

# Advance Robot Framework





Somkiat Puisungnoen

Somkiat Puisungnoen

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Intro

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



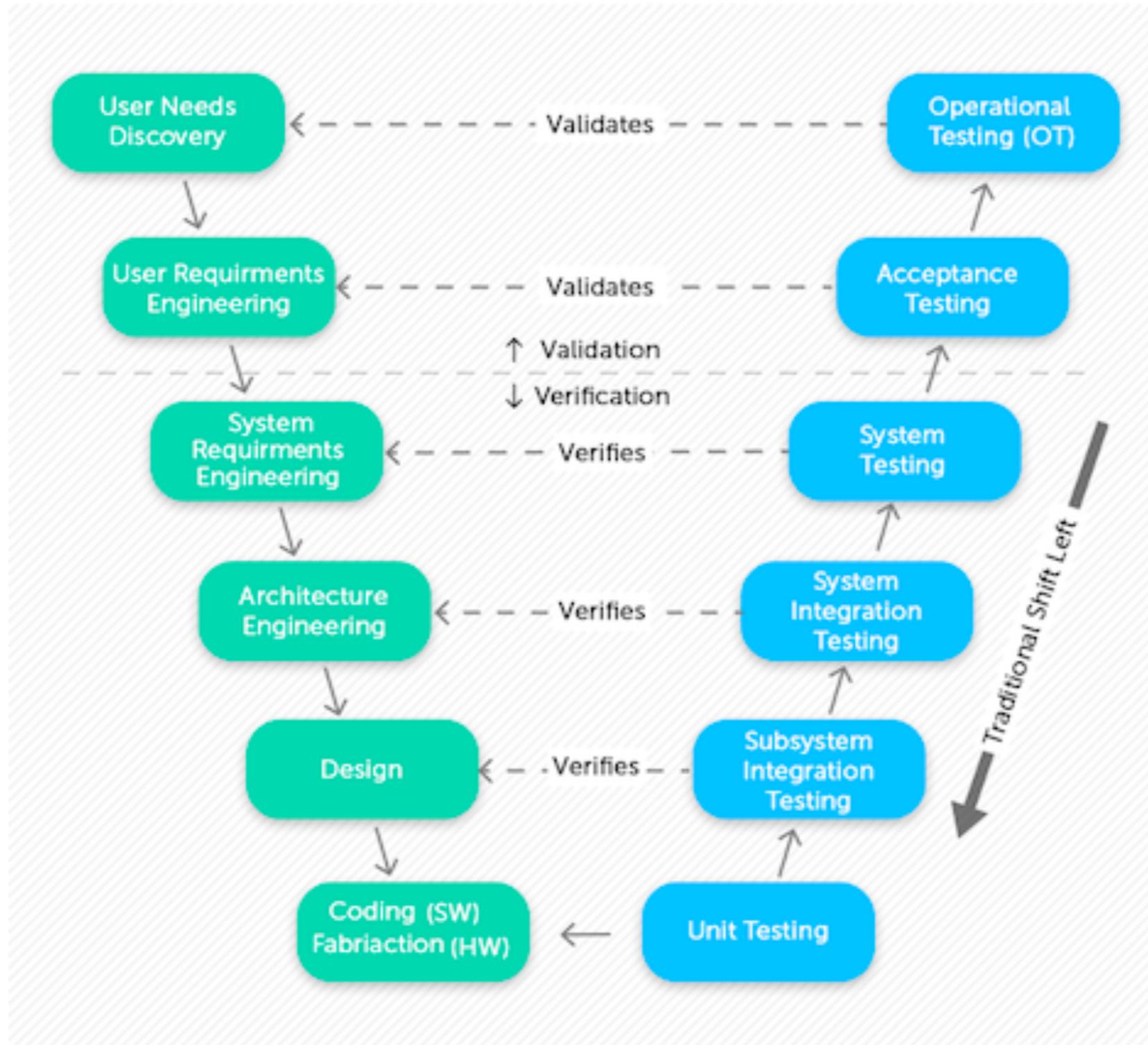
# Recap RobotFramework

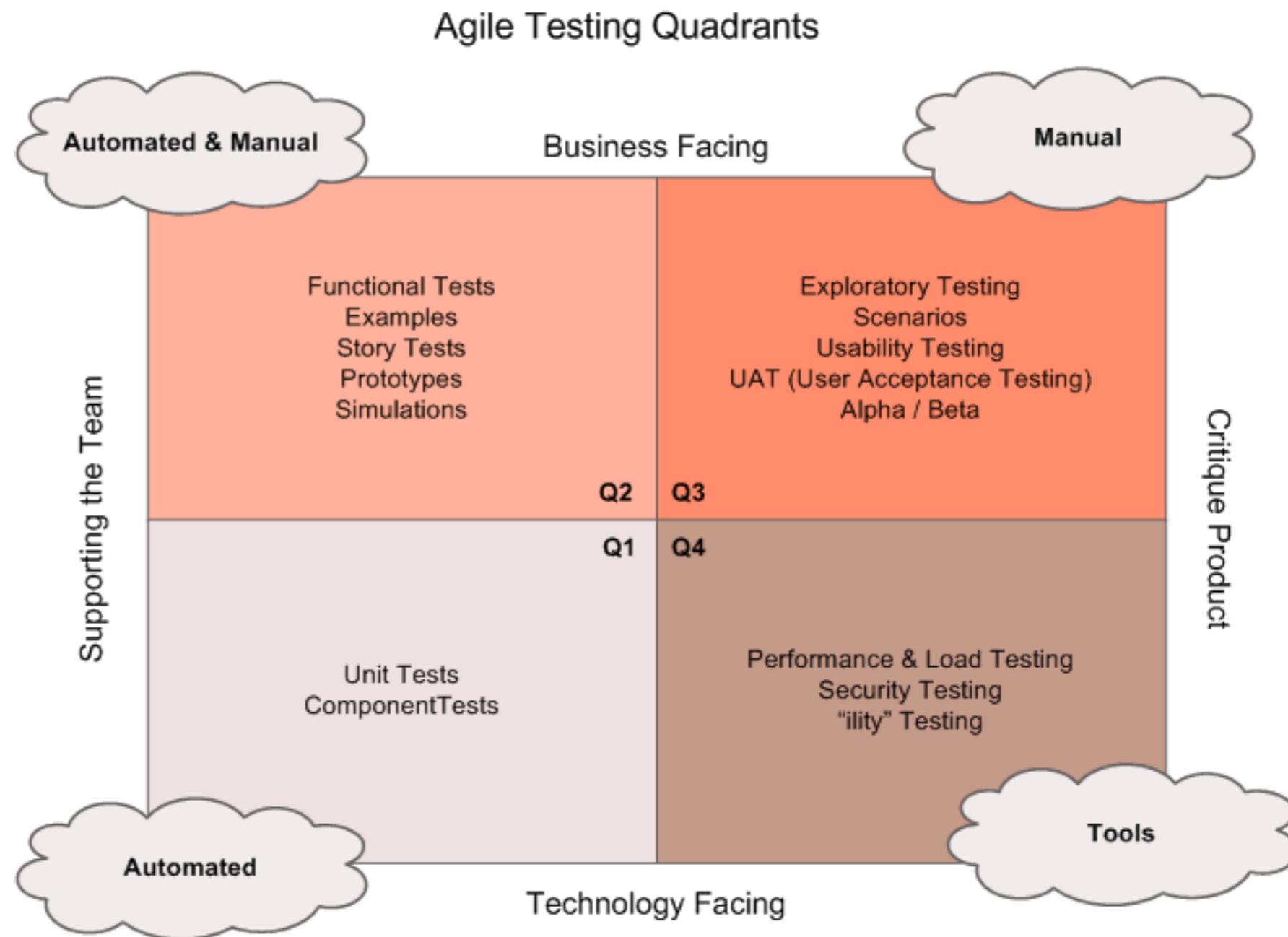


<https://robotframework.org/>

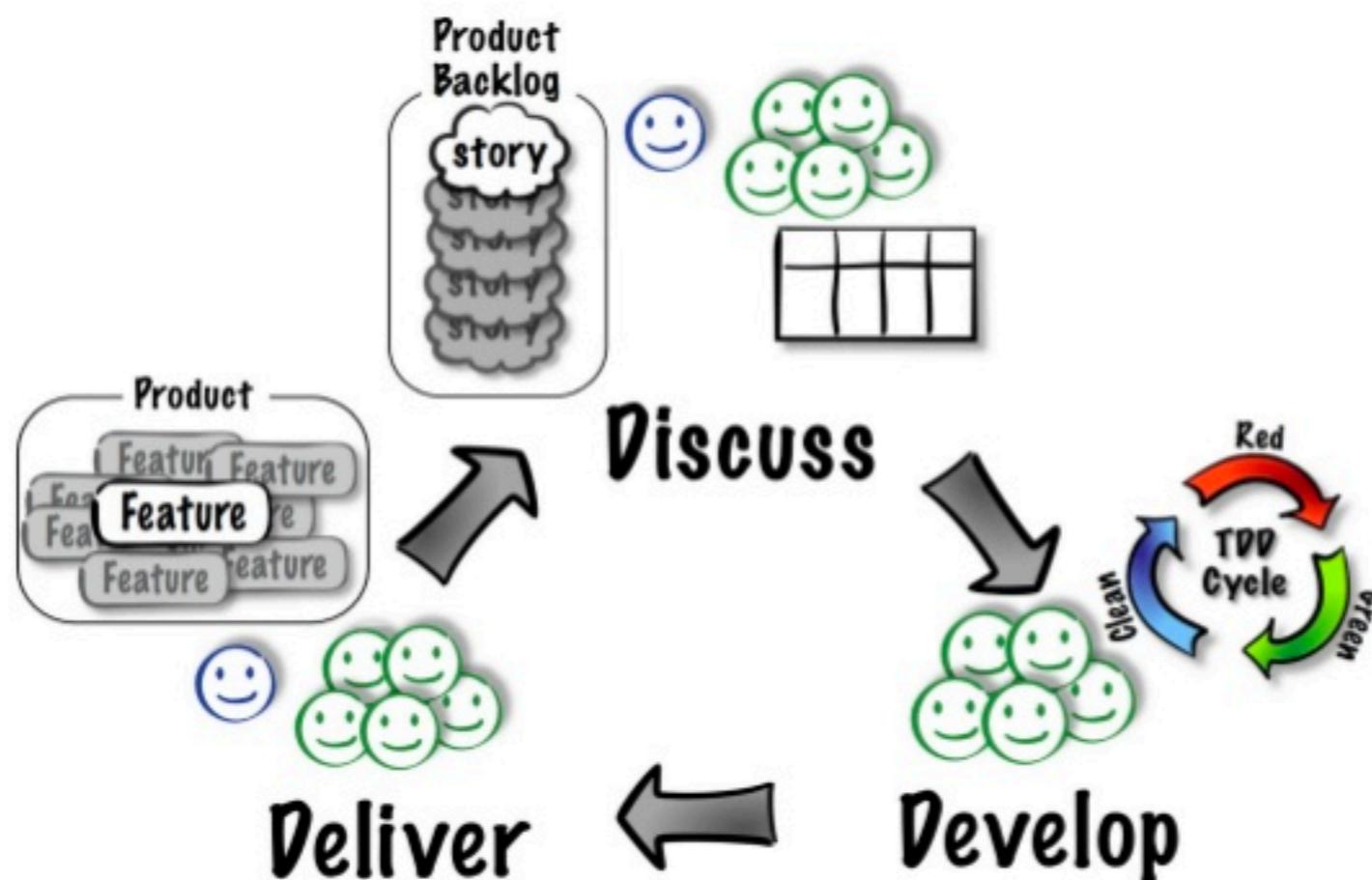








# The ATDD cycle



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# Continuous Testing







# Jenkins

<https://jenkins.io/>



# Start Jenkins

\$java -jar Jenkins.war

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



# 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 | PASS |
|------|------|

2 critical tests, 2 passed, 0 failed

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)

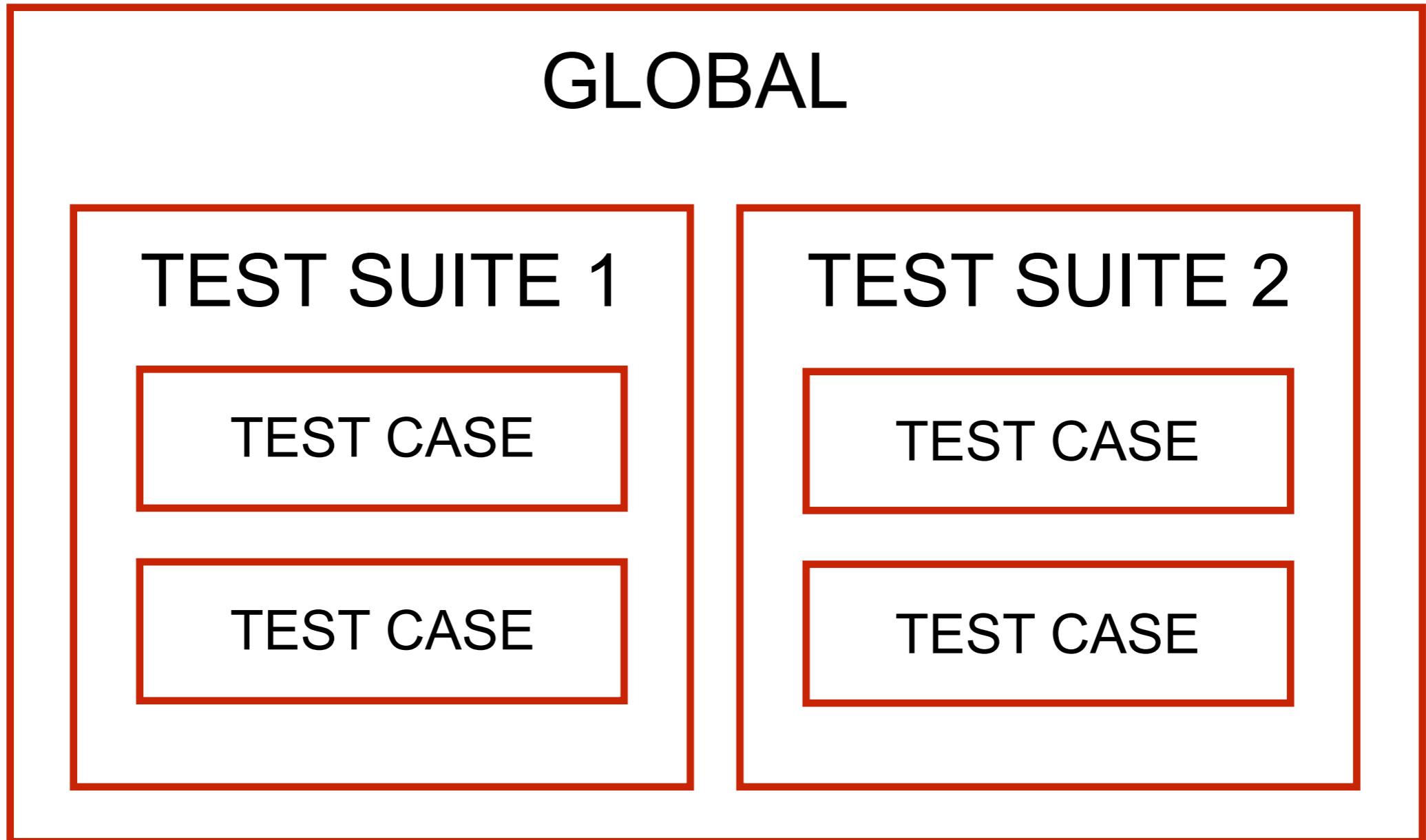
GLOBAL

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

|                         |  |
|-------------------------|--|
| -                       | <b>TEST</b> 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:                 | <b>PASS</b> (critical)   |
| -                       | <b>KEYWORD</b> HelloWorld.Say Hi   |
| Start / End / Elapsed:  | 20180603 23:16:43.825 / 20180603 23:16:43.826 / 00:00:00.001<br>23:16:43.826    INFO    Say hi Noname  |
| <b>Name = “Noname”</b>  |  |
| -                       | <b>TEST</b> 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:                 | <b>PASS</b> (critical)   |
| -                       | <b>KEYWORD</b> HelloWorld.Say Hi2 somkiat  |
| Start / End / Elapsed:  | 20180603 23:16:43.827 / 20180603 23:16:43.827 / 00:00:00.000<br>23:16:43.827    INFO    Say hi somkiat |
| <b>Name = “somkiat”</b> |  |
| -                       | <b>TEST</b> 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:                 | <b>PASS</b> (critical)   |
| -                       | <b>KEYWORD</b> HelloWorld.Say Hi   |
| Start / End / Elapsed:  | 20180603 23:16:43.828 / 20180603 23:16:43.828 / 00:00:00.000<br>23:16:43.828    INFO    Say hi somkiat |
| <b>Name = “somkiat”</b> |  |



# 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

|                         |  |
|-------------------------|--|
| -                       | <b>TEST</b> 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:                 | <b>PASS</b> (critical)   |
| -                       | <b>KEYWORD</b> HelloWorld.Say Hi   |
| Start / End / Elapsed:  | 20180603 23:16:43.825 / 20180603 23:16:43.826 / 00:00:00.001<br>23:16:43.826    INFO    Say hi Noname  |
| <b>Name = “Noname”</b>  |  |
| -                       | <b>TEST</b> 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:                 | <b>PASS</b> (critical)   |
| -                       | <b>KEYWORD</b> HelloWorld.Say Hi2 somkiat  |
| Start / End / Elapsed:  | 20180603 23:16:43.827 / 20180603 23:16:43.827 / 00:00:00.000<br>23:16:43.827    INFO    Say hi somkiat |
| <b>Name = “somkiat”</b> |  |
| -                       | <b>TEST</b> 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:                 | <b>PASS</b> (critical)   |
| -                       | <b>KEYWORD</b> HelloWorld.Say Hi   |
| Start / End / Elapsed:  | 20180603 23:16:43.828 / 20180603 23:16:43.828 / 00:00:00.000<br>23:16:43.828    INFO    Say hi somkiat |
| <b>Name = “somkiat”</b> |  |



# 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

|                               |   |
|-------------------------------|---|
| <b>Full Name:</b>             | Test & Test2.Test2  |
| <b>Source:</b>                | <a href="/Users/somkiat/data/slide/robot-framework/advanc">/Users/somkiat/data/slide/robot-framework/advanc</a> |
| <b>Start / End / Elapsed:</b> | 20180603 23:31:04.939 / 20180603 23:31:04.942   |
| <b>Status:</b>                | 1 critical test, 1 passed, 0 failed<br>1 test total, 1 passed, 0 failed   |

## - TEST Another test case

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

## - KEYWORD HelloWorld.Say Hi

|                               |   |
|-------------------------------|---|
| <b>Start / End / Elapsed:</b> | 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](https://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

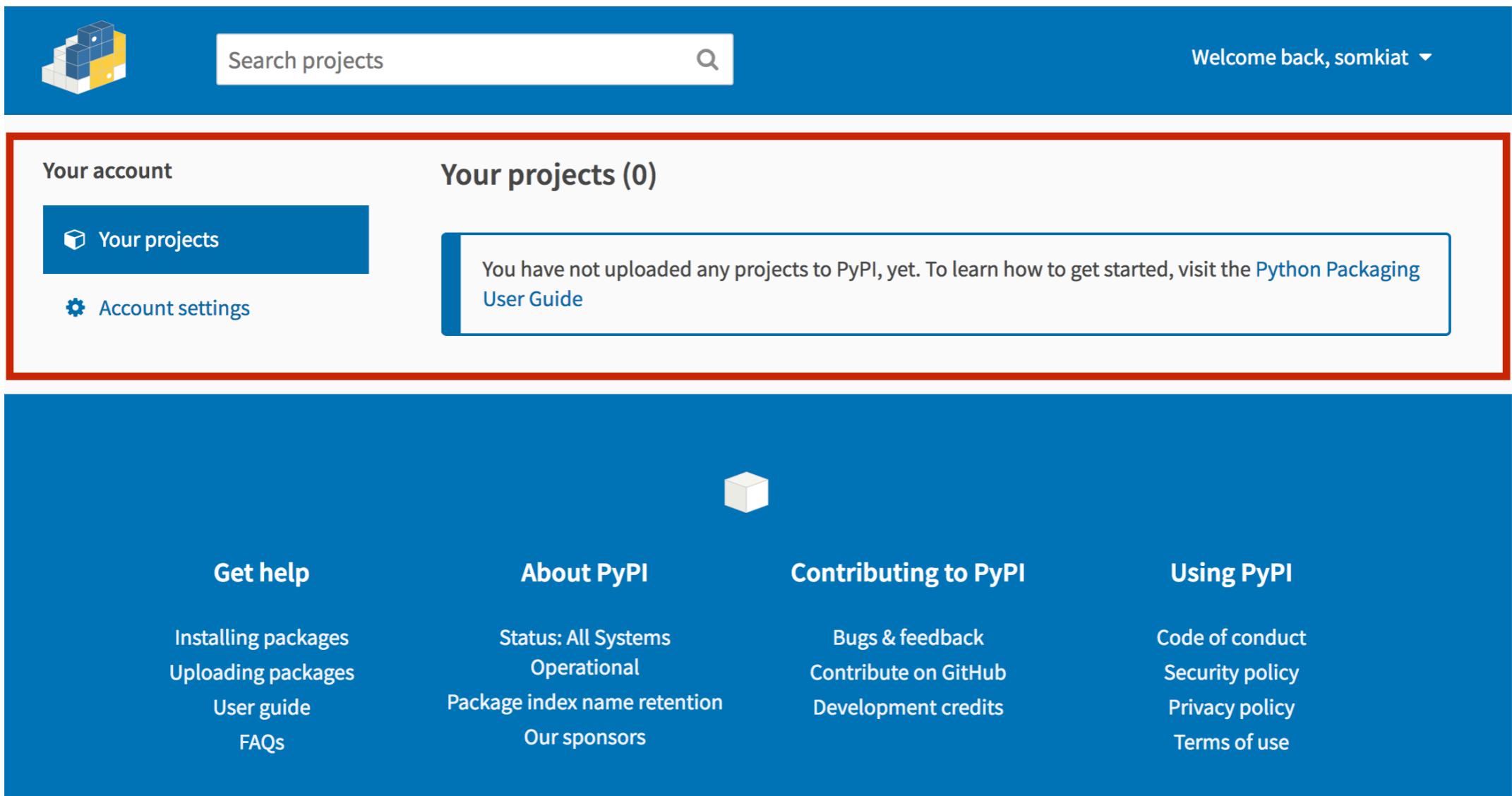
**python**™  
Package  
Index

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 (Python Package Index) dashboard. At the top, there is a blue header bar 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                      |
|-------------------------------------|---|--------------------------------------|---------------------------------|
| <a href="#">Installing packages</a> | <a href="#">Status: All Systems Operational</a> | <a href="#">Bugs &amp; feedback</a>  | <a href="#">Code of conduct</a> |
| <a href="#">Uploading packages</a>  | <a href="#">Package index name retention</a>    | <a href="#">Contribute on GitHub</a> | <a href="#">Security policy</a> |
| <a href="#">User guide</a>          | <a href="#">Our sponsors</a>                    | <a href="#">Development credits</a>  | <a href="#">Privacy policy</a>  |
| <a href="#">FAQs</a>                |   |                                      | <a href="#">Terms of use</a>    |



# Step 3

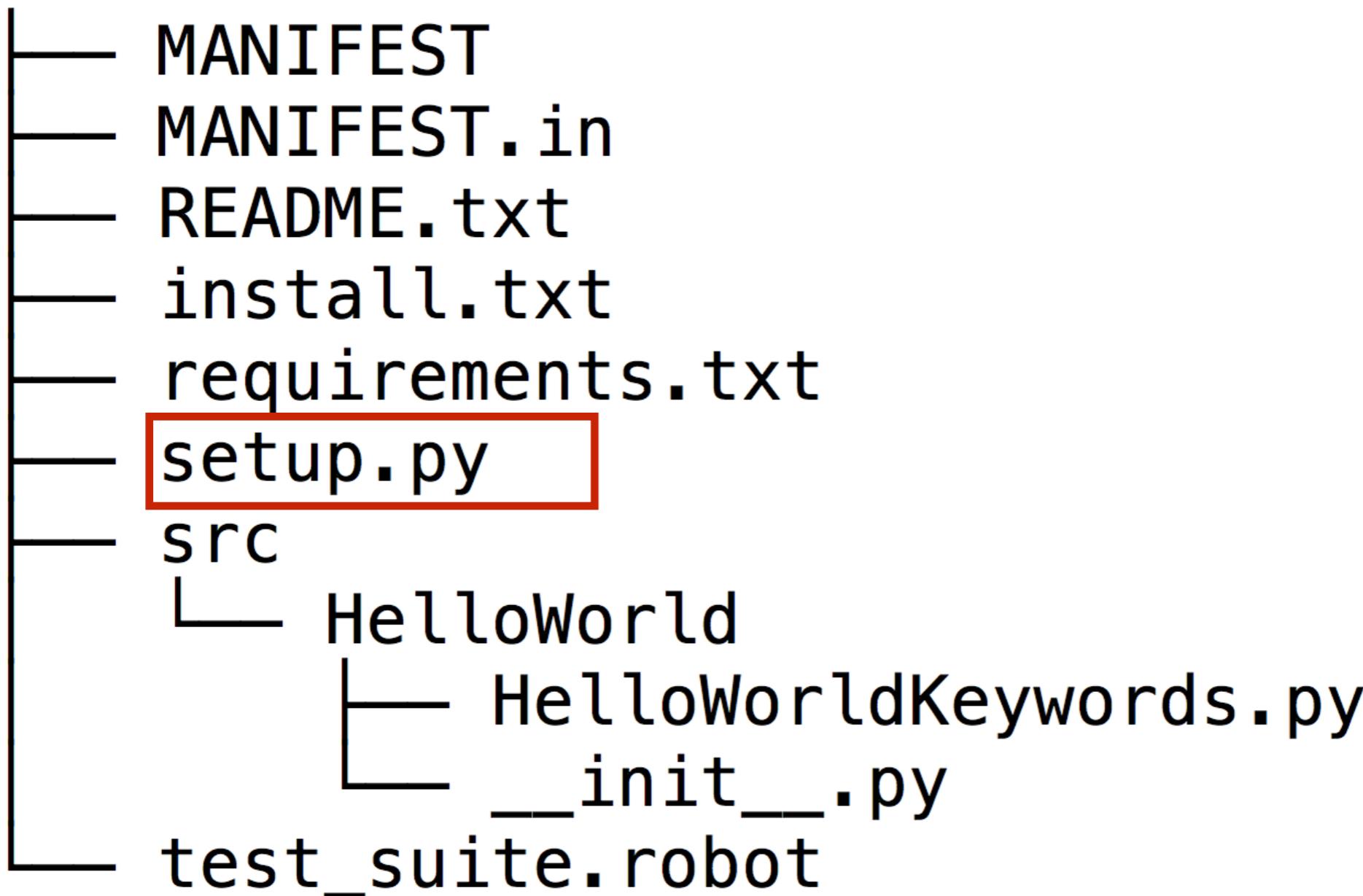
Start to develop your package

```
├── 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 )
```



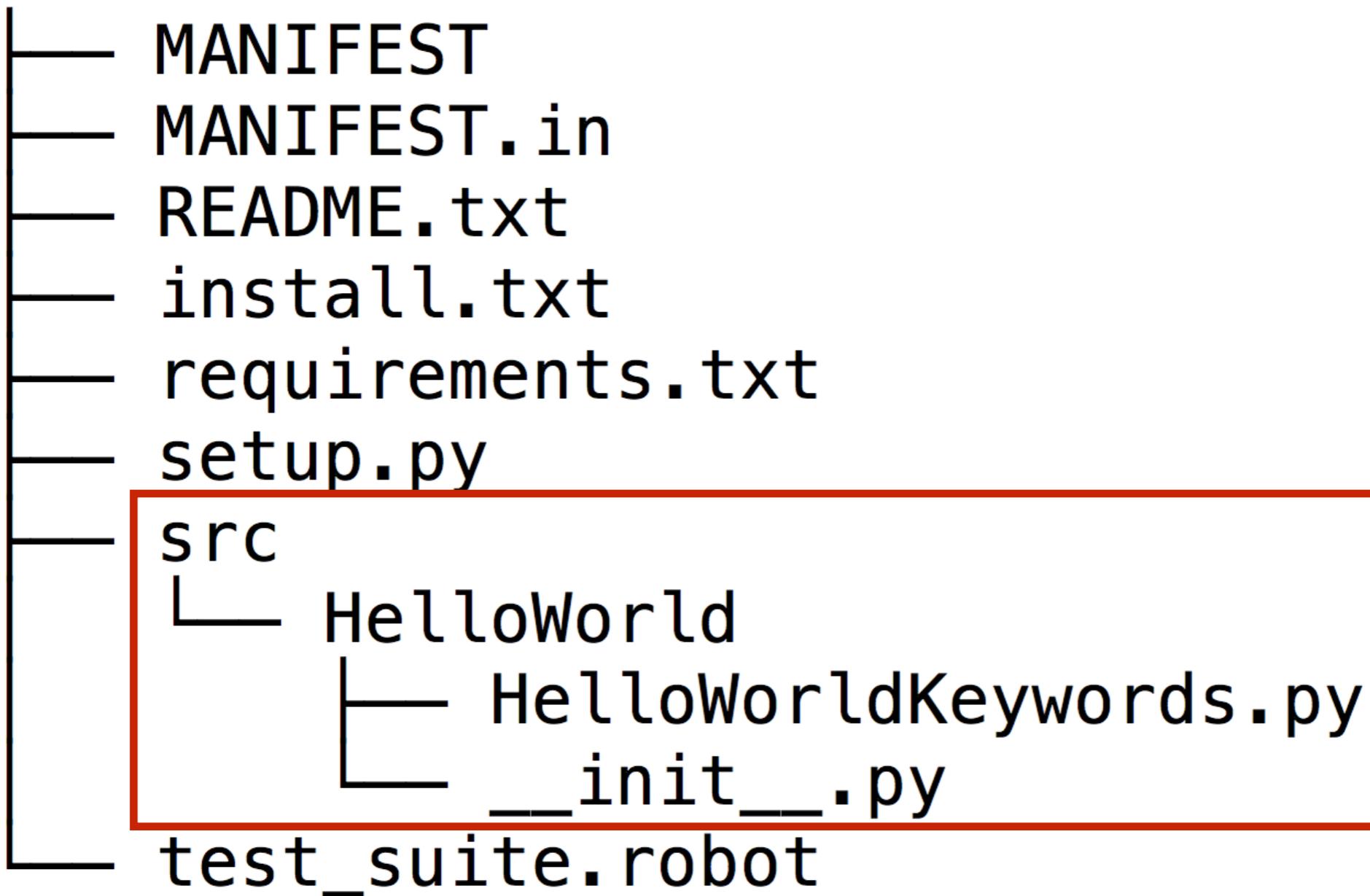
# **Step 5**

# **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. 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 a white background. On the left, there is a sidebar with two items: "Your projects" (which is highlighted with a blue background and white text) and "Account settings". The main content area is titled "Your projects (1)". It lists a single project: "helloworld-library" (with a small cube icon), which was last released on Jun 3, 2018. To the right of the project name are two buttons: "Manage" (blue background, white text) and "View" (white background, grey border).



# 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
```

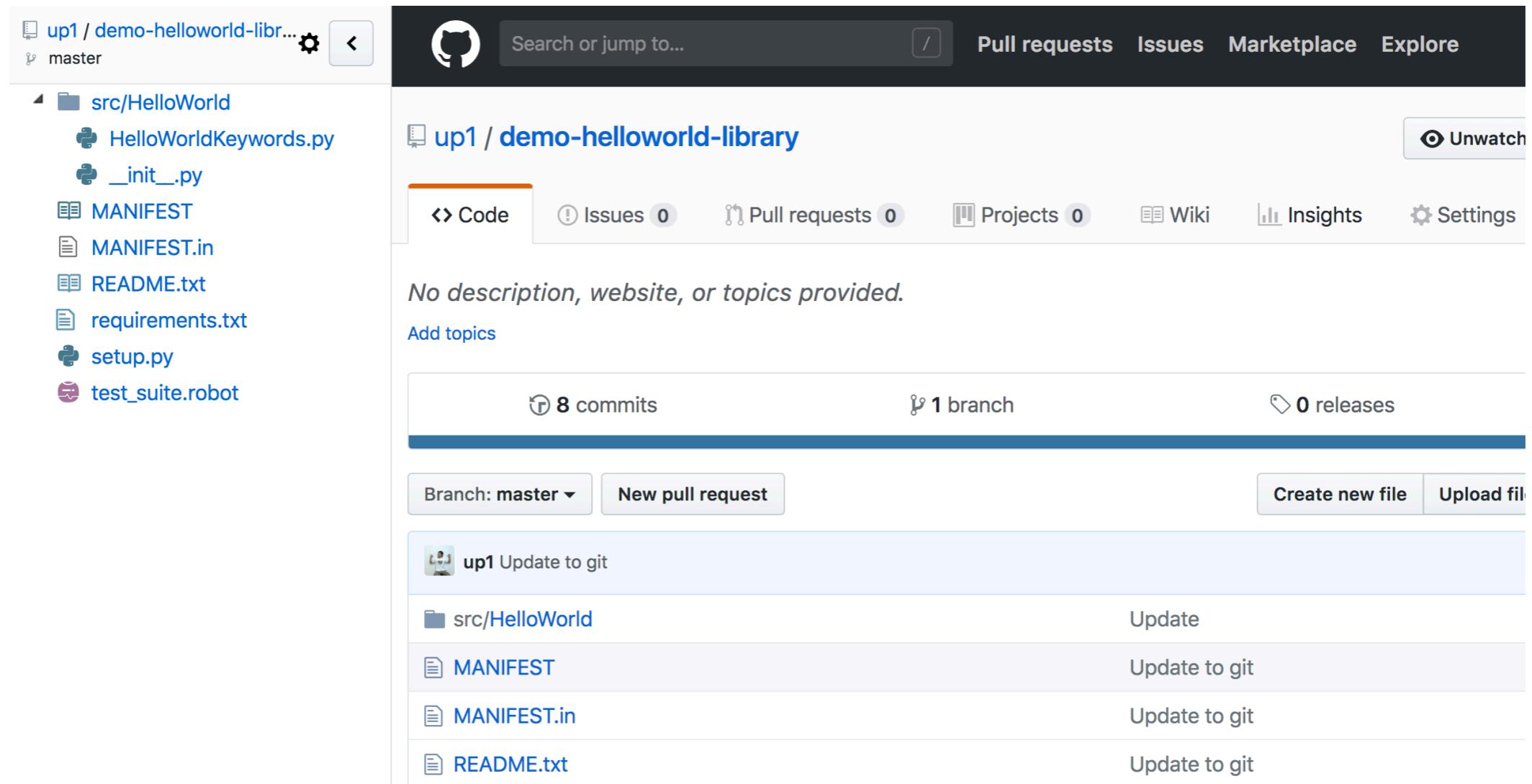


# Publish Library with github



# 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     """ A keyword library for Robot Framework. It provides keywords for  
5     learning how to create a new library. For more information  
6     on underlying methods and documentation, see:  
7         http://eclipse.org/paho/clients/python/docs/  
8     """  
9  
10    ROBOT_LIBRARY_SCOPE = 'TEST_CASE'  
11  
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:<br><code>Say Hi</code>                             |
| Say Hi2 | <i>name</i> | Say hi with a argument. <i>name</i> Your name Examples<br><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:<br><code>Say Hi</code>                             |
| Say Hi2 | <i>name</i> | Say hi with a argument. <i>name</i> Your name Examples<br><code>Say Hi somkiat</code> |

Altogether 2 keywords.

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# Create keywords of test library

