

Advance Robot Framework





Somkiat Puisungnoen

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Intro

Software Craftsmanship

Software Practitioner at สยามชัมนาณกิจ พ.ศ. 2556

Agile Practitioner and Technical at SPRINT3r

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**[https://github.com/up1/course-
advance-robotframework](https://github.com/up1/course-advance-robotframework)**



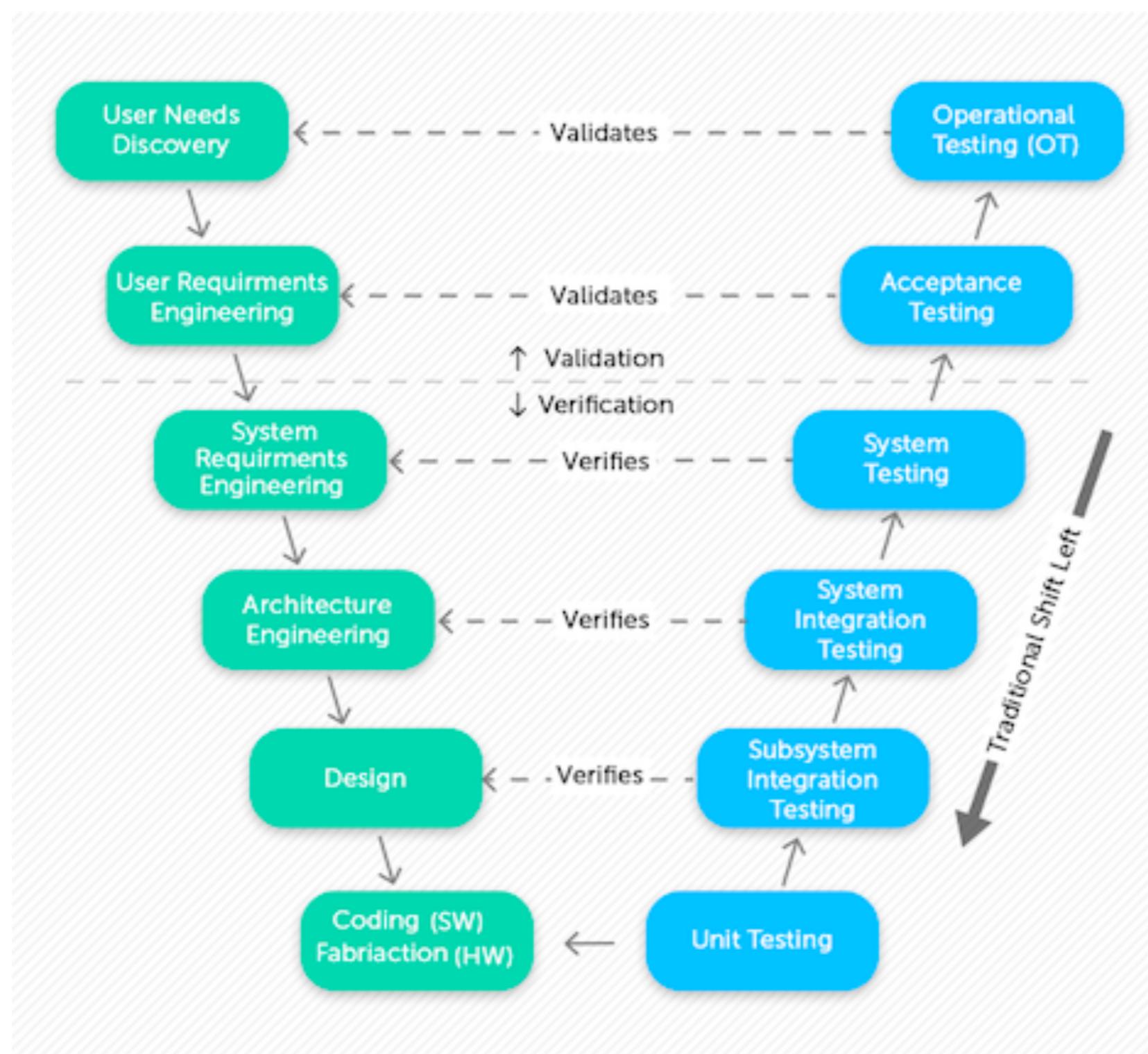
Recap RobotFramework

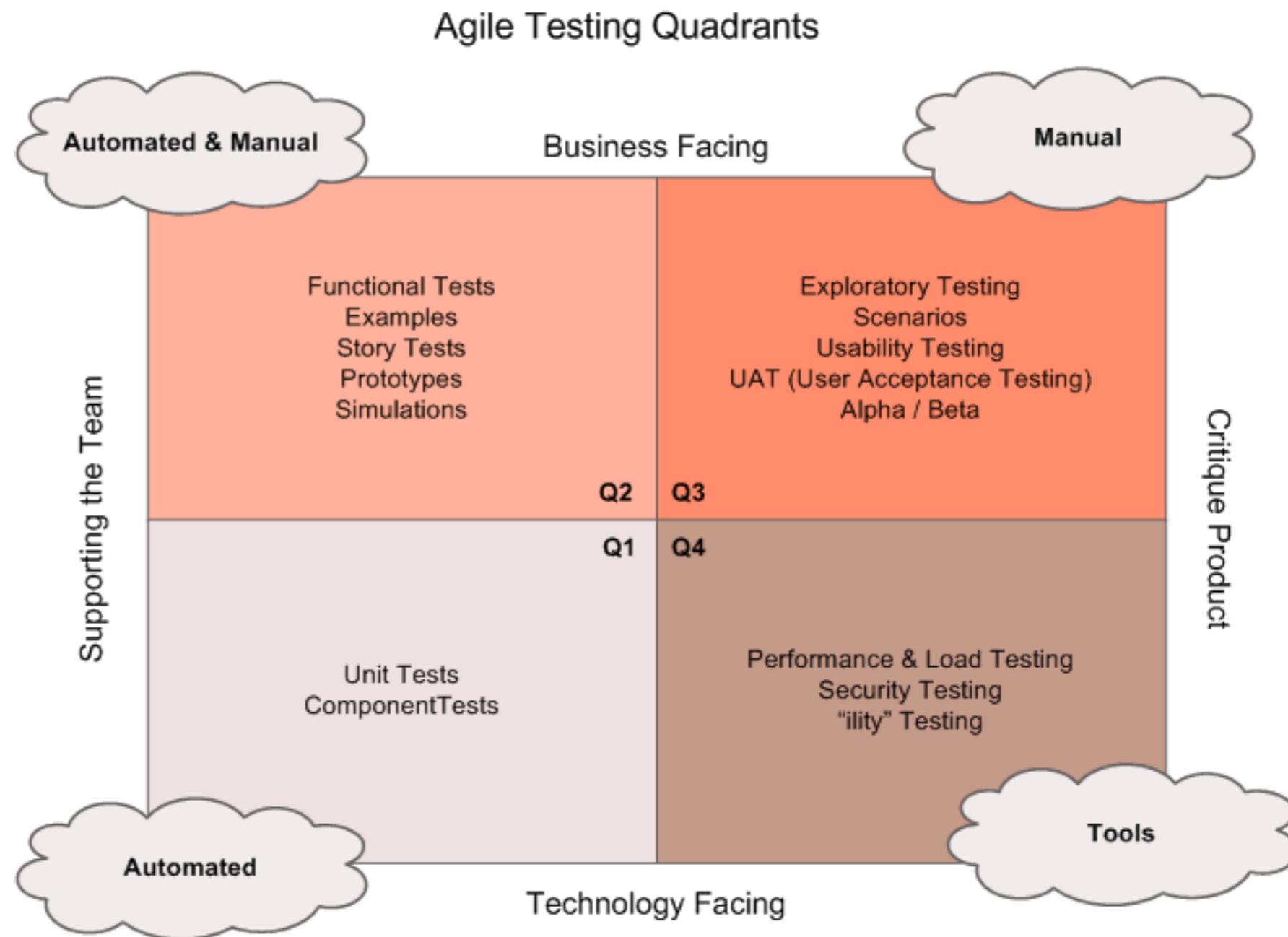


<https://robotframework.org/>

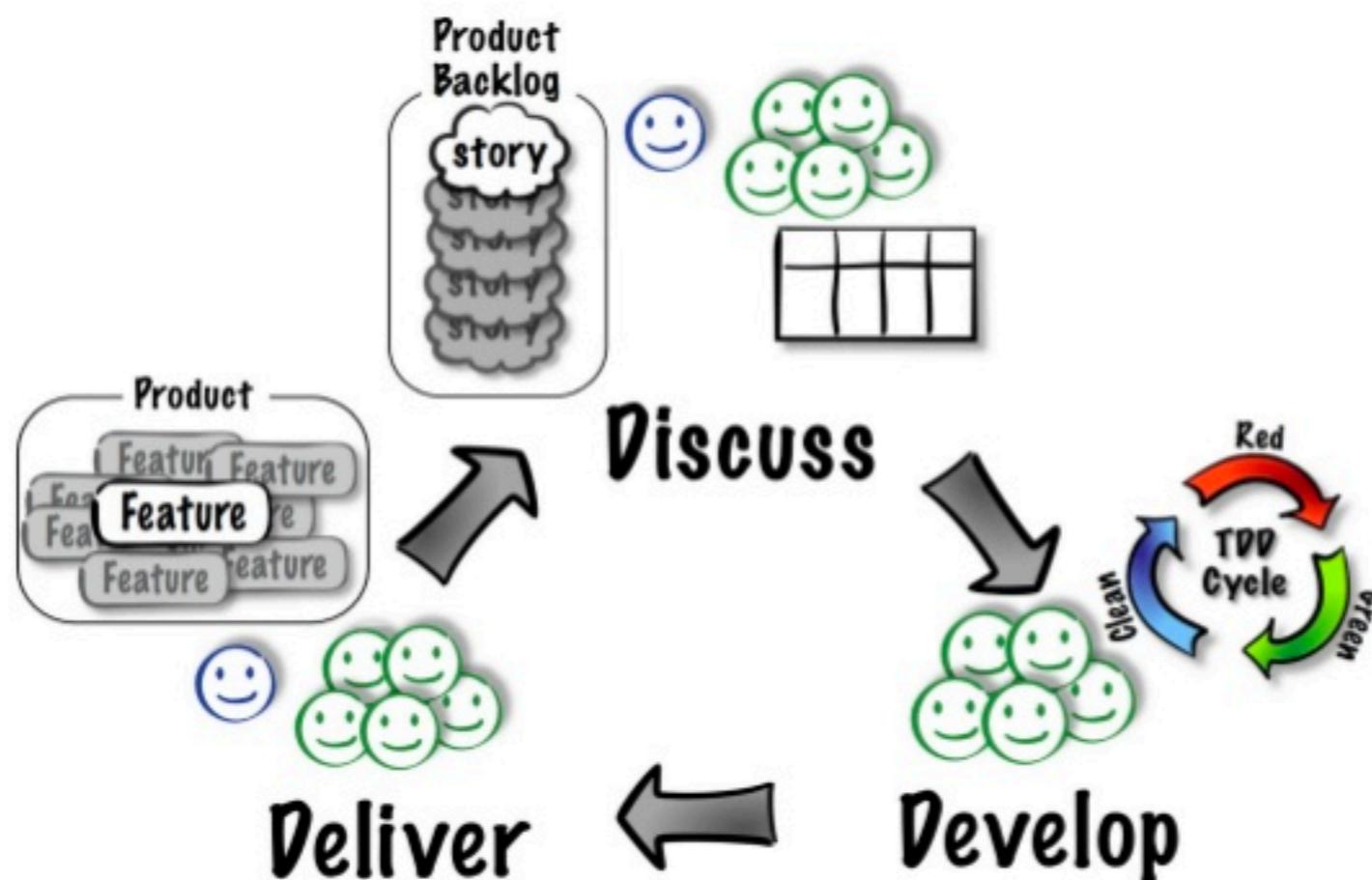








The ATDD cycle



© Image copyright Elisabeth Hendrickson



Continuous Testing







Jenkins

<https://jenkins.io/>

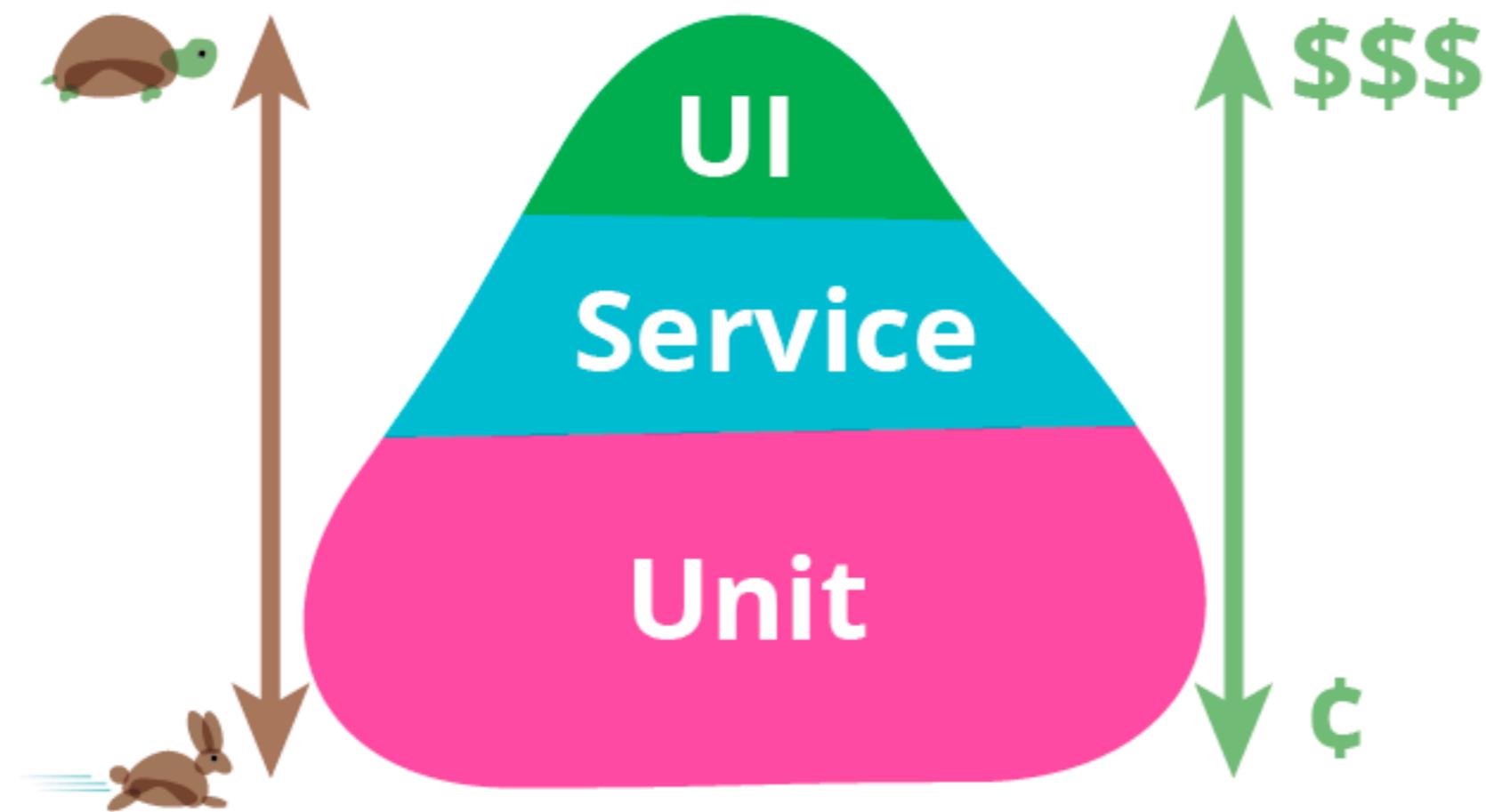


Start Jenkins

\$java -jar Jenkins.war

Open url=<http://localhost:8080> in browser





Scaling Testing

- Pabot
- Selenium Grid



Agenda day 1

- Basic of python
- How to develop test library with python ?
- Type of test library
- Scope of test library
- How to use and publish test library ?
- Workshop



Agenda day 2

- Create keywords of test library
- How to generate documentation of test library ?
- Develop dynamic test library
- Develop test library by use case
- Workshop



Create library of Robot Framework



Programming language

Python
Java



Basic of Python



OOP with Python



Types of Library

Static library

Dynamic library

Hybrid library



Static Library



Hello World (1)

Create a new library with python

```
1 *** Settings ***
2 Library    HelloWorld.py
3
4 *** Testcases ***
5 First library
6     Say Hi
7
8 Second library with argument
9     Say Hi    somkiat
```



Hello World (2)

Create file **HelloWorld.py** and method **say_hi()**

```
1  def say_hi(name = ""):  
2      print("Say hi " + name)  
3
```



Hello World (3)

\$pybot test.robot

```
=====
```

Test

```
=====
```

First library

| PASS |

Second library with argument

| PASS |

```
=====
```

Test

```
=====
```

2 critical tests, 2 passed, 0 failed

| PASS |

2 tests total, 2 passed, 0 failed

```
=====
```



Hello World (4)

See in report.html

Test Details

Totals **Tags** **Suites** **Search**

Name: Test

Status: 2 critical test, 2 passed, 0 failed
2 test total, 2 passed, 0 failed

Start / End Time: 20180603 22:28:28.540 / 20180603 22:28:28.578

Elapsed Time: 00:00:00.038

Log File: log.html#s1

Name	Documentation
Test. First library	
Test. Second library with argument	



Improve naming of Library



Improve name of library

Need to change to HelloWorld

```
1 *** Settings ***
2 Library    HelloWorld
3
4 *** Testcases ***
5 First library
6     Say Hi
7
8 Second library with argument
9     Say Hi    somkiat
```



Run with python path

```
$pybot --pythonpath . test.robot
```

```
=====
```

```
Test
```

```
=====
```

```
First library | PASS |
```

```
Second library with argument | PASS |
```

```
Test | PASS |
```

```
2 critical tests, 2 passed, 0 failed
```

```
2 tests total, 2 passed, 0 failed
```



Working with OOP



Hello World (2)

Create file **HelloWorld.py** and method **say_hi()**

```
1  class HelloWorld:  
2      def say_hi(self, name = ""):  
3          print("Say hi " + name)  
4  
5
```



Scope of test library



Scope of Test Library

TEST CASE (default)
TEST SUITE
GLOBAL



TEST CASE

Create a new instance for every test case



TEST SUITE

Create a new instance for every test suite



GLOBAL

Only one instance and shared by all test cases
and test suites



Scopes (1)

GLOBAL



Scopes (2)

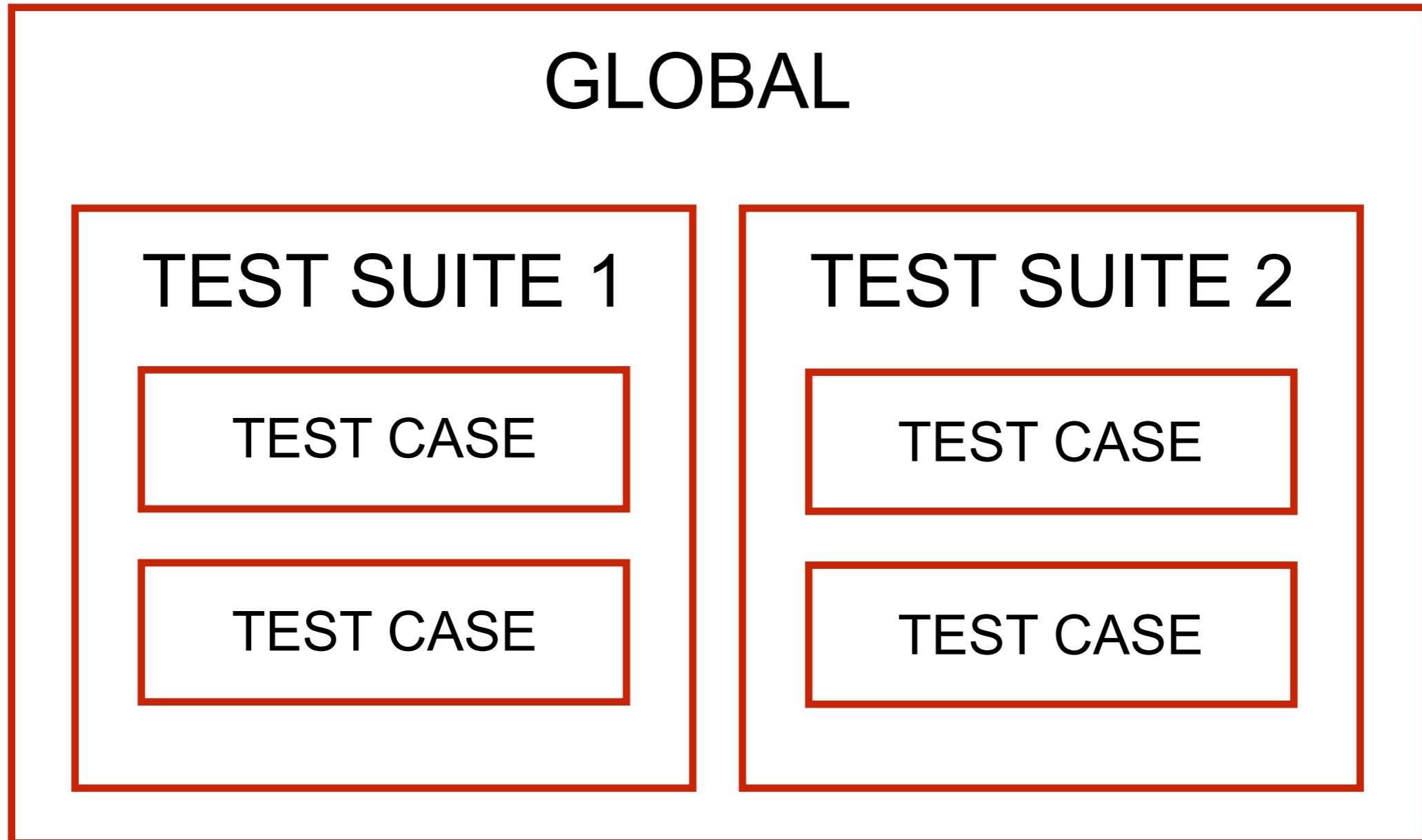
GLOBAL

TEST SUITE 1

TEST SUITE 2



Scopes (3)



Using TEST CASE scope

Create attribute ROBOT_LIBRARY_SCOPE

```
1  class HelloWorld:  
2      ROBOT_LIBRARY_SCOPE = 'TEST CASE'  
3  
4      def __init__(self):  
5          self.name = "Noname"  
6  
7      def say_hi(self):  
8          print("Say hi " + self.name)  
9  
10     def say_hi2(self, name):  
11         self.name = name  
12         print("Say hi " + self.name)  
13
```



My test cases

```
1 *** Settings ***
2 Library    HelloWorld
3
4 *** Testcases ***
5 First library
6     Say Hi
7
8 Second library with argument
9     Say Hi2    somkiat
10
11 Third library
12     Say Hi
```



Run with python path

- TEST First library

Full Name: Test.First library
Start / End / Elapsed: 20180603 23:22:02.490 / 20180603 23:22:02.491 / 00:00:00.001
Status: PASS (critical)

- KEYWORD HelloWorld.Say Hi

Start / End / Elapsed: 20180603 23:22:02.491 / 20180603 23:22:02.491 / 00:00:00.000
23:22:02.491 INFO Say hi Noname

Name = “Noname”

- TEST Second library with argument

Full Name: Test.Second library with argument
Start / End / Elapsed: 20180603 23:22:02.492 / 20180603 23:22:02.493 / 00:00:00.001
Status: PASS (critical)

- KEYWORD HelloWorld.Say Hi2 somkiat

Start / End / Elapsed: 20180603 23:22:02.492 / 20180603 23:22:02.493 / 00:00:00.001
23:22:02.492 INFO Say hi somkiat

Name = “somkiat”

- TEST Third library

Full Name: Test.Third library
Start / End / Elapsed: 20180603 23:22:02.493 / 20180603 23:22:02.494 / 00:00:00.001
Status: PASS (critical)

- KEYWORD HelloWorld.Say Hi

Start / End / Elapsed: 20180603 23:22:02.494 / 20180603 23:22:02.494 / 00:00:00.000
23:22:02.494 INFO Say hi Noname

Name = “Noname”



Using TEST SUITE scope

```
1  class HelloWorld:  
2      ROBOT_LIBRARY_SCOPE = 'TEST SUITE'  
3  
4      def __init__(self):  
5          self.name = "Noname"  
6  
7      def say_hi(self):  
8          print("Say hi " + self.name)  
9  
10     def say_hi2(self, name):  
11         self.name = name  
12         print("Say hi " + self.name)
```



Run with python path

-	TEST First library
Full Name:	Test.First library
Start / End / Elapsed:	20180603 23:16:43.825 / 20180603 23:16:43.826 / 00:00:00.001
Status:	PASS (critical)
-	KEYWORD HelloWorld.Say Hi
Start / End / Elapsed:	20180603 23:16:43.825 / 20180603 23:16:43.826 / 00:00:00.001 23:16:43.826 INFO Say hi Noname
Name = “Noname”	
-	TEST Second library with argument
Full Name:	Test.Second library with argument
Start / End / Elapsed:	20180603 23:16:43.826 / 20180603 23:16:43.827 / 00:00:00.001
Status:	PASS (critical)
-	KEYWORD HelloWorld.Say Hi2 somkiat
Start / End / Elapsed:	20180603 23:16:43.827 / 20180603 23:16:43.827 / 00:00:00.000 23:16:43.827 INFO Say hi somkiat
Name = “somkiat”	
-	TEST Third library
Full Name:	Test.Third library
Start / End / Elapsed:	20180603 23:16:43.828 / 20180603 23:16:43.829 / 00:00:00.001
Status:	PASS (critical)
-	KEYWORD HelloWorld.Say Hi
Start / End / Elapsed:	20180603 23:16:43.828 / 20180603 23:16:43.828 / 00:00:00.000 23:16:43.828 INFO Say hi somkiat
Name = “somkiat”	



Using GLOBAL scope

```
1  class HelloWorld:  
2      ROBOT_LIBRARY_SCOPE = 'GLOBAL'  
3  
4      def __init__(self):  
5          self.name = "Noname"  
6  
7      def say_hi(self):  
8          print("Say hi " + self.name)  
9  
10     def say_hi2(self, name):  
11         self.name = name  
12         print("Say hi " + self.name)  
13
```



Run with python path

-	TEST First library	
Full Name:	Test.First library	
Start / End / Elapsed:	20180603 23:16:43.825 / 20180603 23:16:43.826 / 00:00:00.001	
Status:	PASS (critical)	
-	KEYWORD HelloWorld.Say Hi	
Start / End / Elapsed:	20180603 23:16:43.825 / 20180603 23:16:43.826 / 00:00:00.001 23:16:43.826 INFO Say hi Noname	Name = "Noname"
-	TEST Second library with argument	
Full Name:	Test.Second library with argument	
Start / End / Elapsed:	20180603 23:16:43.826 / 20180603 23:16:43.827 / 00:00:00.001	
Status:	PASS (critical)	
-	KEYWORD HelloWorld.Say Hi2 somkiat	
Start / End / Elapsed:	20180603 23:16:43.827 / 20180603 23:16:43.827 / 00:00:00.000 23:16:43.827 INFO Say hi somkiat	Name = "somkiat"
-	TEST Third library	
Full Name:	Test.Third library	
Start / End / Elapsed:	20180603 23:16:43.828 / 20180603 23:16:43.829 / 00:00:00.001	
Status:	PASS (critical)	
-	KEYWORD HelloWorld.Say Hi	
Start / End / Elapsed:	20180603 23:16:43.828 / 20180603 23:16:43.828 / 00:00:00.000 23:16:43.828 INFO Say hi somkiat	Name = "somkiat"



Run with another test suite

Create new test suite => test2.robot

```
1 *** Settings ***
2 Library    HelloWorld
3
4 *** Testcases ***
5 Another test case
6 Say Hi
```



Run with python path

\$pybot --pythonpath *.robot

- SUITE Test2

Full Name:	Test & Test2.Test2
Source:	/Users/somkiat/data/slide/robot-framework/advanc
Start / End / Elapsed:	20180603 23:31:04.939 / 20180603 23:31:04.942
Status:	1 critical test, 1 passed, 0 failed 1 test total, 1 passed, 0 failed

- TEST Another test case

Full Name:	Test & Test2.Test2.Another test case
Start / End / Elapsed:	20180603 23:31:04.941 / 20180603 23:31:04.942
Status:	PASS (critical)

- KEYWORD HelloWorld.Say Hi

Start / End / Elapsed:	20180603 23:31:04.941 / 20180603 23:31:04.942
23:31:04.942	INFO Say hi somkiat

Name = "somkiat"



Publish Library



Publish Library

Git provider => Github
pypi.org



Publish Library with pypi.org



<https://packaging.python.org/guides/migrating-to-pypi-org/#uploading>



Step 1

Register account at <https://pypi.org/>

Help Donate Log in Register

Find, install and publish Python packages
with the Python Package Index

Search projects

Or browse projects

140,809 projects 985,505 releases 1,320,823 files 279,892 users

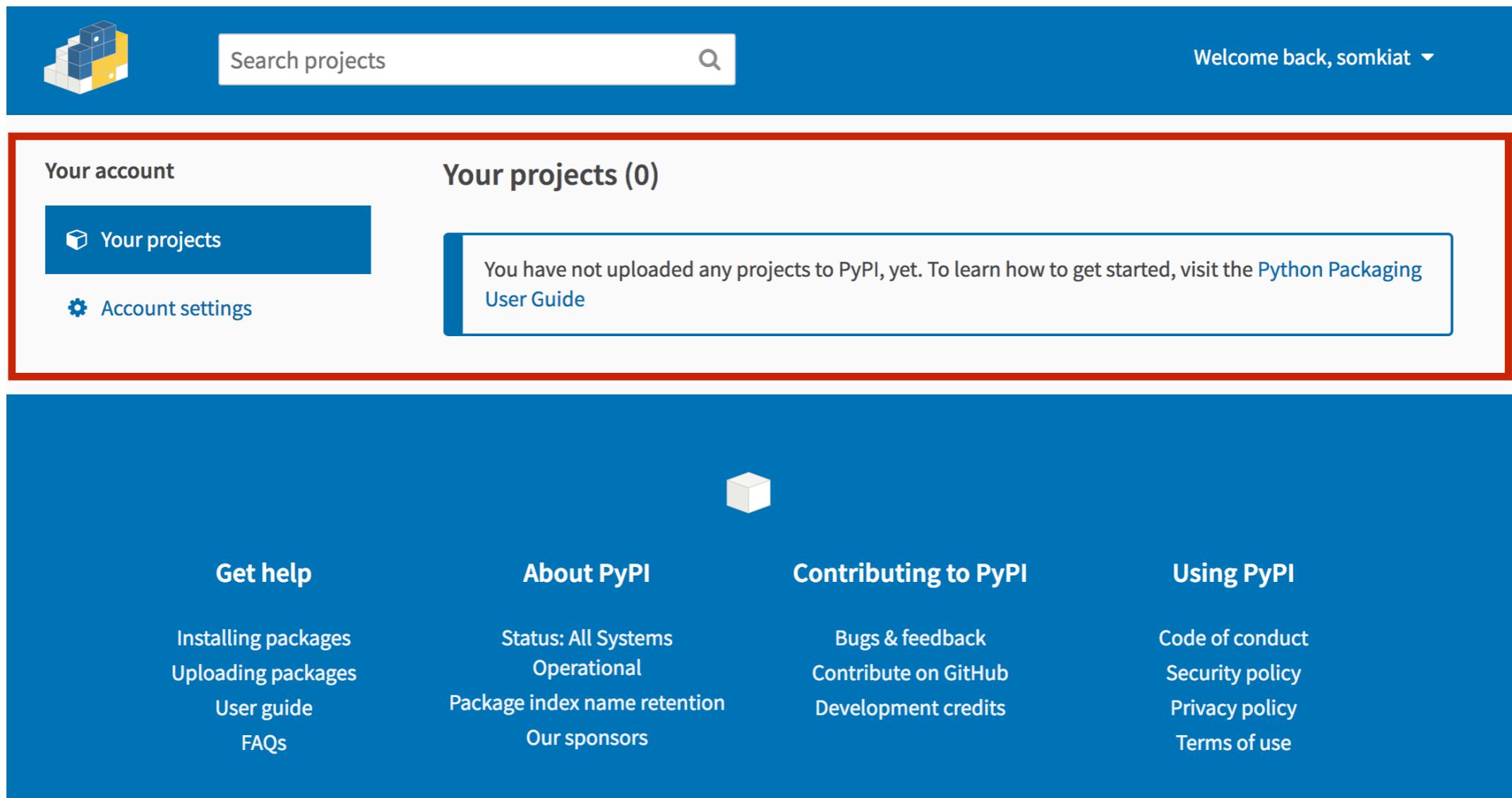
python™
Package
Index

The Python Package Index (PyPI) is a repository of software for the Python programming language. PyPI helps you find and install software developed and shared by the Python community. [Learn about installing packages.](#)



Step 2

Verify and see your project



The screenshot shows the PyPI account dashboard. At the top, there is a blue header with a logo, a search bar containing "Search projects", and a welcome message "Welcome back, somkiat ▾". Below the header, there are two main sections: "Your account" on the left and "Your projects (0)" on the right. The "Your account" section contains links for "Your projects" (which is highlighted with a red border) and "Account settings". The "Your projects (0)" section contains a message: "You have not uploaded any projects to PyPI, yet. To learn how to get started, visit the [Python Packaging User Guide](#)". At the bottom of the page, there is a footer with four columns: "Get help", "About PyPI", "Contributing to PyPI", and "Using PyPI". Each column lists several links related to its category.

Get help	About PyPI	Contributing to PyPI	Using PyPI
Installing packages	Status: All Systems Operational	Bugs & feedback	Code of conduct
Uploading packages	Package index name retention	Contribute on GitHub	Security policy
User guide	Our sponsors	Development credits	Privacy policy
FAQs			Terms of use



Step 3

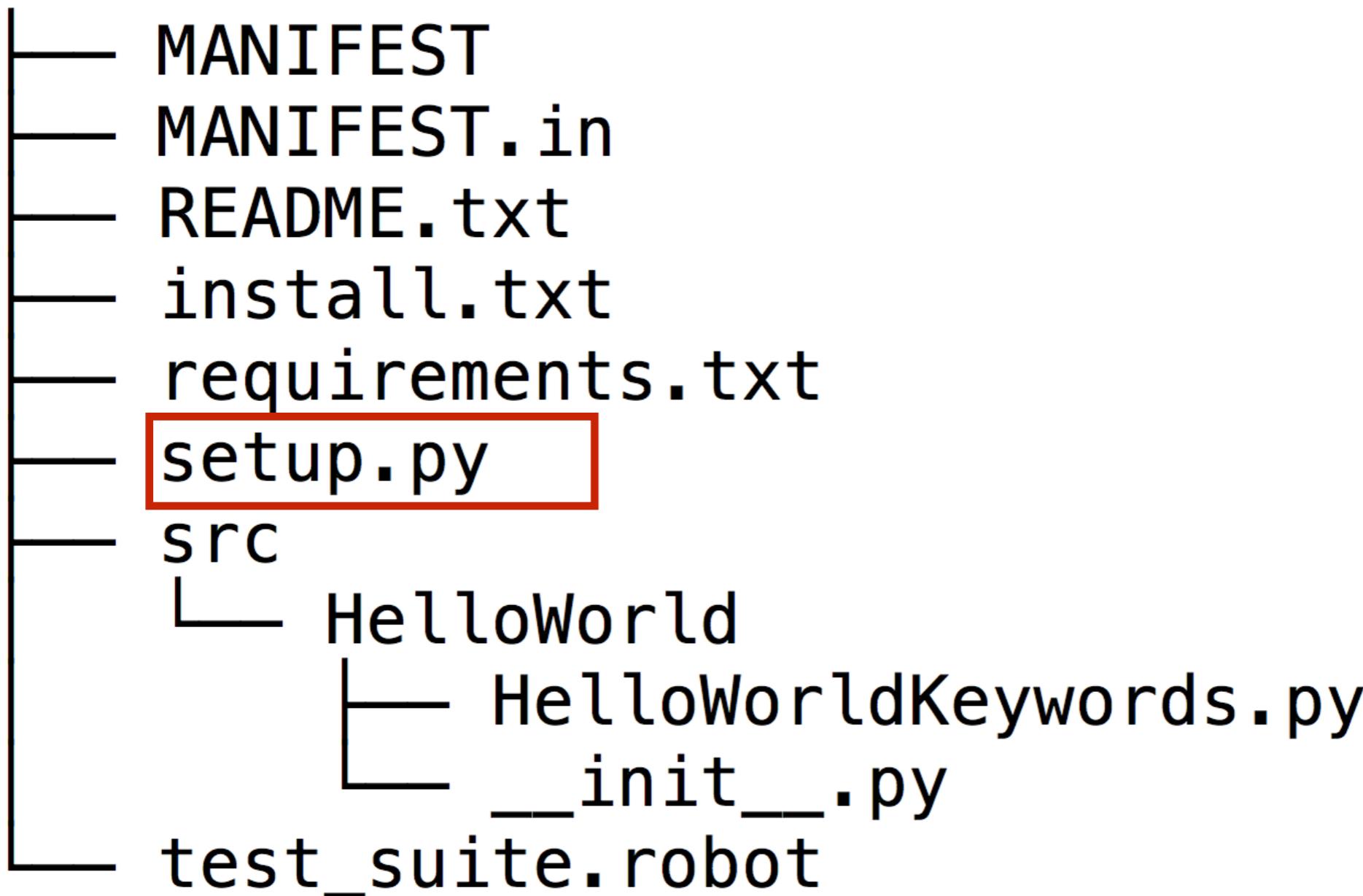
Start to develop your package

```
├── MANIFEST  
├── MANIFEST.in  
├── README.txt  
├── install.txt  
├── requirements.txt  
├── setup.py  
└── src  
    └── HelloWorld  
        ├── HelloWorldKeywords.py  
        └── __init__.py  
└── test_suite.robot
```



Step 4 (1)

Create file `setup.py` to configure test library



Step 4 (2)

Specify name and version of library

```
1 from setuptools import setup
2
3 setup(
4     name="helloworld-library",
5     version='0.1',
6     package_dir={'': 'src'},
7     packages=['HelloWorld'],
8     url='https://github.com/up1/demo-helloworld-library',
9     author='Somkiat',
10    author_email='somkiat.p@gmail.com',
11 )
```



Step 4 (3)

Specify package structure and name

```
1 from setuptools import setup
2
3 setup(
4     name="helloworld-library",
5     version='0.1',
6     package_dir={'': 'src'},
7     packages=['HelloWorld'],
8     url='https://github.com/up1/demo-helloworld-library',
9     author='Somkiat',
10    author_email='somkiat.p@gmail.com',
11 )
```



Step 4 (4)

Required metadata of test library

```
1 from setuptools import setup  
2  
3 setup(  
4     name="helloworld-library",  
5     version='0.1',  
6     package_dir={'': 'src'},  
7     packages=['HelloWorld'],  
8     url='https://github.com/up1/demo-helloworld-library',  
9     author='Somkiat',  
10    author_email='somkiat.p@gmail.com',  
11 )
```



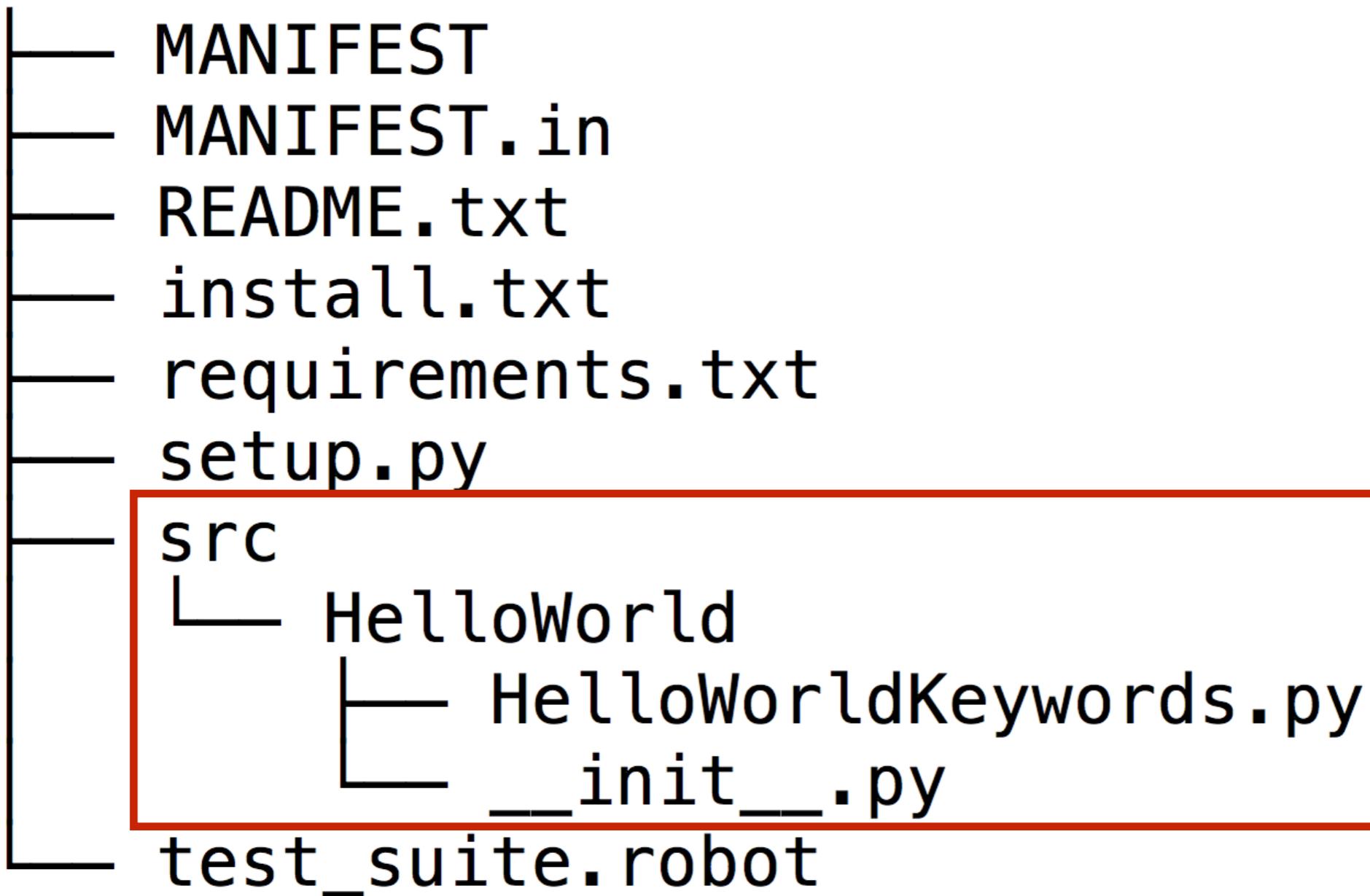
Step 5

Develop HelloWorld library



Structure of package

Create directory src/HelloWorld



Define keywords of library

Create file HelloWorldKeywords.py

```
1  class HelloWorldKeywords(object):
2      def __init__(self):
3          self.name = "Noname"
4
5      def say_hi(self):
6          print("Say hi " + self.name)
7
8      def say_hi2(self, name):
9          self.name = name
10         print("Say hi " + self.name)
11
```



Define keywords of library

Create file `__init__.py`

```
1  from HelloWorldKeywords import HelloWorldKeywords  
2  
3  class HelloWorld(HelloWorldKeywords):  
4      ROBOT_LIBRARY_SCOPE = 'TEST_CASE'  
5
```



Step 6

Publish library to pypi.org



Create file `~/.pypirc`

Configuration for publish library to pypi.org

```
1 [distutils]
2 index-servers =
3   pypi
4
5 [pypi]
6 #repository=https://pypi.python.org/pypi
7 username=<your username>
8 password=<your password>
```



Publish library to pypi.org

```
$pip install -U pip setuptools twine
```

```
$python setup.py sdist
```

```
$twine upload dist/*
```

```
Writing helloworld-library-0.2/setup.cfg
```

```
Creating tar archive
```

```
removing 'helloworld-library-0.2' (and everything under it)
```

```
Uploading distributions to https://upload.pypi.org/legacy/
```

```
Uploading helloworld-library-0.2.tar.gz
```

```
100%|██████████| 3.54k/3.54k [00:01<00:00, 2.86kB/s]
```



Check your library (1)

Go to pypi.org

The screenshot shows the PyPI (Python Package Index) website interface. At the top, there is a blue header bar with a logo on the left, a search bar containing "Search projects" with a magnifying glass icon, and a welcome message "Welcome back, somkiat ▾" on the right. Below the header, the main content area has two sections: "Your account" on the left and "Your projects (1)" on the right. The "Your account" section contains two buttons: "Your projects" (which is highlighted in blue) and "Account settings". The "Your projects (1)" section displays a single project card for "helloworld-library", which was last released on Jun 3, 2018. The card includes a small cube icon, the project name, the release date, and two buttons: "Manage" (in blue) and "View".



Check your library (2)

helloworld-library 0.1

pip install helloworld-library 

Latest version  Last released: About 5 hours ago.

No project description provided [Manage project](#)

Navigation

- [Project description](#)
- [Release history](#)
- [Download files](#)

Project links

- [Homepage](#)

Project description

The author of this package has not provided a project description



Use HelloWorld library

```
$pip install helloworld-library
```

```
Collecting helloworld-library
```

```
  Downloading https://files.pythonhosted.org/packages/8f/a2  
92e220deb5cb908b1d6f358f1d36e8e8307e9211a8c382b91a0225/hell  
library-0.2.tar.gz
```

```
Building wheels for collected packages: helloworld-library
```

```
  Running setup.py bdist_wheel for helloworld-library ... c
```

```
  Stored in directory: /Users/somkiat/Library/Caches/pip/wk  
/b4/6b/db550e3f32243f1d2397f064d34ed13b3178cb7b90b29f4c5e
```

```
Successfully built helloworld-library
```

```
Installing collected packages: helloworld-library
```

```
Successfully installed helloworld-library-0.2
```



Use HelloWorld library

```
1 *** Settings ***
2 Library    HelloWorld
3
4 *** Testcases ***
5 First library
6     Say Hi
7
8 Second library with argument
9     Say Hi2    somkiat
10
```

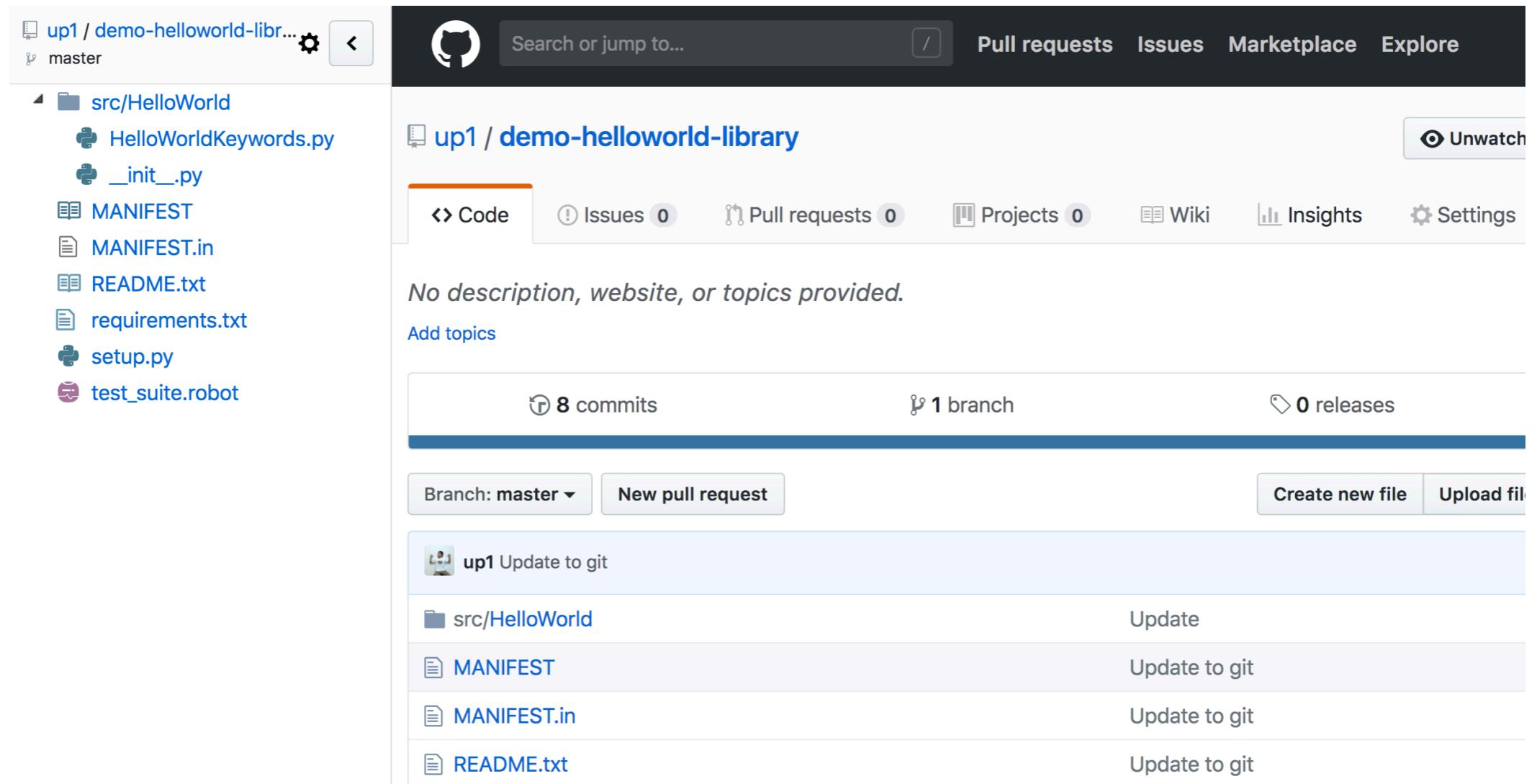


Publish Library with github



Publish library to github

1. Push your code to your Github repository



<https://github.com/up1/demo-helloworld-library>



Advance Robot Framework

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2. Install library from Github (1)

\$pip install -r requirements.txt

\$pip uninstall -r requirements.txt

git+https://github.com/up1/demo-helloworld-library.git#egg=helloworld-library



Name of library



2. Install library from Github (2)

\$pip install -r requirements.txt

```
Collecting helloworld-library from git+https://github.com/up1  
library.git#egg=helloworld-library (from -r requirements.txt  
  Cloning https://github.com/up1/demo-helloworld-library.git  
    Olders/t5/8kg23s_97z9dw44tfc1d6dqw0000gn/T/pip-install-d20dok  
      rary
```

```
Building wheels for collected packages: helloworld-library  
  Running setup.py bdist_wheel for helloworld-library ... done  
  Stored in directory: /private/var/folders/t5/8kg23s_97z9dw4  
T/pip-ephem-wheel-cache-svb7x4pk/wheels/6e/77/72/2c1098f915d8  
e47d24d0c0f106fe5b667
```

```
Successfully built helloworld-library  
Installing collected packages: helloworld-library  
Successfully installed helloworld-library-0.2
```



How to generate document of test library ?

<http://robotframework.org/robotframework/latest/RobotFrameworkUserGuide.html#specifying-documentation-format>



Generate document of library

Robotframework 2.7.5+ use **Libdoc** to generate the documentation of library

<http://robotframework.org/robotframework/latest/RobotFrameworkUserGuide.html#libdoc>



Support formats

ROBOT (default)

HTML

TEXT (plain text)

reST (reStructuredText)



How to use ?

Example with ROBOT format

```
1 from HelloWorldKeywords import HelloWorldKeywords
2
3 class HelloWorld(HelloWorldKeywords):
4
5     """ A keyword library for Robot Framework. It provides keywords for
6     learning how to create a new library. For more information
7     on underlying methods and documentation, see:
8         http://eclipse.org/paho/clients/python/docs/
9     """
10
11     ROBOT_LIBRARY_SCOPE = 'TEST_CASE'
12 |
```



How to use ?

Document in each keyword

```
5      def say_hi(self):
6          """ Say hi with out argument
7          Examples:
8          | Say Hi |
9          """
10         print("Say hi " + self.name)
11
12         def say_hi2(self, name):
13             """ Say hi with a argument.
14             `name` Your name
15             Examples:
16             Say hi  <name>
17             | Say Hi | somkiat |
18             """
19             self.name = name
20             print("Say hi " + self.name)
```



Generate documentation

```
$pip install -U helloworld-library
```

```
$python -m robot.libdoc HelloWorld ./docs/  
HelloWorld-Library.html
```



Documentation of Library (1)

HelloWorld

Library scope: test case

Named arguments: supported

Introduction

A keyword library for Robot Framework. It provides keywords for learning how to create a new library. For more information on underlying

Shortcuts

Say Hi · Say Hi2

Keywords

Keyword	Arguments	
Say Hi		Say hi with out argument Examples: <code>Say Hi</code>
Say Hi2	<i>name</i>	Say hi with a argument. <i>name</i> Your name Examples <code>Say Hi somkiat</code>

Altogether 2 keywords.

Generated by [Libdoc](#) on 2018-06-04 00:34:08.



Documentation of Library (2)

HelloWorld

Library scope: test case
Named arguments: supported

Introduction

A keyword library for Robot Framework. It provides keywords for learning how to create a new library. For more information on underlying

Shortcuts

Say Hi · Say Hi2

Keywords

Keyword	Arguments	
Say Hi		Say hi with out argument Examples: Say Hi
Say Hi2	name	Say hi with a argument. <i>name</i> Your name Examples Say Hi somkiat

Altogether 2 keywords.

Generated by [Libdoc](#) on 2018-06-04 00:34:08.



Create keywords of test library

