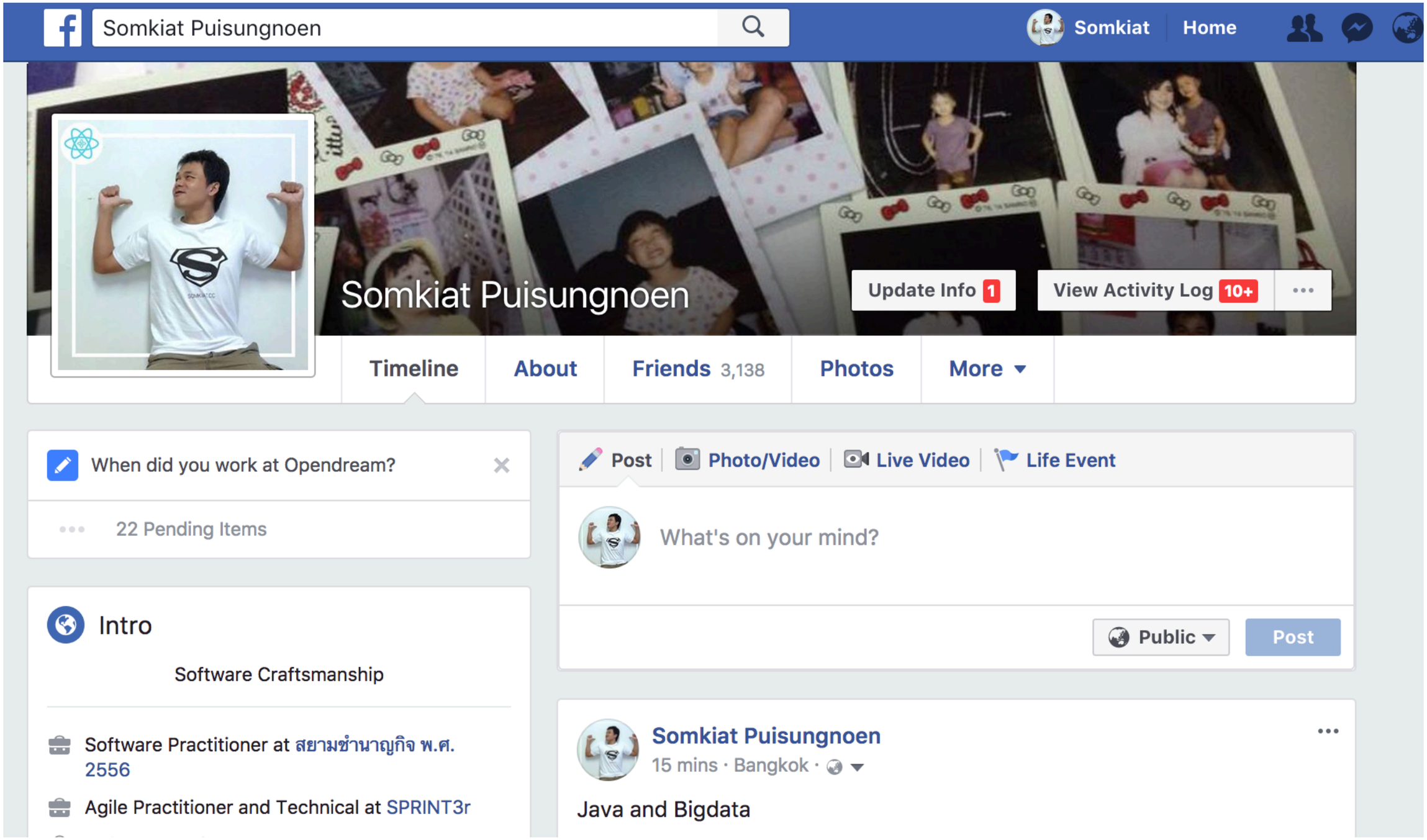
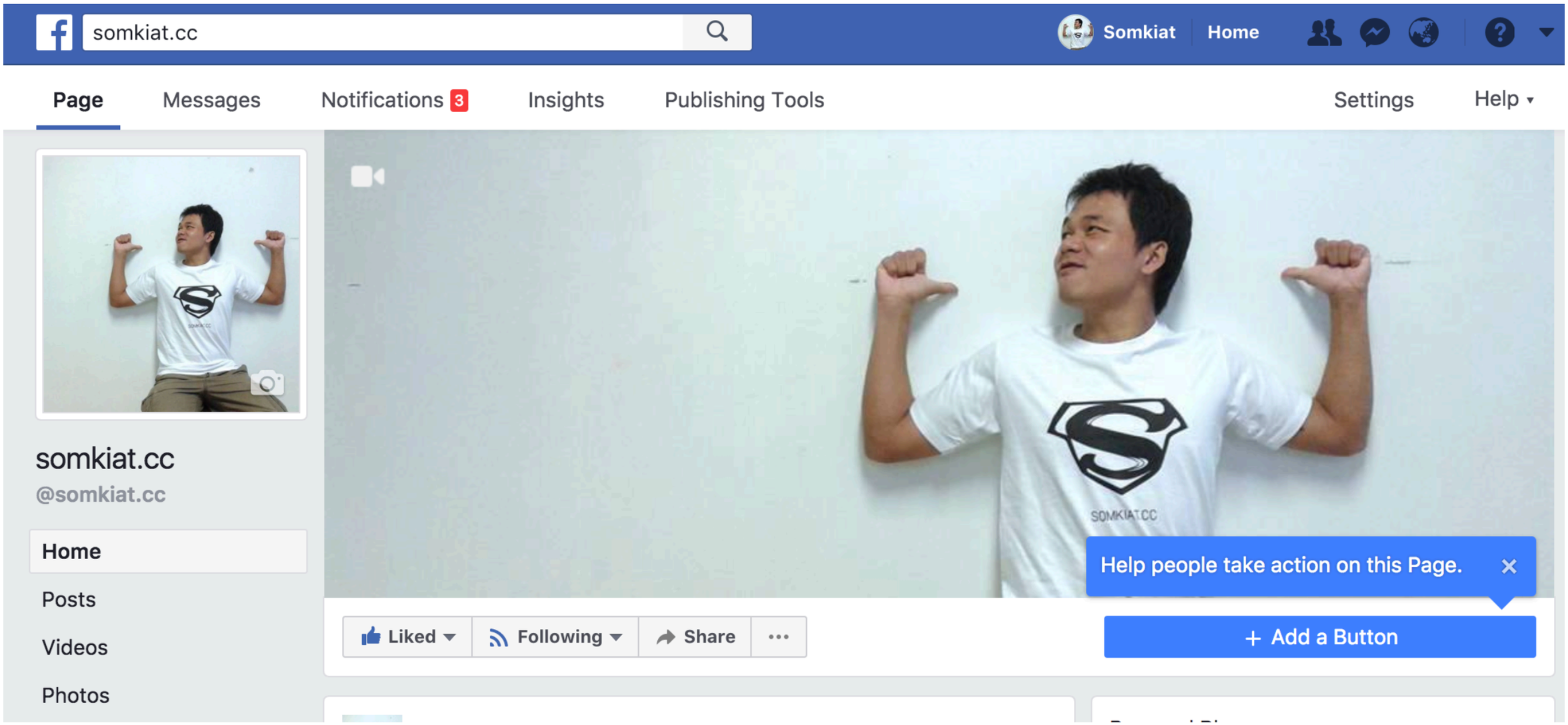
สยามชำนาญกิจ
SIAM CHAMNAN KIT

Advance Robot Framework

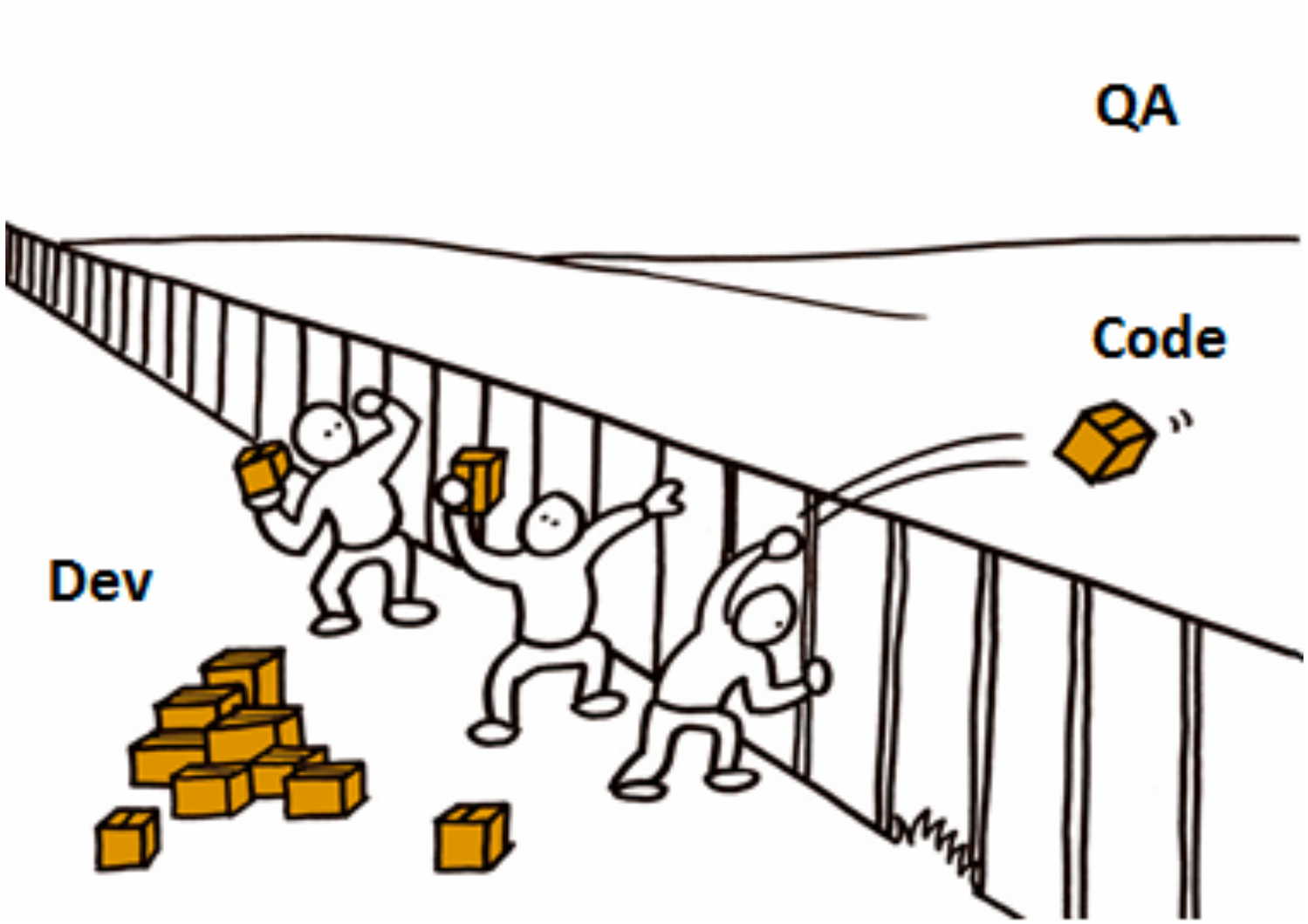


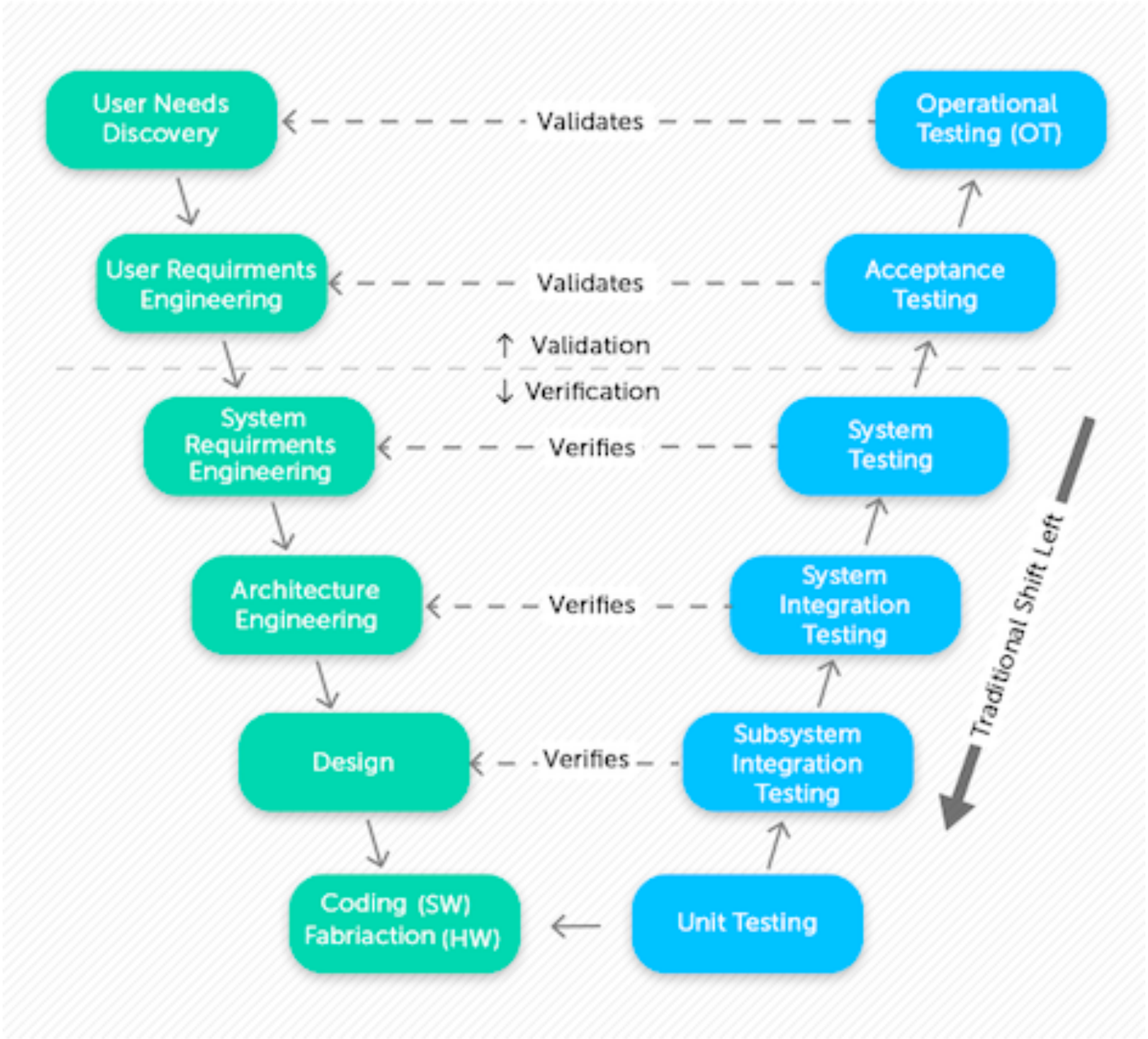


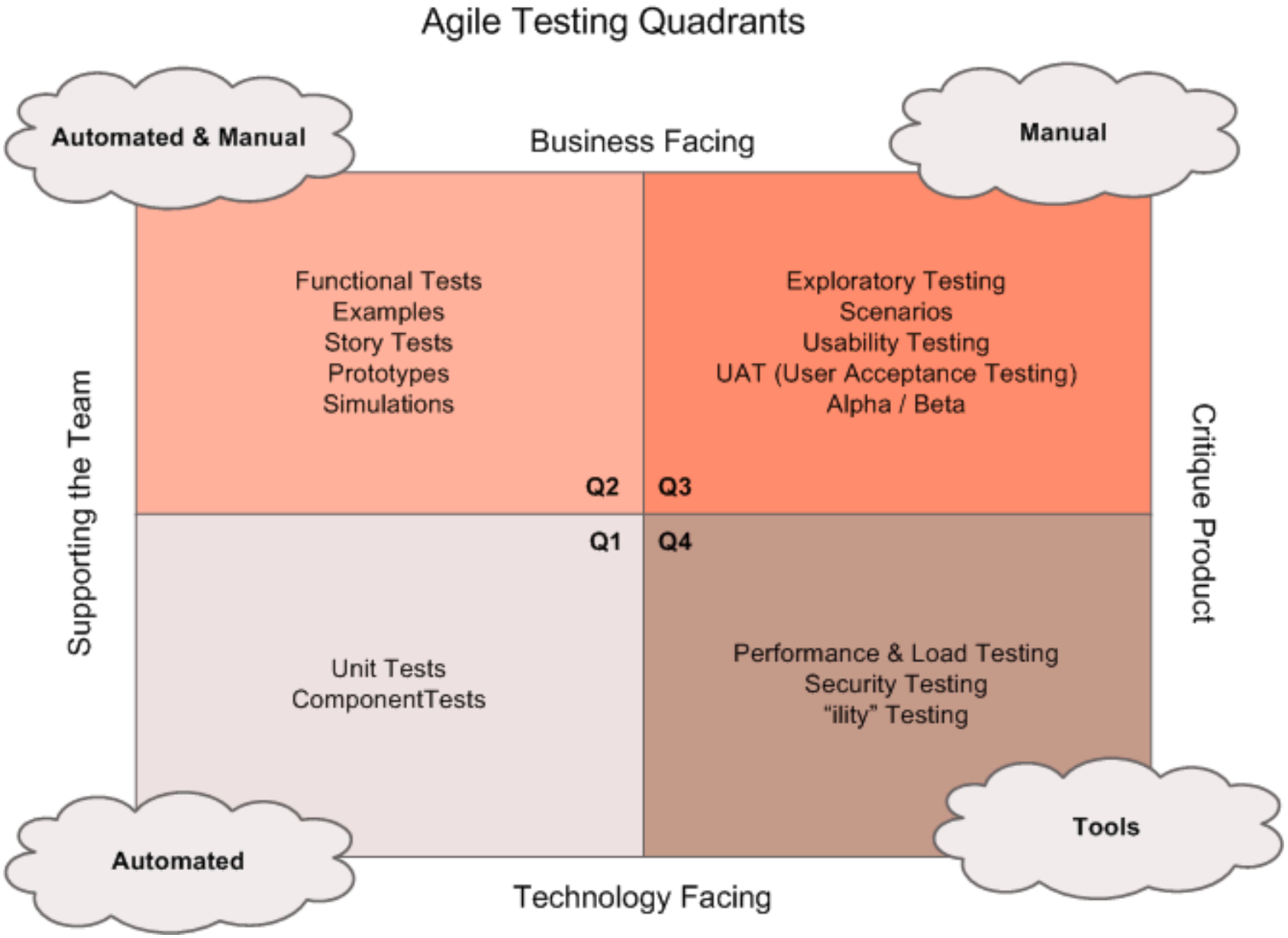
https://github.com/up1/course-advance-robotframework

Recap RobotFramework

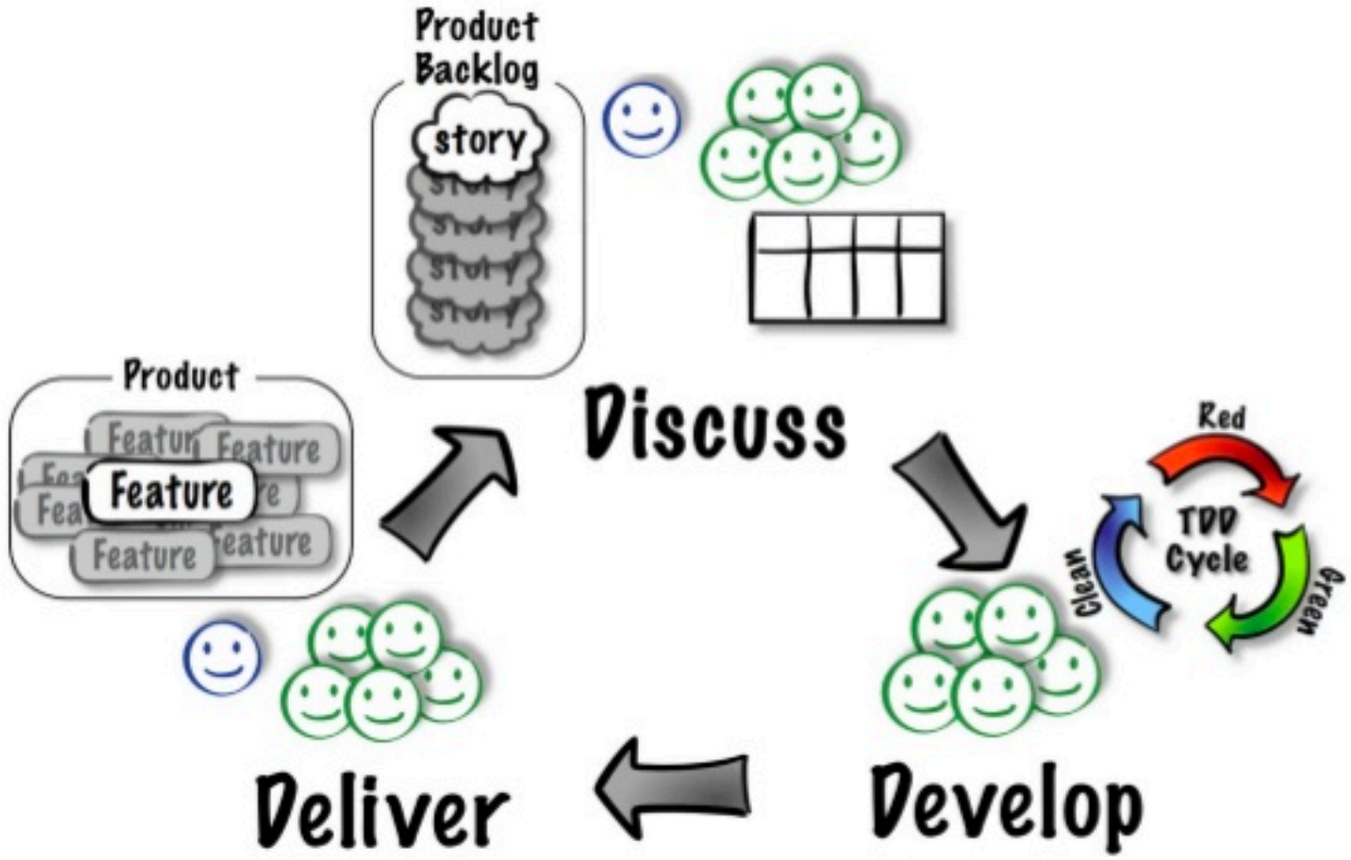
https://robotframework.org/







The ATDD cycle



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                                                                  | 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

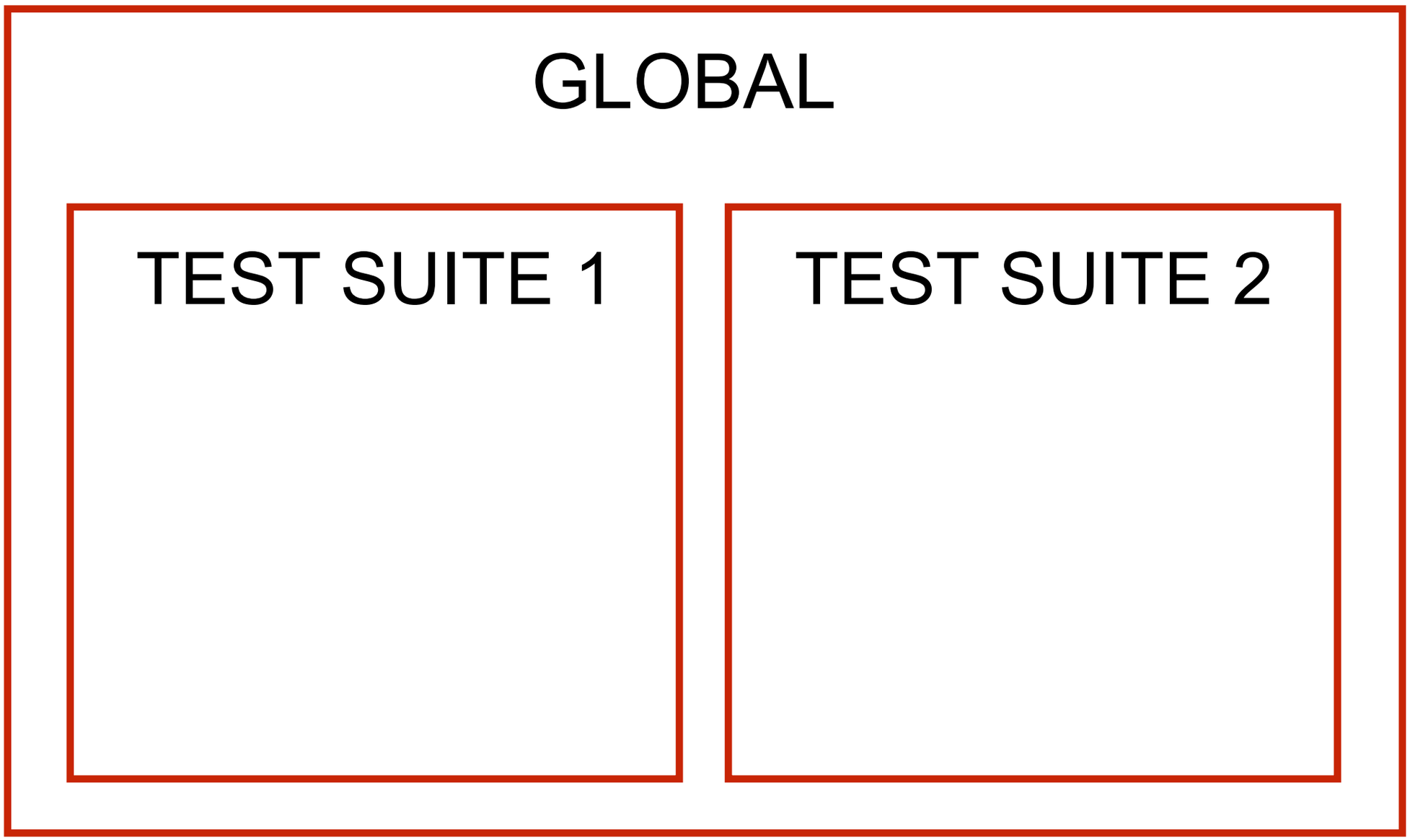
GLOBAL

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

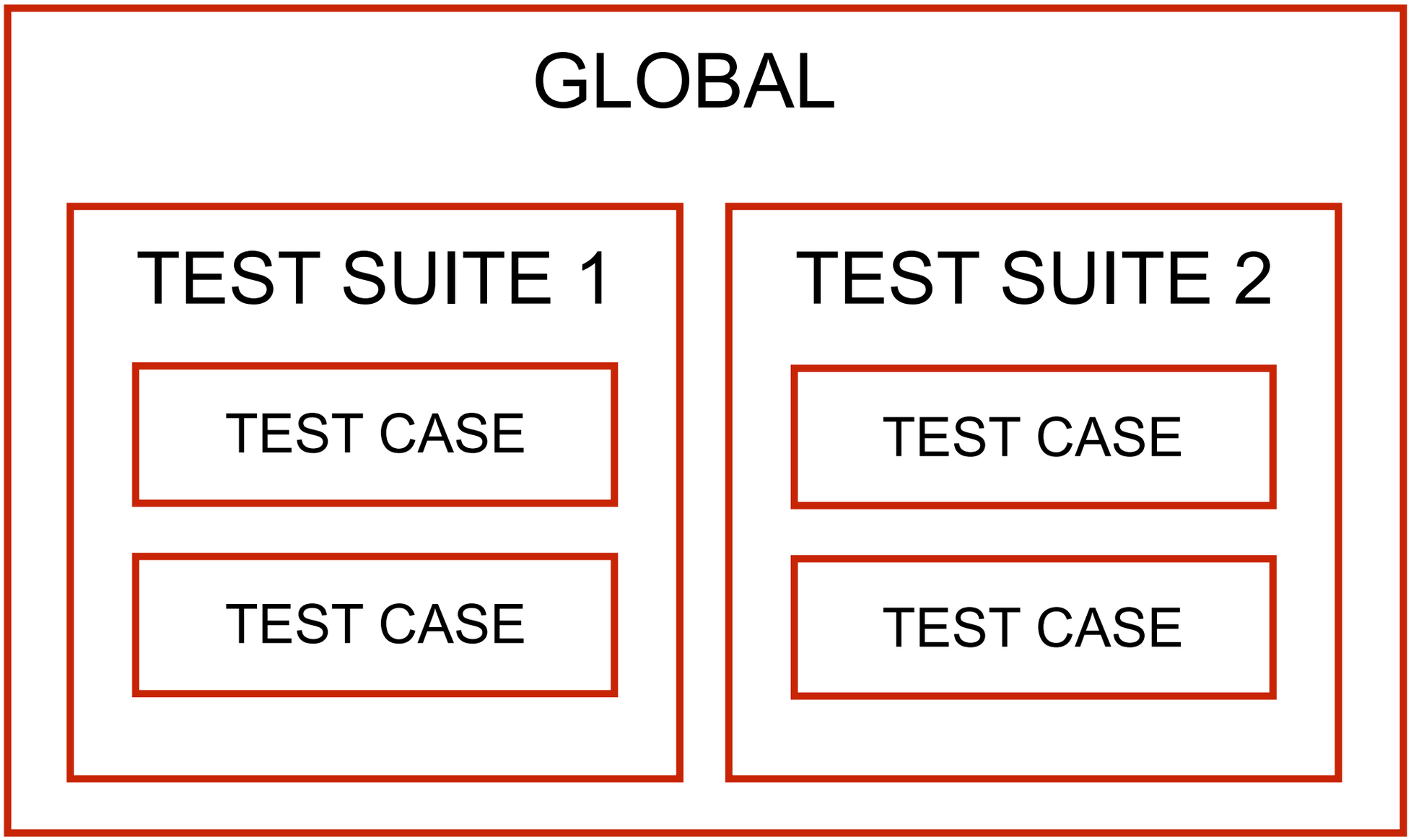
Scopes (1)

GLOBAL

Scopes (2)



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

```
*** Settings ***
Library   HelloWorld

*** Testcases ***
First library
  Say Hi

Second library with argument
  Say Hi2  somkiat

Third library
  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/adva
Start / End / Elapsed:	20180603 23:31:04.939 / 20180603 23:31:04.9
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 23:31:0
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

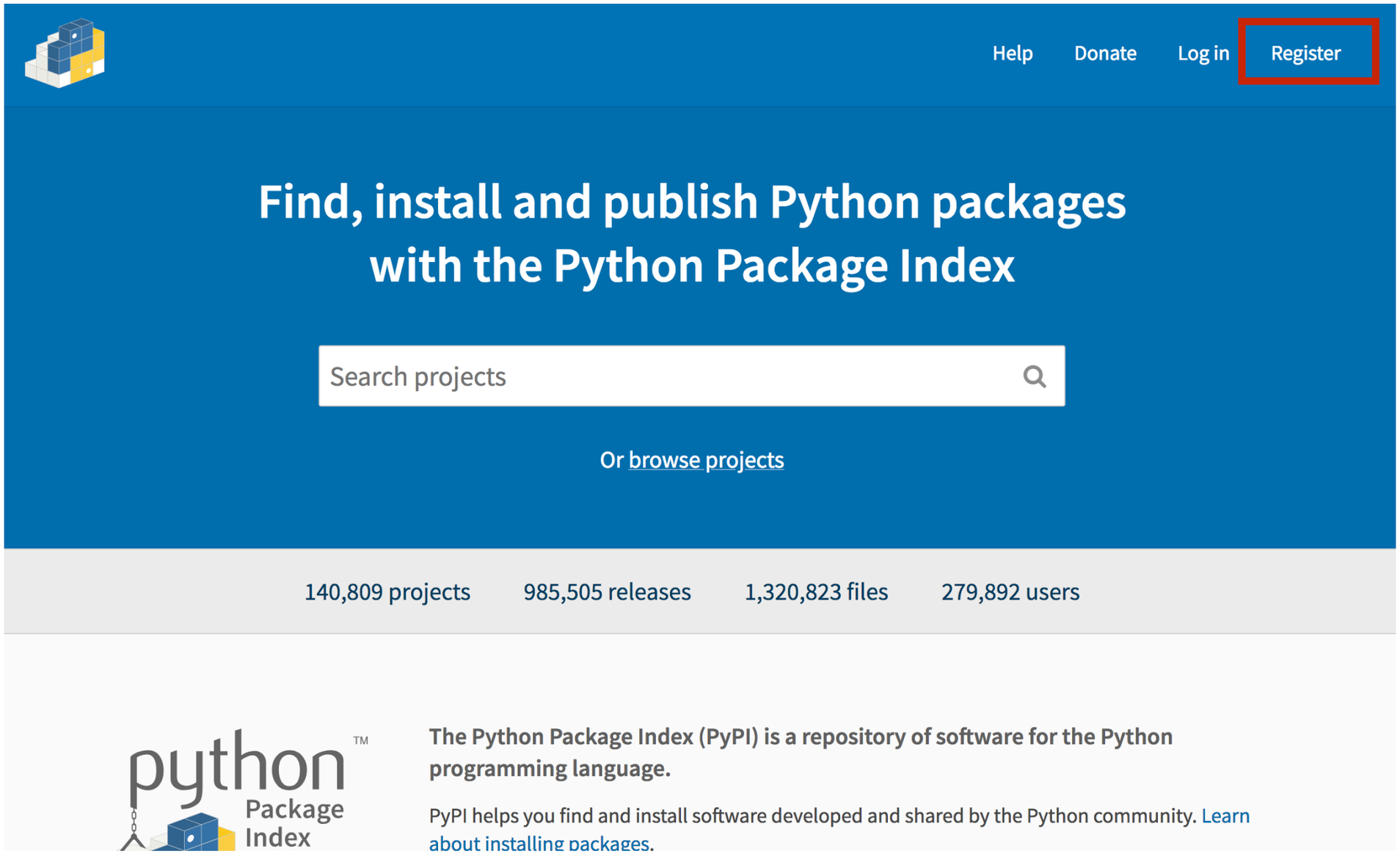
pypi.org

Publish Library with pypi.org

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

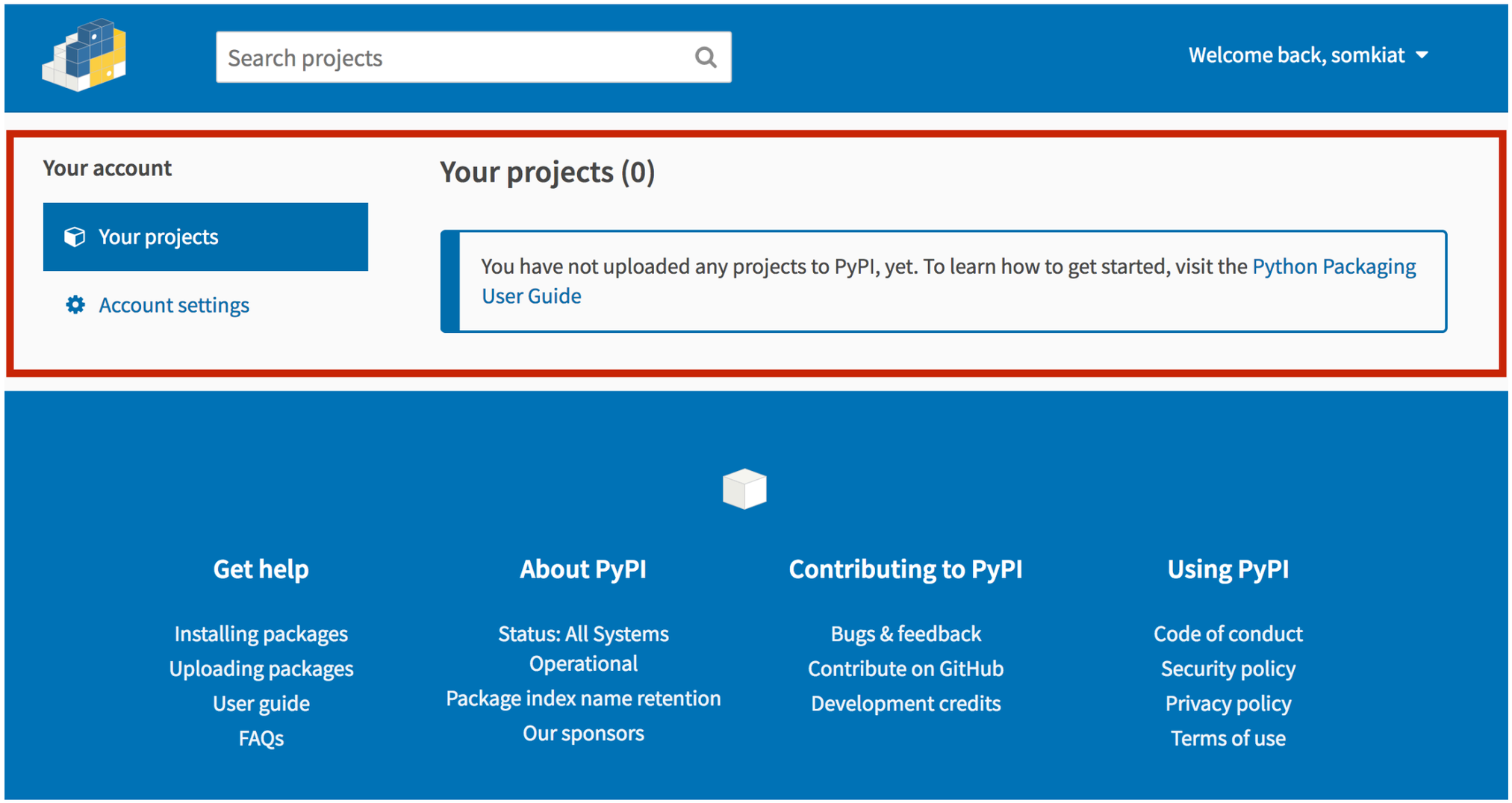
Step 1

Register account at https://pypi.org/



Step 2

Verify and see your project



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

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

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

```
from setuptools import setup

setup(
    name="helloworld-library",
    version='0.1',
    package_dir={'' : 'src'},
    packages=['HelloWorld'],
    url='https://github.com/up1/demo-helloworld-library',
    author='Somkiat',
    author_email='somkiat.p@gmail.com',
)
```

Step 5
Develop HelloWorld library

Structure of package

Create directory src/HelloWorld

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

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

```
[distutils]
index-servers =
  pypi

[pypi]
#repository=https://pypi.python.org/pypi
username=<your username>
password=<your password>
```

Publish library to pypi.org

$pip install -U pip setuptools twine

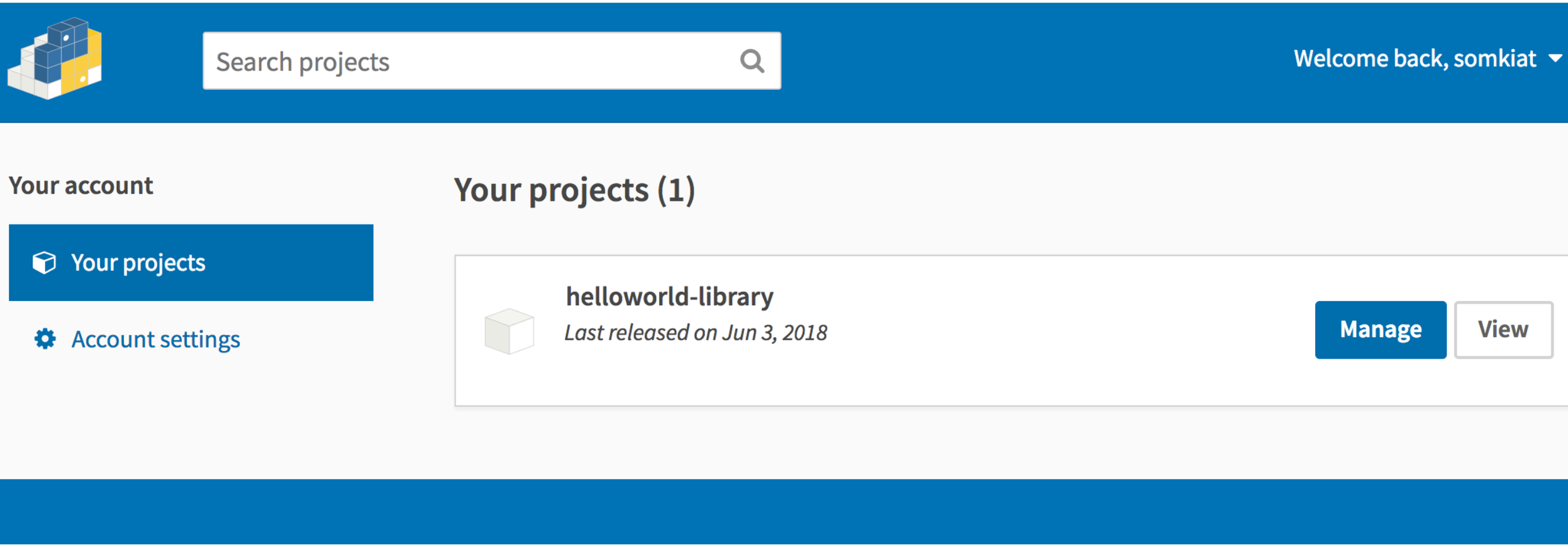
$python setup.py sdist

$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



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 ... d
  Stored in directory: /Users/somkiat/Library/Caches/pip/wh
/b4/6b/db550e3f32243f1d2397f064d34ed13b3178cb7b90b29f4c5e
Successfully built helloworld-library
Installing collected packages: helloworld-library
Successfully installed helloworld-library-0.2
```

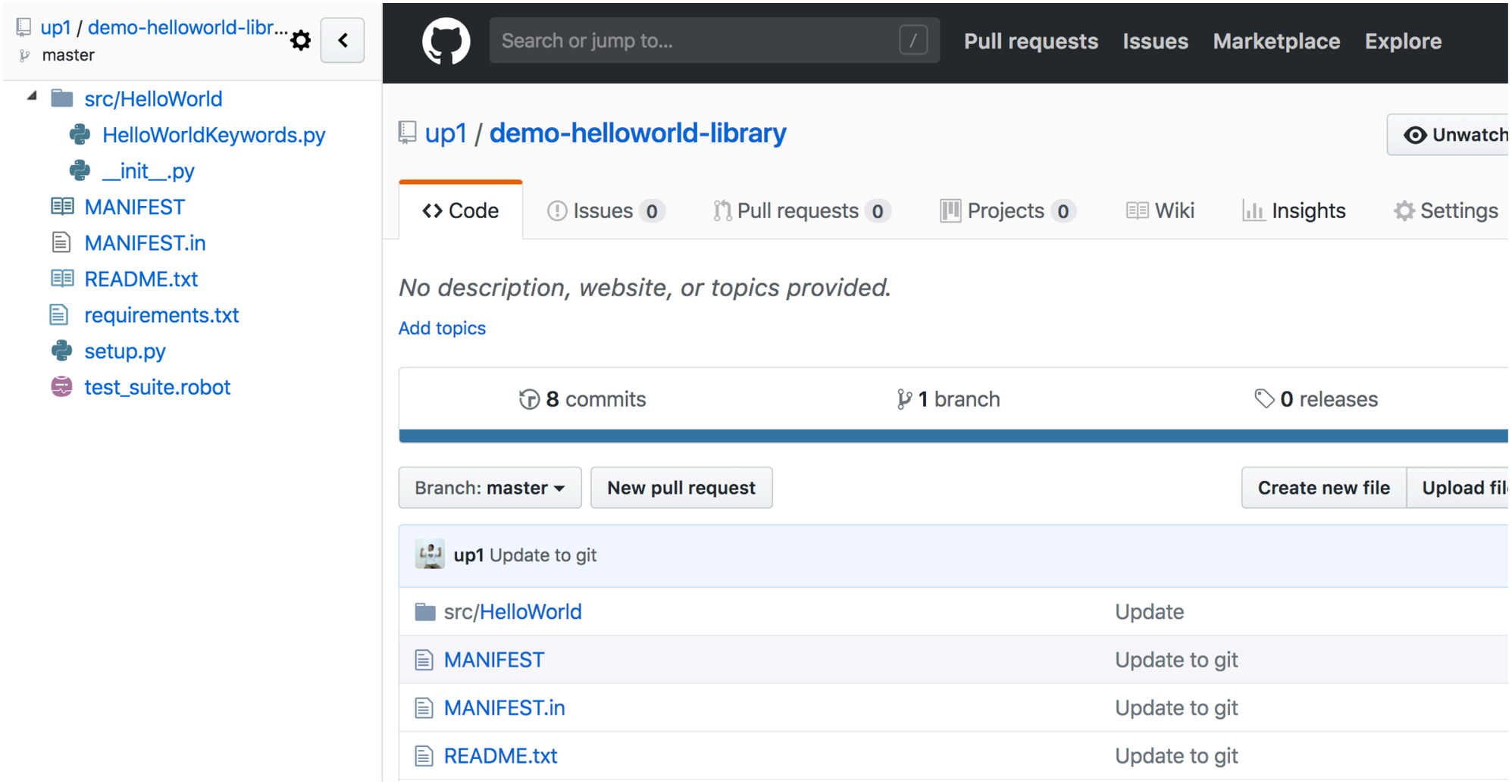
Use HelloWorld library

```
*** Settings ***
Library   HelloWorld

*** Testcases ***
First library
    Say Hi

Second library with argument
    Say Hi2  somkiat

```

Publish Library with github

Publish library to github

1. Push your code to your Github repository



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

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 ... don
  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 · **S**ay Hi2

Keywords

Keyword	Arguments	
Say Hi		Say hi with out argument Examples: Say Hi
Say Hi2	*name*	Say hi with a argument. *name* Your name Examples Say Hi somkiat

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 · **S**ay Hi2

Keywords

Keyword	Arguments	
Say Hi		Say hi with out argument Examples: Say Hi
Say Hi2	*name*	Say hi with a argument. *name* Your name Examples Say Hi somkiat

Altogether 2 keywords.
Generated by Libdoc on 2018-06-04 00:34:08.

Create keywords of test library