field with placeholder 'What needs to be done?', and a footer with creation details. On the left, a sidebar provides information about React, including its core principles: declarative code, efficiency, and flexibility. The DevTools console output shows the result of the query \$\$("input"):

```
> $$("input")
< - [input#todo-input.new-todo] i
  ▶ 0: input#todo-input.new-todo
    length: 1
  ▶ [[Prototype]]: Array(0)
```

The first element in the result, input#todo-input.new-todo, is highlighted with a yellow background and has a tooltip above it: "input#todo-input.new-todo 550 x 65".

Récupérer un champ HTML

- \${element} Get Element css=.new-todo
- \${element} Get Element id=todo-input
- \${element} Get Element text=todos
- \${element} Get Element xpath=//h1



TODO MVC

Bonnes pratiques et Industrialisation

Plan

- Organiser les tests et les ressources
- Utiliser les librairies standards de Robot Framework
- Découvrir les syntaxes avancées
- Ecrire des tests robustes
- Découvrir les outils autour de Robot Framework
- Mettre en place une intégration continue

Organiser les tests et les ressources

Structure standard d'un projet

- `tests/` : fichiers de tests (`.robot`) et suite de tests
- `resources/` : keywords partagés, variables et librairies maison (`.resource`, `.py`)

```
1 mon-projet/
2   └── tests/
3     ├── cas_de_test.robot
4     └── suite/
5       └── autre_cas_de_test.robot
6   └── resources/
7     └── keyword_commons.resource
8     └── ma_librarie.py
```

RobotFramework - Project Structure

Syntaxes avancées



Test Template

```
1 *** Test Cases ***
2 Normal test case with embedded arguments
3     The result of 1 + 1 should be 2
4     The result of 1 + 2 should be 3
5
6 Template with embedded arguments
7 [Template]    The result of ${calculation} should be ${expected}
8     1 + 1    2
9     1 + 2    3
10
11 *** Keywords ***
12 The result of ${calculation} should be ${expected}
13     ${result} =    Evaluate    ${calculation}
14     Should Be Equal As Strings    ${result}    ${expected}
```

- Test Templates

Test

Before / After

- Test Setup
- Test Teardown
- Test setup and teardown

Behavior Driven Development (BDD)

Syntaxe Given-When-Then

```
1 *** Test Cases ***
2 Mon Test Bdd
3     Given Pré Requis
4     When Action
5     Then Verifications
6
7 *** Keywords ***
8 Pré Requis
9     Log    Pré Requis
10
11 Action
12     Log    Action
13
14 Verifications
15     Log    Verifications
```

BDD

Test Execution Log

-	SUITE	09-Bdd
	Full Name:	09-Bdd
	Source:	/Users/remi/wk/robot-examples/tests/09-bdd.robot
	Start / End / Elapsed:	20250903 14:07:37.963 / 20250903 14:07:37.973 / 00:00:00.010
	Status:	1 test total, 1 passed, 0 failed, 0 skipped
-	TEST	Mon Test Bdd
	Full Name:	09-Bdd.Mon Test Bdd
	Start / End / Elapsed:	20250903 14:07:37.973 / 20250903 14:07:37.974 / 00:00:00.001
	Status:	PASS
-	KEYWORD	Given Pré Requis
	Start / End / Elapsed:	20250903 14:07:37.973 / 20250903 14:07:37.973 / 00:00:00.000
+	KEYWORD	Builtin.Log Pré Requis
-	KEYWORD	When Action
	Start / End / Elapsed:	20250903 14:07:37.973 / 20250903 14:07:37.973 / 00:00:00.000
+	KEYWORD	Builtin.Log Action
-	KEYWORD	Then Verifications
	Start / End / Elapsed:	20250903 14:07:37.973 / 20250903 14:07:37.973 / 00:00:00.000
+	KEYWORD	Builtin.Log Verifications

Utiliser les librairies standards



Standard Library

- Inclus avec Robot Framework Core
- BuiltIn (importé automatiquement)
- String
- Collections
- DateTime
- [OperatingSystem](#)
- Screenshot
- Process
- XML
- [Standard Library](#)

Standard Library

Import

```
1 *** Settings ***
2 Library Collections
3 Library OperatingSystem
4 Library Process
5 Library String
```

BuiltIn

```
1 *** Test Cases ***
2 Some Assertions
3     ${var}=    Set Variable    1.0
4     Should Not Be Equal    1    ${var}
5     Should Be Equal As Numbers    1    ${var}
6     Should Be Equal As Strings    1.0    ${var}
7     Should Be True    ${var} == 1.0
8     Should Not Be True    ${var} > 10
9
10    ${string}=   Set Variable   My String
11    Should Start With    ${string}   My
12    Length Should Be    ${string}   9
```

Gestion des fichiers



Fichier Template

- [Templates Ninja2](#)
- Création contenu de fichiers
- Couplé à `OperatingSystem`

Fichier Template

- Template Jinja2 `templates/mon_template.csv.j2`

```
1  entete1;entete2
2  {%- for d in data %}
3  CONSTANTE;{{ d.variable }}
4  {%- endfor %}
```

- Utilisation dans Keyword Python

```
1  from jinja2 import Environment, FileSystemLoader
2
3  # Initialiser l'environnement avec un dossier de templates
4  env = Environment(loader=FileSystemLoader("templates"))
5  template = env.get_template("mon_template.csv.j2")
6
7
8  def charger_template(data):
9      contenu = template.render(data=data)
10     return contenu
```

Fichier Template

- Utilisation dans Robot Framework

```
1  *** Settings ***
2  Library      OperatingSystem
3  Library      resources/file_helper.py
4
5  *** Test Cases ***
6  Creer Fichier Avec Un Template
7      ${ligne1}    Create Dictionary    variable=Ligne 1
8      ${ligne2}    Create Dictionary    variable=Ligne 2
9      ${data}      Create List        ${ligne1}    ${ligne2}
10     Creer Fichier   data/output/mon_fichier.csv   ${data}
11
12  *** Keywords ***
13  Creer Fichier
14      [Arguments]  ${path}    ${data}
15      ${contenu}   Charger Template   ${data}
16      ${fichier}   Create File     ${path}    ${contenu}
17      ${contenu}   Get File       ${path}
18      Log         ${contenu}
```

Fichier Template

```
1  entete1;entete2  
2  CONSTANTE;Ligne 1  
3  CONSTANTE;Ligne 2
```

TP Fichiers

- Créer et remplir un fichier
- Récupérer le fichier
- Déplacer le fichier
- Supprimer le fichier

Autres Librairies / Outils

Autres Librairies

- Requests Library
- Browser Library
- Database
- JSON
- Kafka
- DataDriver

DataDriver

- JSON, CSV ou Excel => Données de tests
- `pip install robotframework-datariver`

PaBot

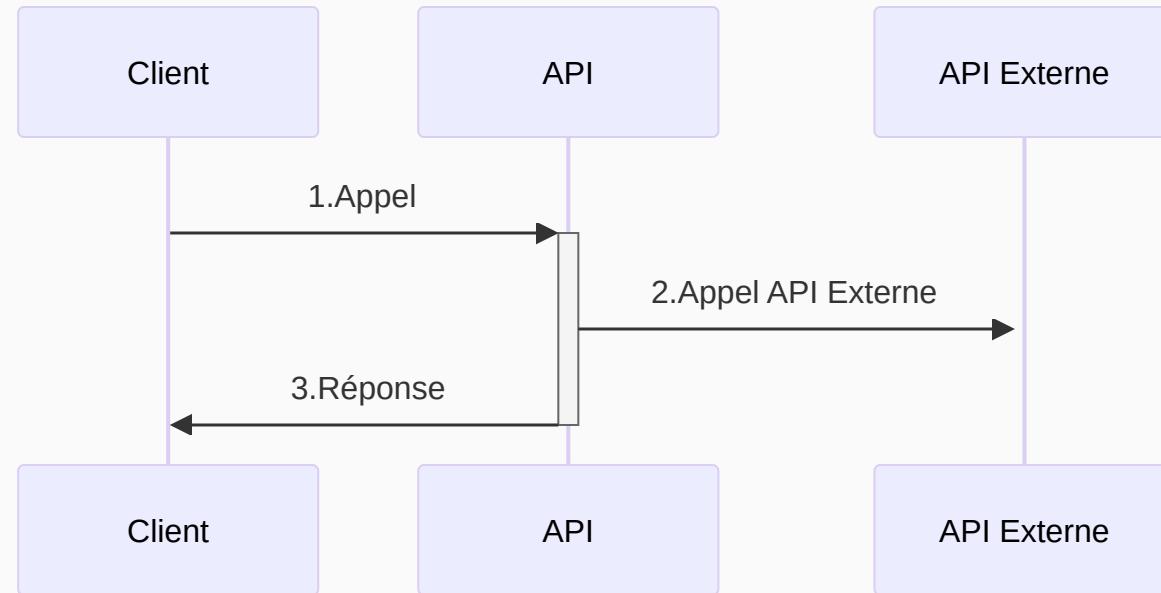
- Lancement des tests en parallèle 
-  Isolation des tests
- CLI `pabot` wrapper de `robot` (même options)
- `pip install robotframework-pabot`
- [PaBot](#)

MockServer

- L'API à tester a besoin d'un service externe
- Le service externe n'est pas disponible sur l'env de test
- MockServer remplace le service externe
- MockServer configurable par API

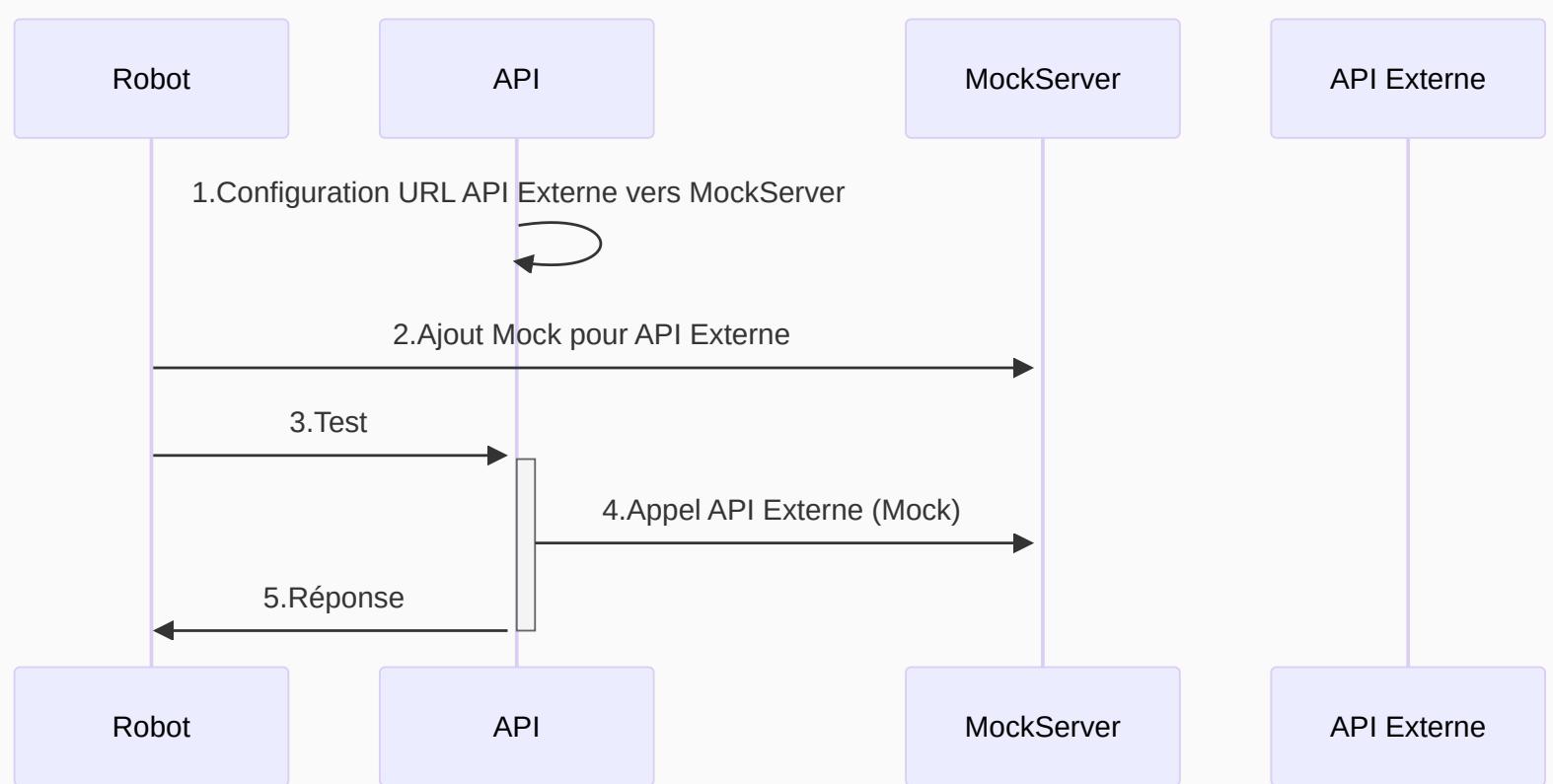
MockServer

API dépend de API Externe



MockServer

Flow de TEST



Ligne de commande



Ligne de commande `robot`

```
1 # Vérifie la syntaxe de tous les tests
2 robot --dryrun tests
3
4 # Ajoute le répertoire courant dans le PYTHON PATH
5 robot --pythonpath . tests
```

PYTHON_PATH

Sans --pythonpath :

```
1 *** Settings ***
2 Resource    ./resources/ma_lib.resource
3
4 *** Test Cases ***
5 Tester Ma Lib
6     Mon Keyword
```

Avec --pythonpath . ou -P . :

```
1 *** Settings ***
2 Resource    resources/ma_lib.resource
3
4 *** Test Cases ***
5 Tester Ma Lib
6     Mon Keyword
```

Ligne de commande robocop

- robocop check (Linter)

```
1  tests/22-failed-test.robot:8:5 ERR13 Invalid IF syntax: IF must have closing END
2  |
3  6 |
4  7 | Test Lint En Erreur
5  8 |     IF
6  |     ^^ ERR13
7  9 |         Log  IF
8  |
```

API Python

- Lancement `robot`
- Réflexion Tests / Keywords (métadonnées, hooks)
- Parsing des résultats en Python

API Python

```
1 import robot
2
3 def run_tests():
4     robot.run("tests", outputdir="data", loglevel="TRACE")
```

Pattern Visitor

```
1  from robot.running import TestSuiteBuilder
2  from robot.model import SuiteVisitor
3
4  class TagsOnTestCasesFinder(SuiteVisitor):
5      def __init__(self):
6          self.tests = list()
7
8      def visit_test(self, test):
9          self.tests.append(test.name)
10
11     def list_tests():
12         builder = TestSuiteBuilder()
13         testsuite = builder.build("tests/")
14         finder = TagsOnTestCasesFinder()
15         testsuite.visit(finder)
16         for test in sorted(finder.tests):
17             print(test)
18
19     if __name__ == "__main__":
20         list_tests()
```

Listener

- Mécanisme d'envoi de notifications
- Inspection / Modification de données
- Lors de l'exécution d'un test
- Lors de l'exécution d'un keyword
- Lors de l'écriture des rapports
- `--listener`
- [Documentation Listener](#)

Listener

Exemple

```
1  """Listener that stops execution if a test fails."""
2  from robot.api import logger
3
4  ROBOT_LISTENER_API_VERSION = 2
5
6  def end_test(name, attrs):
7      if attrs["status"] == "FAIL":
8          logger.warn(f"Test '{name}' failed: {attrs['message']}")  
9          input("Press enter to continue.")
```

```
robot --listener resources/pause_listener.py tests/22-failed-test.robot
```

Bonnes pratiques



Composition de Keywords

- Passer en argument un Keyword à un Keyword
- Equivalent à passer une lambda ou un callback à une méthode Python 
- Run Keyword
- Run Keyword If
- Wait Until Keyword Succeeds

Logs

Niveaux

- TRACE : niveau le plus fin (ex : détails requête HTTP)
- DEBUG : trace de debug
- INFO : par défaut
- WARN : avertissement erreur non bloquante
- ERROR : erreur bloquante (le test s'arrête)

Logs

Définir niveau

```
1 # Augmente le niveau de logs à TRACE
2 robot --loglevel TRACE . tests
3
4 # Augmente le niveau à TRACE mais affiche par défaut en INFO
5 robot -L TRACE:INFO . tests
```



Logs

Keyword Python

```
1  from robot.api import logger
2
3  def log_from_python():
4      logger.info("Hello From Python Keyword")
```

Correlation ID

- Remplir Header X-Request-ID
- Pousser logs Robot dans Grafana
- Suivre logs des tests et applicatifs

Nommage / Découpage

- Rester générique
- Factoriser
- Donner des noms métier si possible

Documenter

- Bon nommage peut être suffisant
- Documenter les passages importants (non triviaux)

Structures avancées

- Tuple
- class
- dataclass (immutable)
- list-comprehension

Tuple

```
1 *** Test Cases ***
2 Teste Les Tuples
3     ${robots}=    Get Robots
4     Log    ${robots}
5     ${robots_type}=    Evaluate    type(${robots})
6     Log    ${robots_type}
7     Log    ${robots[0]}
8     Log    ${robots[1]}
9
10 *** Keywords ***
11 Get Robots
12     ${robots}=    Evaluate    ("R2D2", "C3PO")
13     RETURN    ${robots}
```

Dataclass

```
1  @dataclass
2  class ImmutableRobot:
3      name: str
4      color: str
5
6  # ${r2d2}=    Build Immutable Robot  R2D2  Bleue
7  # Log  ${r2d2.color}
8  def build_immutable_robot(name: str, color: str):
9      return ImmutableRobot(name, color)
```

List Comprehension

```
1 *** Settings ***
2 Library      resources/robot_helper.py
3
4
5 *** Test Cases ***
6 Teste List Comprehension
7     ${c3po}=    Build Immutable Robot    C3PO    Jaune
8     ${r2d2}=    Build Immutable Robot    R2D2    Bleue
9
10    ${robots}=   Create List    ${c3po}    ${r2d2}
11
12    # Utilisez $robots (pas ${robots}) dans les expressions Python
13    ${robots_jaunes}=   Evaluate    [r for r in $robots if r.color == "Jaune"]
```

Lire la documentation

- Guide
- Keyword

Catenate

Arguments

* items

Documentation

Catenates the given items together and returns the resulted string.

By default, items are catenated with spaces, but if the first item contains the string SEPARATOR=<sep>, the separator <sep> is used instead. Items are converted into strings when necessary.

Examples:

\${str1} =	Catenate	Hello	world	
\${str2} =	Catenate	SEPARATOR=---	Hello	world
\${str3} =	Catenate	SEPARATOR=	Hello	world

=>

```
 ${str1} = 'Hello world'  
 ${str2} = 'Hello---world'  
 ${str3} = 'Helloworld'
```

Formatteurs de code

- Robocop : Robot 
- Black : Python 
- Pre Commit (avant chaque commit Git)
- Vérification sur l'intégration continue

Terminal interactif

- fzf (fuzzy finder)
- Pattern Visitor

Terminal interactif



Gérer l'asynchronisme

- Pas de `Sleep` (attente fixe fragile et qui ralentit les tests)
- Utiliser boucle d'attente `Wait Until Keyword Succeeds`
- Utiliser `[Timeout]` sur Keyword / Test
- [Documentation Timeout](#)
- Utiliser les bons outils (`Playwright` attend par design)

```
1  *** Test Cases ***
2  Attendre Creation Fichier
3      Démarrer Batch
4          Wait Until Keyword Succeeds    2x    1s    File Should Exist    path=output.txt
5          ${fichier}    Get File    path=output.txt
6          # ... Assertion sur le fichier
7
8  *** Keywords ***
9  Démarrer Batch
10     Log    Start Batch
```

- SUITE 12-Wait Until

Full Name: 12-Wait Until
Source: /Users/remi/wk/robot-examples/tests/12-wait_until.robot
Start / End / Elapsed: 20250903 15:22:56.685 / 20250903 15:22:57.701 / 00:00:01.016
Status: 1 test total, 0 passed, 1 failed, 0 skipped

- TEST Attendre Creation Fichier

Full Name: 12-Wait Until.Attendre Creation Fichier
Start / End / Elapsed: 20250903 15:22:56.694 / 20250903 15:22:57.700 / 00:00:01.006
Status: FAIL
Message: Keyword 'File Should Exist' failed after retrying 2 times. The last error was: No keyword with name 'File Should Exist' found.

+ KEYWORD Démarrer Batch

KEYWORD BuiltIn.Wait Until Keyword Succeeds 2x 1s File Should Exist path=output.txt
Documentation: Runs the specified keyword and retries if it fails.
Start / End / Elapsed: 20250903 15:22:56.695 / 20250903 15:22:57.700 / 00:00:01.005

- KEYWORD File Should Exist path=output.txt

Start / End / Elapsed: 20250903 15:22:56.695 / 20250903 15:22:56.695 / 00:00:00.000
15:22:56.695 FAIL No keyword with name 'File Should Exist' found.

- KEYWORD File Should Exist path=output.txt

Start / End / Elapsed: 20250903 15:22:57.698 / 20250903 15:22:57.698 / 00:00:00.000
15:22:57.699 FAIL No keyword with name 'File Should Exist' found.
15:22:57.699 FAIL Keyword 'File Should Exist' failed after retrying 2 times. The last error was: No keyword with name 'File Should Exist' found.

+ KEYWORD \${fichier} = Get File path=output.txt

Gérer les erreurs

- Tenter des retry avec `Wait Until Keyword Succeeds`
- Gérer les erreurs avec `TRY/EXCEPT`
- `Fail` un test si nécessaire
- `Log` (`WARN` / `ERROR`)

Rendre plus lisible le rapport HTML

Suite

- Chaque fichier robot est une suite
- Les dossiers contenant les fichiers robot sont des suites
- Stats par suite

Tag

- Les tests peuvent être taggués
- Options CLI `--include` / `--exclude` pour filtrer
- Stats par tag

Log

- Ne pas TROP logger
- Loguer du HTML (tableau) `Log html=${True}`

Remove Keywords

```
1 # WUKS = Wait Until Keyword Succeeds  
2 robot --removekeywords PASSED --removekeywords WUKS tests/17-remove_keywords.robot
```

Remove Keywords

- SUITE 17-Remove Keywords

Full Name: 17-Remove Keywords
Source: /Users/remi/wk/robot-examples/tests/17-remove_keywords.robot
Start / End / Elapsed: 20250904 14:23:46.452 / 20250904 14:23:47.466 / 00:00:01.014
Status: 2 tests total, 1 passed, 1 failed, 0 skipped

- TEST Test Ok

Full Name: 17-Remove Keywords.Test Ok
Start / End / Elapsed: 20250904 14:23:46.461 / 20250904 14:23:46.462 / 00:00:00.001
Status: PASS

- KEYWORD All Is Ok

Start / End / Elapsed: 20250904 14:23:46.461 / 20250904 14:23:46.461 / 00:00:00.000
Message: Content removed using the --remove-keywords option.

TEST Remove Wait Until

Full Name: 17-Remove Keywords.Remove Wait Until
Start / End / Elapsed: 20250904 14:23:46.461 / 20250904 14:23:47.466 / 00:00:01.005
Status: FAIL
Message: Keyword 'File Should Exist' failed after retrying 2 times. The last error was: File '/Users/remi/wk/robot-examples/output.txt' does not exist.

= **KEYWORD** **Builtin**.Wait Until Keyword Succeeds 2x 1s File Should Exist path=output.txt

Documentation:	Runs the specified keyword and retries if it fails.
Start / End / Elapsed:	20250904 14:23:46.462 / 20250904 14:23:47.466 / 00:00:01.004
Message:	1 failing item removed using the --remove-keywords option.

- KEYWORD OperatingSystem.File Should Exist path=output.txt

Documentation:	Fails unless the given path points to an existing file.
Start / End / Elapsed:	20250904 14:23:47.464 / 20250904 14:23:47.465 / 00:00:00.001
14:23:47.465	FAIL File '/Users/remi/wk/robot-examples/output.txt' does not exist.
14:23:47.465	FAIL Keyword 'File Should Exist' failed after retrying 2 times. The la

Flatten Keywords

```
1  robot --flattenkeywords ITERATION tests/18-flatten_keywords.robot
```

Flatten Keywords

- **SUITE** 18-Flatten Keywords

Full Name: 18-Flatten Keywords
Source: /Users/remi/wk/robot-examples/tests/18-flatten_keywords.robot
Start / End / Elapsed: 20250904 14:32:21.416 / 20250904 14:32:21.428 / 00:00:00.012
Status: 1 test total, 1 passed, 0 failed, 0 skipped

- **TEST** Flatten Keywords

Full Name: 18-Flatten Keywords.Flatten Keywords
Start / End / Elapsed: 20250904 14:32:21.427 / 20250904 14:32:21.428 / 00:00:00.001
Status: PASS

- **FOR** \${index} IN RANGE 5

Start / End / Elapsed: 20250904 14:32:21.427 / 20250904 14:32:21.428 / 00:00:00.001

- **ITERATION**

Start / End / Elapsed: 20250904 14:32:21.427 / 20250904 14:32:21.427 / 00:00:00.000
Message: Content flattened.
14:32:21.427 INFO 0

+ **ITERATION**

+ **ITERATION**

+ **ITERATION**

+ **ITERATION**

rebot

- Filtre les rapports de sortie

Structure GROUP

```
1 *** Test Cases ***
2 Mon Test Avec Groupes
3     GROUP      Groupement de 2 Keywords
4         Premier Keyword
5         Deuxieme Keyword
6     END
7     Troisieme Keyword
8     Quatrieme Keyword
9
10    *** Keywords ***
11    Premier Keyword
12        Log      Keyword1
13
14    Deuxieme Keyword
15        Log      Keyword2
16
17    Troisieme Keyword
18        Log      Keyword3
19
20    Quatrieme Keyword
21        GROUP      Groupe dans un Keyword
22            Log      Keyword4
23            Log      Keyword4bis
24        END
```

GROUP

- SUITE Group	00:00:00.011
Full Name:	Group
Source:	/Users/remi/wk/robot-worksheets/tests/group.robot
Start / End / Elapsed:	20250902 16:46:13.226 / 20250902 16:46:13.237 / 00:00:00.011
Status:	1 test total, 1 passed, 0 failed, 0 skipped
- TEST Mon Test Avec Groupes	00:00:00.001
Full Name:	Group.Mon Test Avec Groupes
Start / End / Elapsed:	20250902 16:46:13.235 / 20250902 16:46:13.236 / 00:00:00.001
Status:	PASS
- GROUP Groupement de 2 Keywords	00:00:00.001
Start / End / Elapsed:	20250902 16:46:13.235 / 20250902 16:46:13.236 / 00:00:00.001
+ KEYWORD Premier Keyword	00:00:00.000
+ KEYWORD Deuxieme Keyword	00:00:00.000
+ KEYWORD Troisieme Keyword	00:00:00.000
- KEYWORD Quatrieme Keyword	00:00:00.000
Start / End / Elapsed:	20250902 16:46:13.236 / 20250902 16:46:13.236 / 00:00:00.000
- GROUP Groupe dans un Keyword	00:00:00.000
Start / End / Elapsed:	20250902 16:46:13.236 / 20250902 16:46:13.236 / 00:00:00.000
+ KEYWORD Builtin.Log Keyword4	00:00:00.000
+ KEYWORD Builtin.Log Keyword4bis	00:00:00.000

Intégration continue 🐛



- Utiliser ou Builder une image Docker
- Docker Images for Robot Framework

Github Actions

The screenshot shows a GitHub Actions JUnit Test Report for a repository named "remi-picard / robot-examples". The report details 29 tests run, with 25 passed, 0 skipped, and 4 failed. Annotations highlight specific failures related to file creation and environment variable handling.

Robot Framework Tests
on: push

test

X JUnit Test Report

GitHub Actions / JUnit Test Report
failed 2 minutes ago in 0s

29 tests run, 25 passed, 0 skipped, 4 failed.

ANNOTATIONS

- Check failure on line 1 in 12-Wait Until**
github-actions / JUnit Test Report
12-Wait Until.Attendre Creation Fichier
Keyword 'File Should Exist' failed after retrying 2 times. The last error was: File 'C:\Users\remi.picard\Documents\GitHub\remi-picard\robot-examples\output\1f0a4bb\12-Wait Until.Attendre Creation Fichier.log' does not exist.
- Check failure on line 1 in 14-Variablefile**
github-actions / JUnit Test Report
14-Variablefile.Mes Variables
Variable '\${env}' not found.
- Check failure on line 1 in 15-Variable Env**
github-actions / JUnit Test Report
15-Variable Env.Chargement Variable Env
Environment variable '%{ENV}' not found.

CI Systems / GitHub Actions

Intégration continue

- A chaque push
- Installer env python
- OU charger image Docker (évite de réinstaller les dépendances)
- Exécuter dry-run
- 💡 Ne pas lancer les tests

Tests quotidiens

- Chaque nuit
- Installer env python
- OU charger image Docker (évite de réinstaller les dépendances)
- Lancer les tests
- Publier les rapports HTML
- Effectuer un diff avec jours passés
- Notifier équipe

Tests quotidiens

Lancement via CI

-  Standard
-  Ouvertures de flux (https, bases, sftp...)
-  Publier les reports
-  https

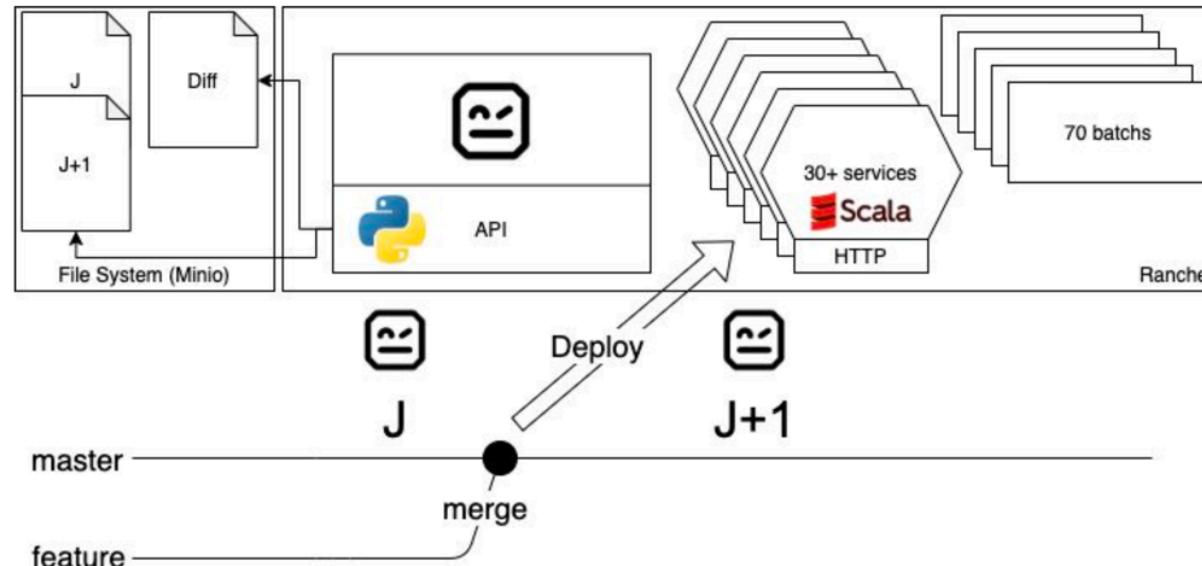
Tests quotidiens

Outils de Reporting

- [Allure](#)
- [Report Portal](#)
- [Grafana](#)
- [Robot Framework Metrics](#)
- [Robot Framework Dashboard](#)

Tests quotidiens

Lancement via K8S / API



Tests quotidiens

Lancement via K8S / API

-  File System Commun (input / output des apps, + report)
-  Lancement unitaire
-  http

Tests quotidiens

Robotdiff

Suite / Test	01/02	02/02	03/02
	2	1	2
	1 min	3 min	2 min
Account / Onboard A New Client	PASS	PASS	PASS
Error / Always Failed Test	FAIL	FAIL	FAIL
Error / Unstable Test	FAIL	PASS	FAIL
Transfer / Transfer Amount Cannot Be Negative	PASS	PASS	PASS
Transfer / Transfer Amount Cannot Be Zero	PASS	PASS	PASS
Transfer / Transfer Money Between Two Clients	PASS	PASS	PASS
Transfer / Transfer Money From Unprovisioned Account	PASS	PASS	PASS
Transfer / Transfer Money To Unknown Account	PASS	PASS	PASS

Robotdiff

Tests quotidiens

Notifications (GChat / Slack)

- Notifier SI erreurs en + par rapport à la veille



cobalt-robot-news APPLI 8 h 30
10 tests en erreur en + depuis hier !
23 erreurs sur 99 au total
[Robot Diff](#) | [Last Report](#)



3 réponses Dernière réponse il y a 3 jours



RBF Application Hier 08:30
131 tests en erreur en + depuis hier !
153 erreurs sur 175 au total
≡ [Robot Diff](#)
≡ [Last Report](#)
 1  2

Autres Usages



Usage Testeur

- Création de jeu données
- Tests semi-maniuels

Collaborer



Toolkit

Partager une partie du code

- Keywords
- Helpers

Portail Documentaire

- `libdoc` : documentation Keywords
- `libtoc` : Sidebar Keywords
- `testdoc` : documentation tests

libdoc + libtoc

minibank ↗

Search X
Keywords (3)

- Create Account
- Get Account
- Transfer Money

Library scope: GLOBAL

Introduction

HTTP calls to MiniBank API

Keywords

Create Account

Arguments

initialBalance = \${100}

Documentation

Create an account

Get Account

Arguments

iban

Documentation

Get account by iban

utils ↗

Search X
Keywords (3)

- Generate Iban
- Get Bank Code
- Has Valid Bank Code

Library scope: GLOBAL

Introduction

Documentation for library utils.

Keywords

Generate Iban

Arguments

country

Get Bank Code

Arguments

iban

Has Valid Bank Code

Arguments

iban

Generated by [Libdoc](#) on 2023-02-10T16:27:26+00:00.

Account & Error & Transfer

Generated
20230315 10:37:19 UTC+01:00
3 seconds ago

- TEST SUITE: Account & Error & Transfer
 - Full Name: Account & Error & Transfer
 - Number of Tests: 8
- + TEST SUITE: Account
- + TEST SUITE: Error
- TEST SUITE: Transfer
 - Full Name: Account & Error & Transfer.Transfer
 - Source: /Users/rpicard/wk/robotframework/rbl/robot/transfer.robot
 - Number of Tests: 5
- TEST CASE: Transfer Money
 - Full Name: Account & Error & Transfer.Transfer.Transfer Money
 - KEYWORD: \${iban1} = Create Account 100000
 - KEYWORD: \${iban2} = Create Account 0
 - KEYWORD: Transfer Money \${iban1}, \${iban2}, 1000
 - KEYWORD: \${resp} = Get Account \${iban1}
 - KEYWORD: Should Be Equal As Strings \${resp["balance"]}, 99000
 - KEYWORD: \${resp} = Get Account \${iban2}
 - KEYWORD: Should Be Equal As Strings \${resp["balance"]}, 1000
- + TEST CASE: Transfer Money To Unknown Account
- + TEST CASE: Transfer Money From Unprovisioned Account
- + TEST CASE: Transfer Amount Cannot Be Zero
- + TEST CASE: Transfer Amount Cannot Be Negative

Robotic Process Automation (RPA)

Robotic Process Automation (RPA) is similar to test automation on the technical level, but the mentality is different on the business and results side. In RPA, it is pretty standard that you are not running on a machine you control entirely, so your robot needs to be "self-sufficient" and isolated. Also, instead of finding and documenting places where robot execution fails or succeeds, **the aim is always to succeed and get the result of the process**.

- *** Test Cases *** => *** Tasks ***
- Librairies RPA (Desktop, Cloud, Scrapping...)



Jeu RPA

IA



Avantages

- Apprendre
- Prototyper
- Résoudre problématique spécifique

Avertissements

- Prendre du recul
- Perte de contrôle
- Empreinte écologique

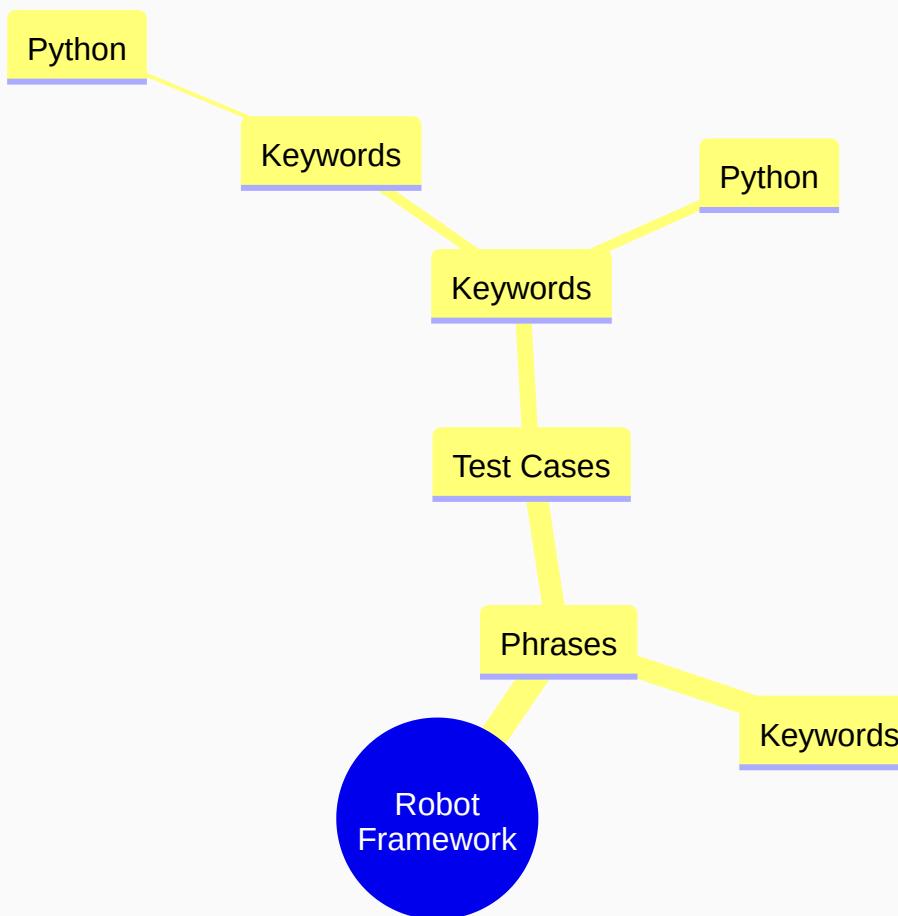
Démo Génération de code

- Claude AI (Web)
- Gemini (CLI)

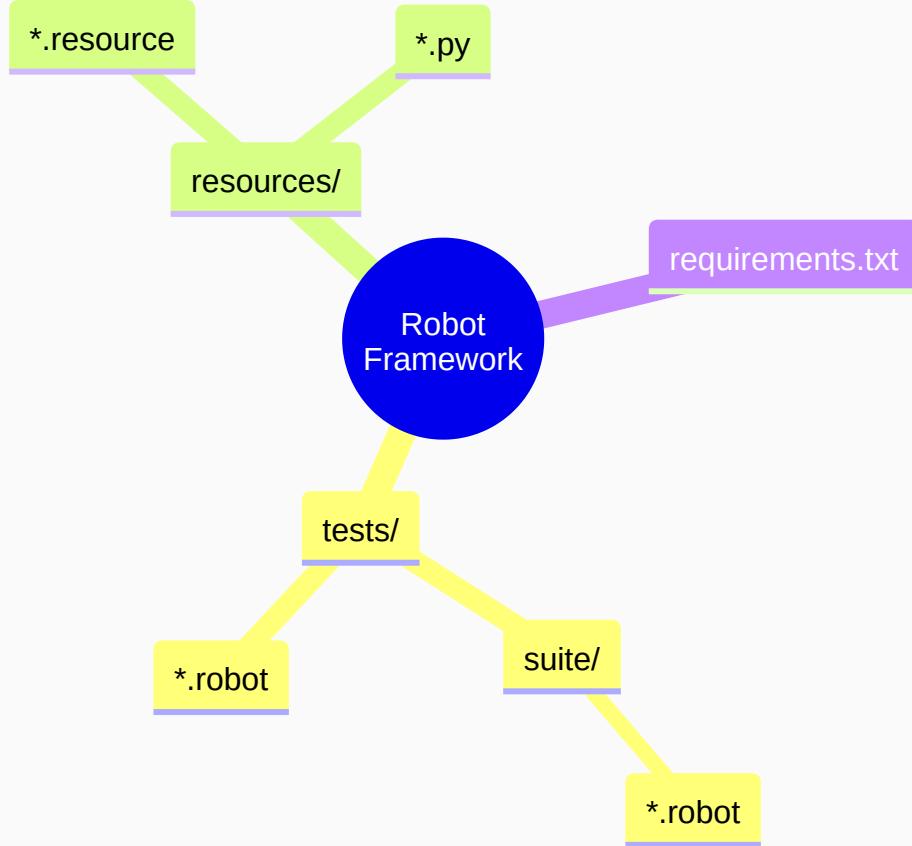
Récap



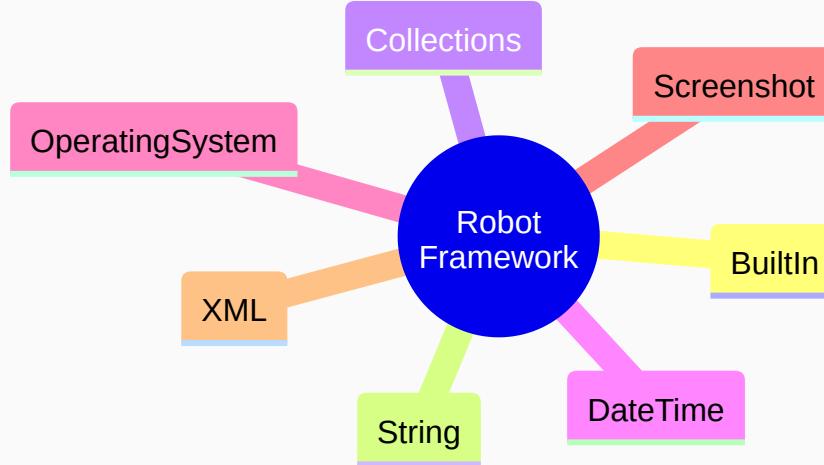
Keywords / Phrases



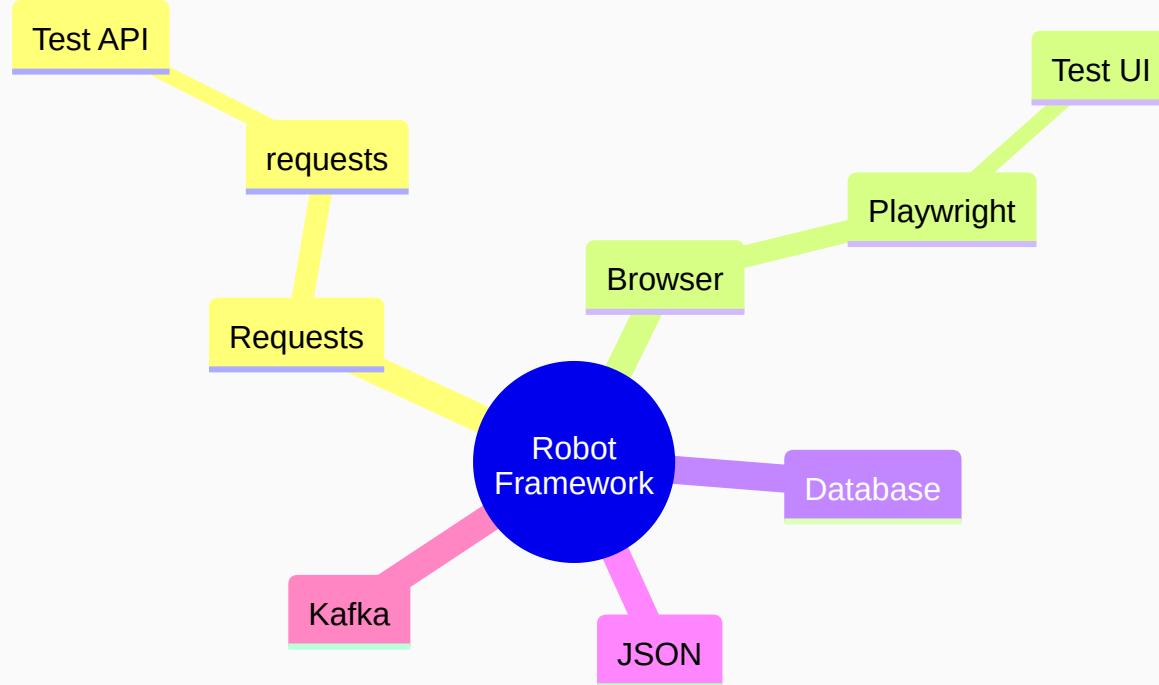
Structure projet



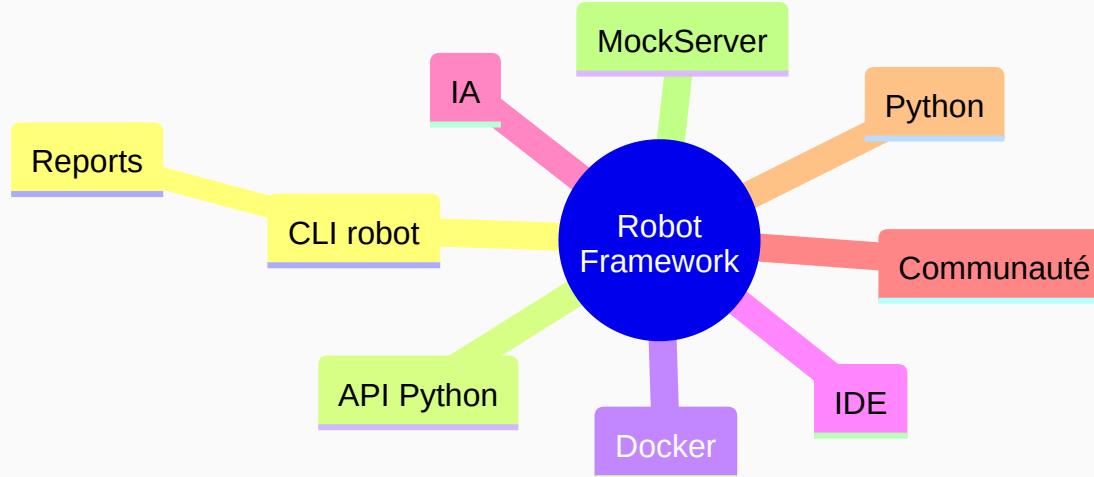
Librairies Core



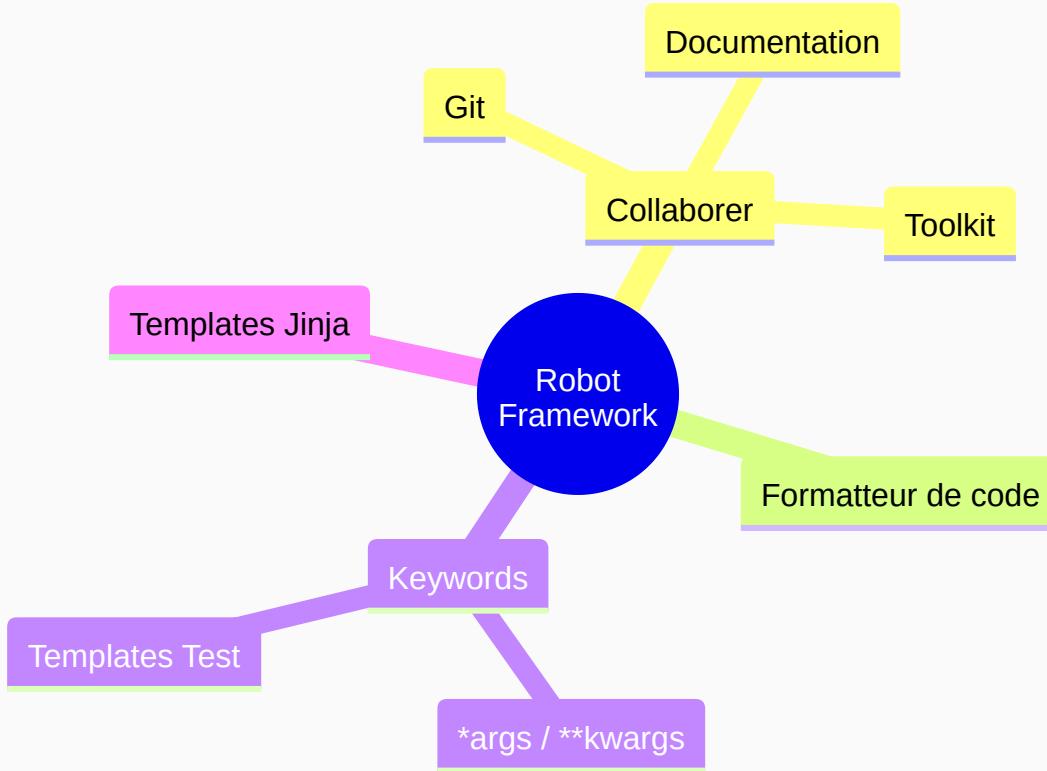
Librairies



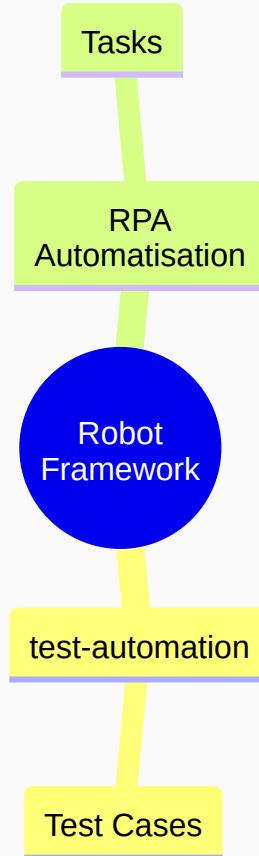
Ecosystème



Bonnes pratiques



test-automation VS RPA



Rétro



Questions & Réponses

- Merci pour votre attention. 🙏
- Bonne chance pour l'automatisation de vos tests !
- Amusez-vous bien !