

# Acceptance Test-Driven Development with **Robot Framework**



Somkiat Puisungnoen

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# Agenda



# Day 1

**Acceptance Test-Driven Development**

Concept of Robot Framework

Installation

Architecture of Robot Framework



# Day 1

Create test case

Execute test case

How to write **better** test case ?



# Day 2

**Data Driven Testing**

Test template

Working with command line

**APIs** testing

Integration with **Continuous Integration**

Custom test report



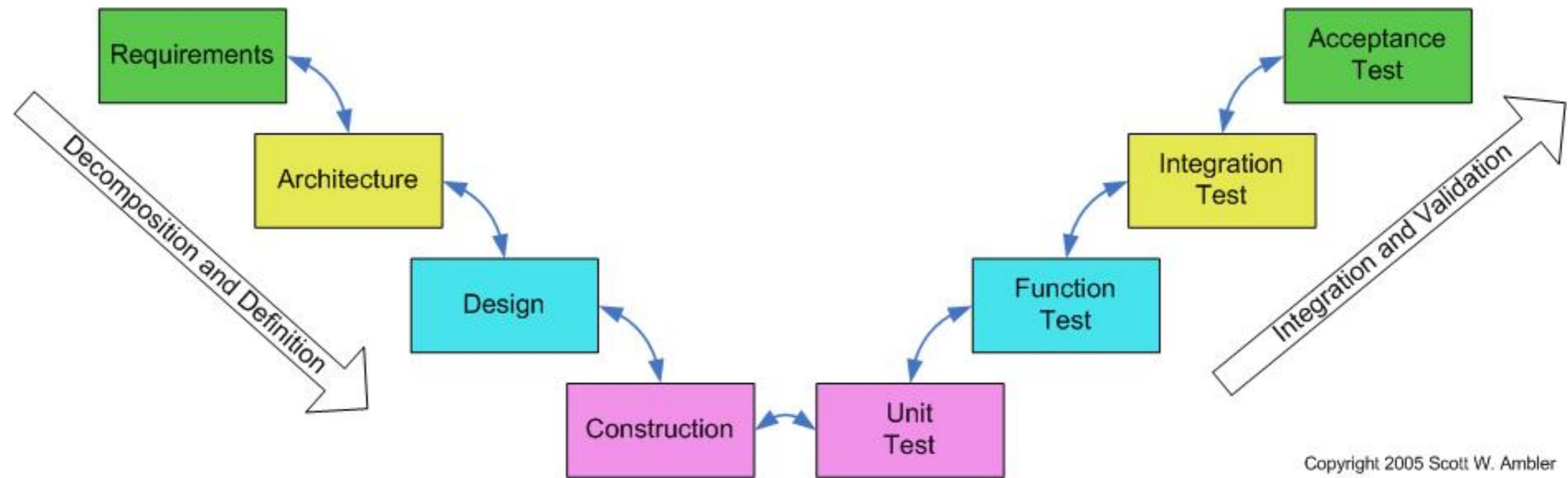
# Let's start



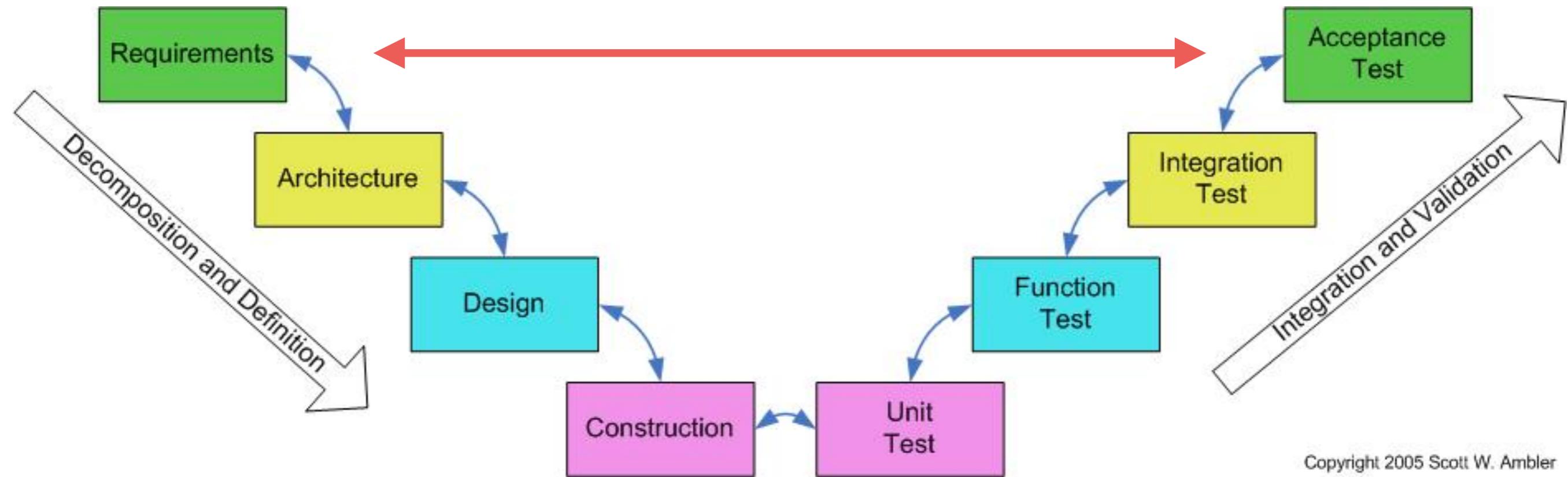
# Write your Goal(s) !!



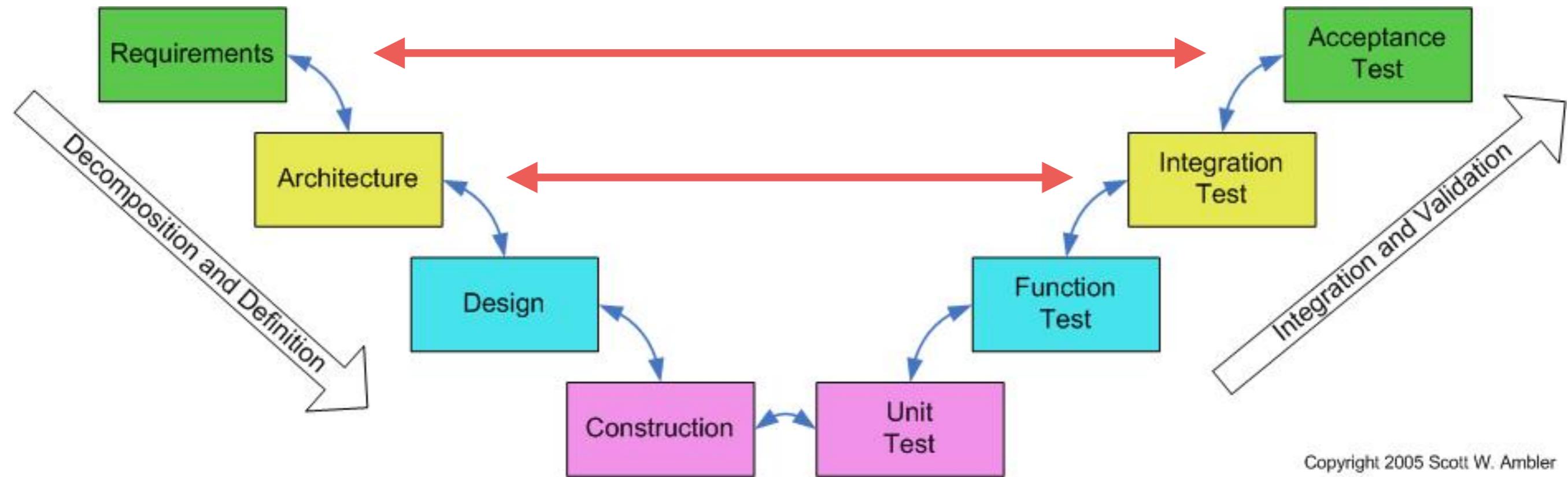
# V-Model



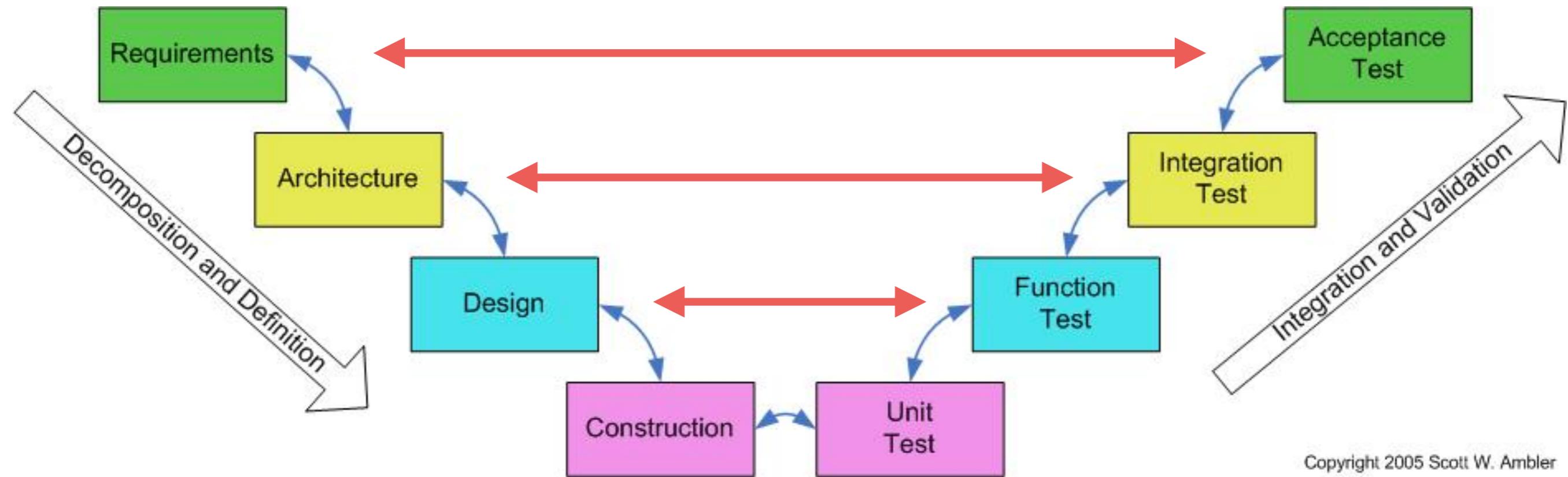
# V-Model



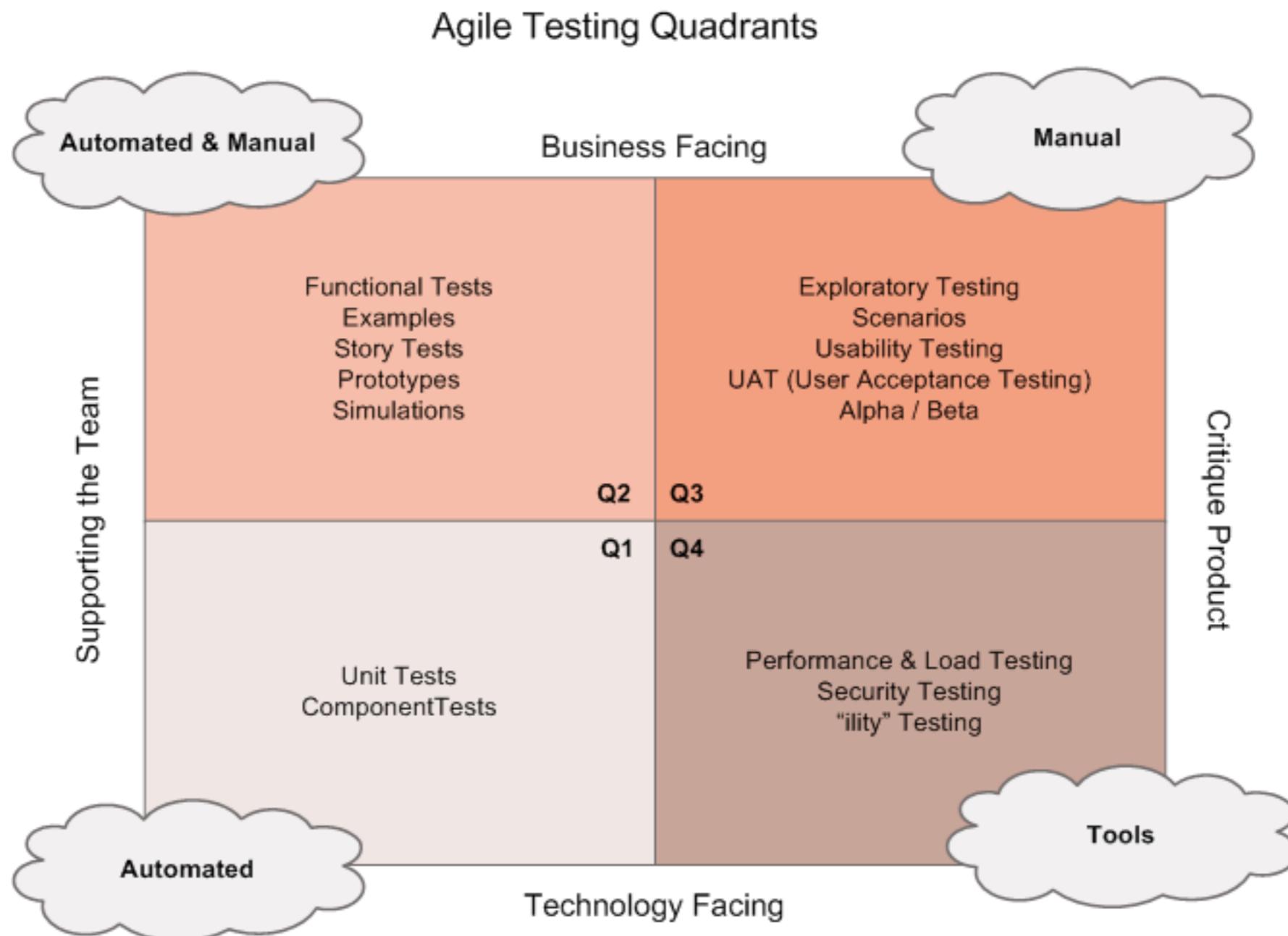
# V-Model



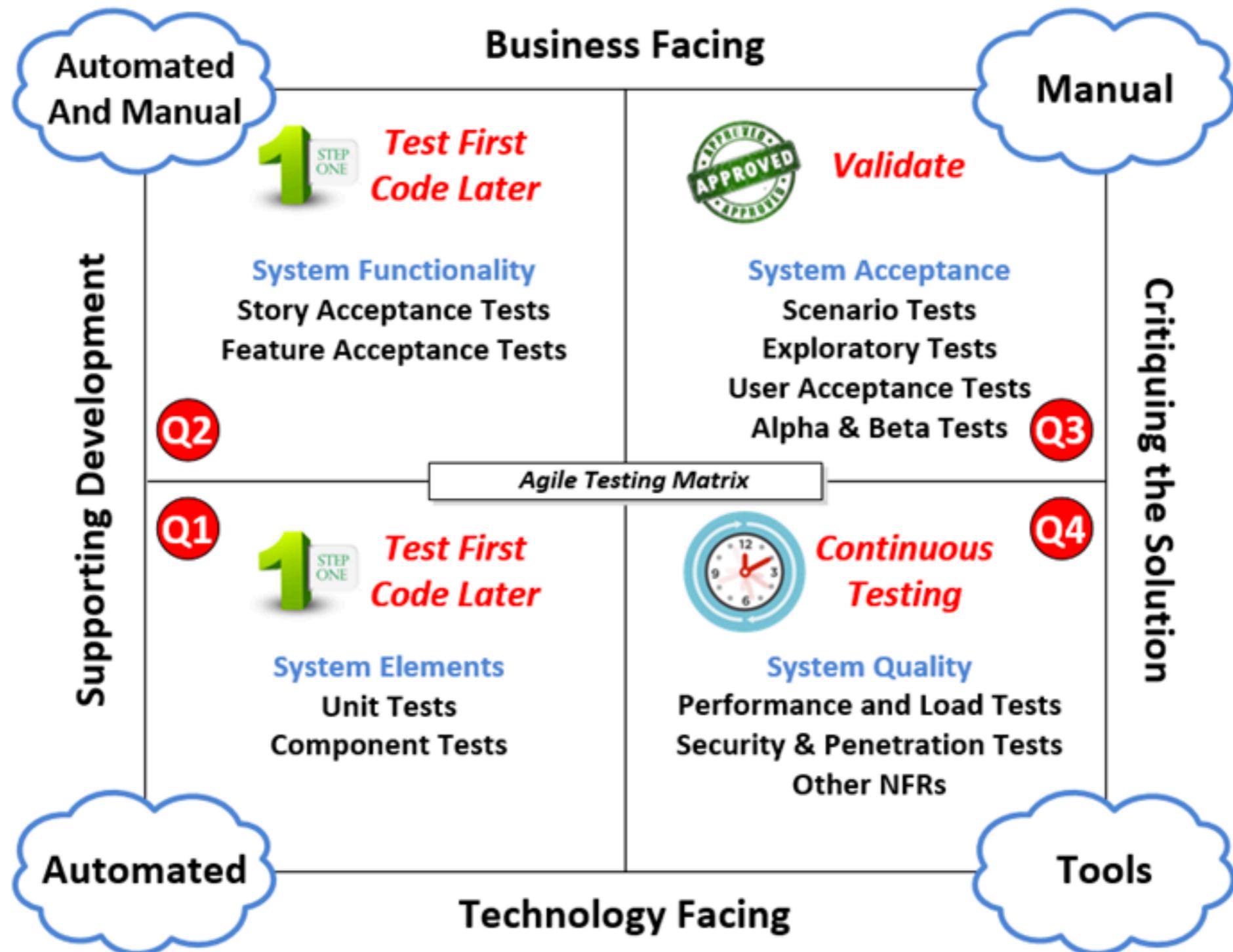
# V-Model



# Agile Testing



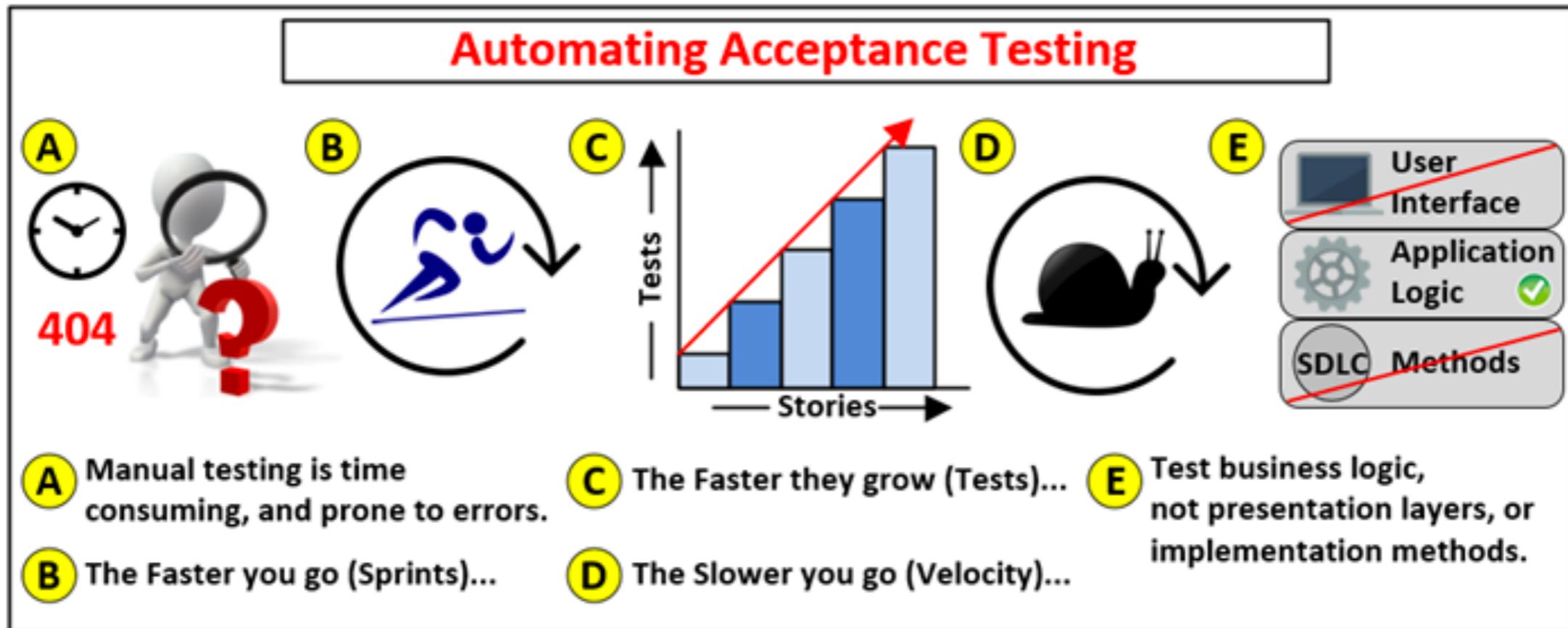
# Agile Testing



<https://www.scrumalliance.org/community/articles/2015/september/a-visual-approach-to-test-driven-agile>



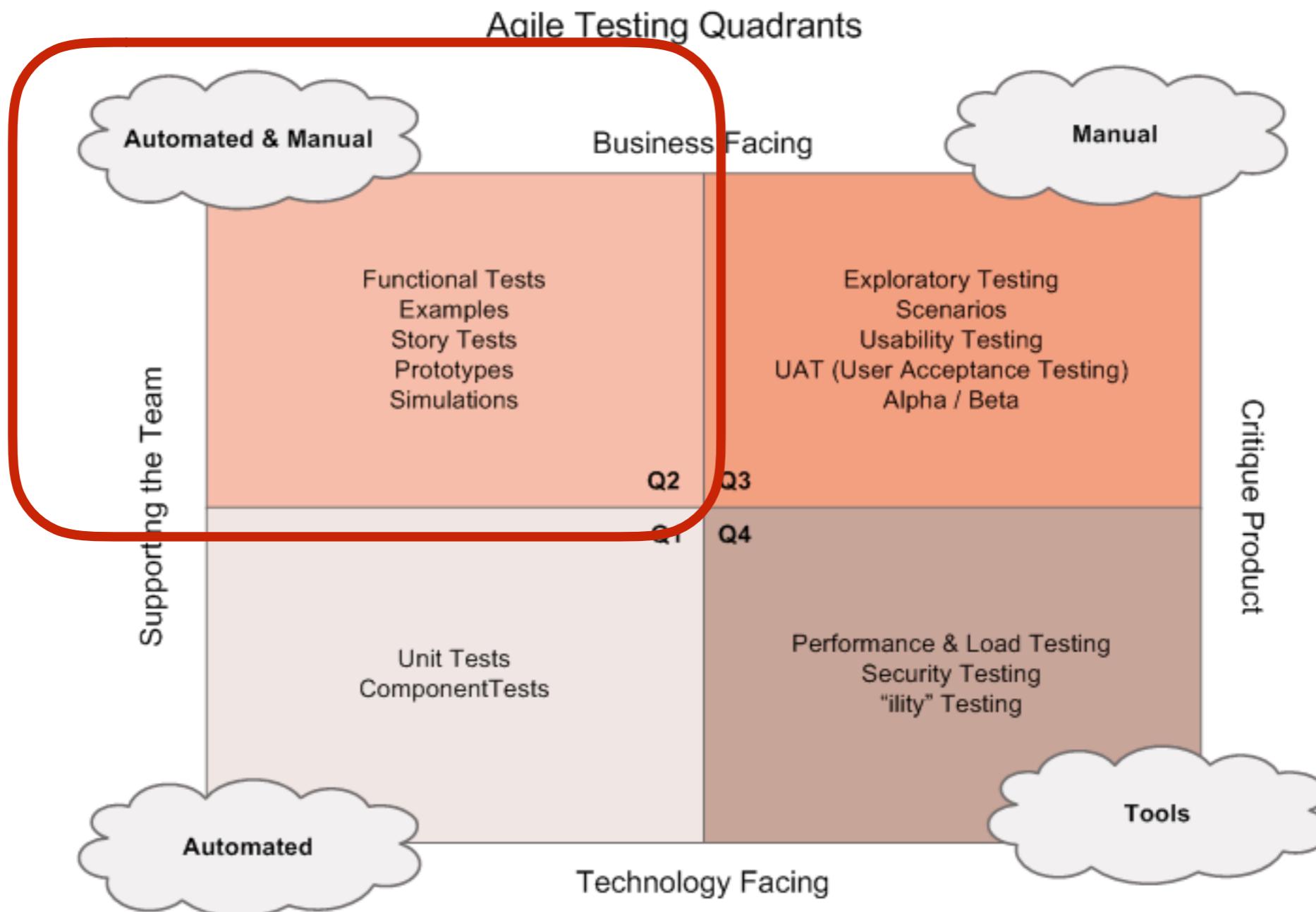
# Test Automation is essential



# Acceptance Test-Driven Development



# Agile Testing



# ATDD

Common understanding

Common language

Executable requirements or examples

Living documentation



# Same goal !!

**S**tory Driven **D**evelopment

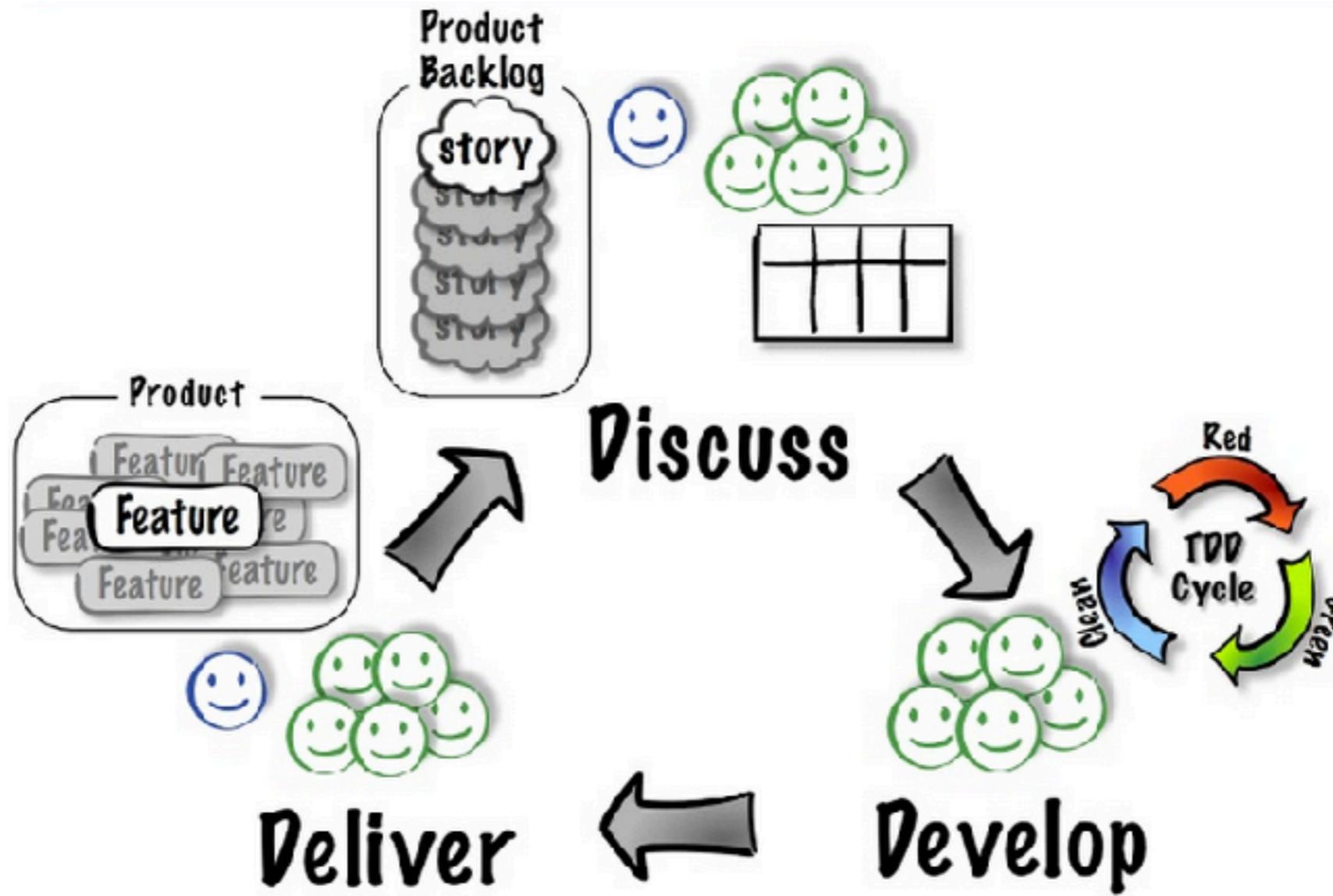
**B**ehavior Driven **D**evelopment

**S**pecification **by E**xample

**E**xample Driven **D**evelopment



# ATDD cycle

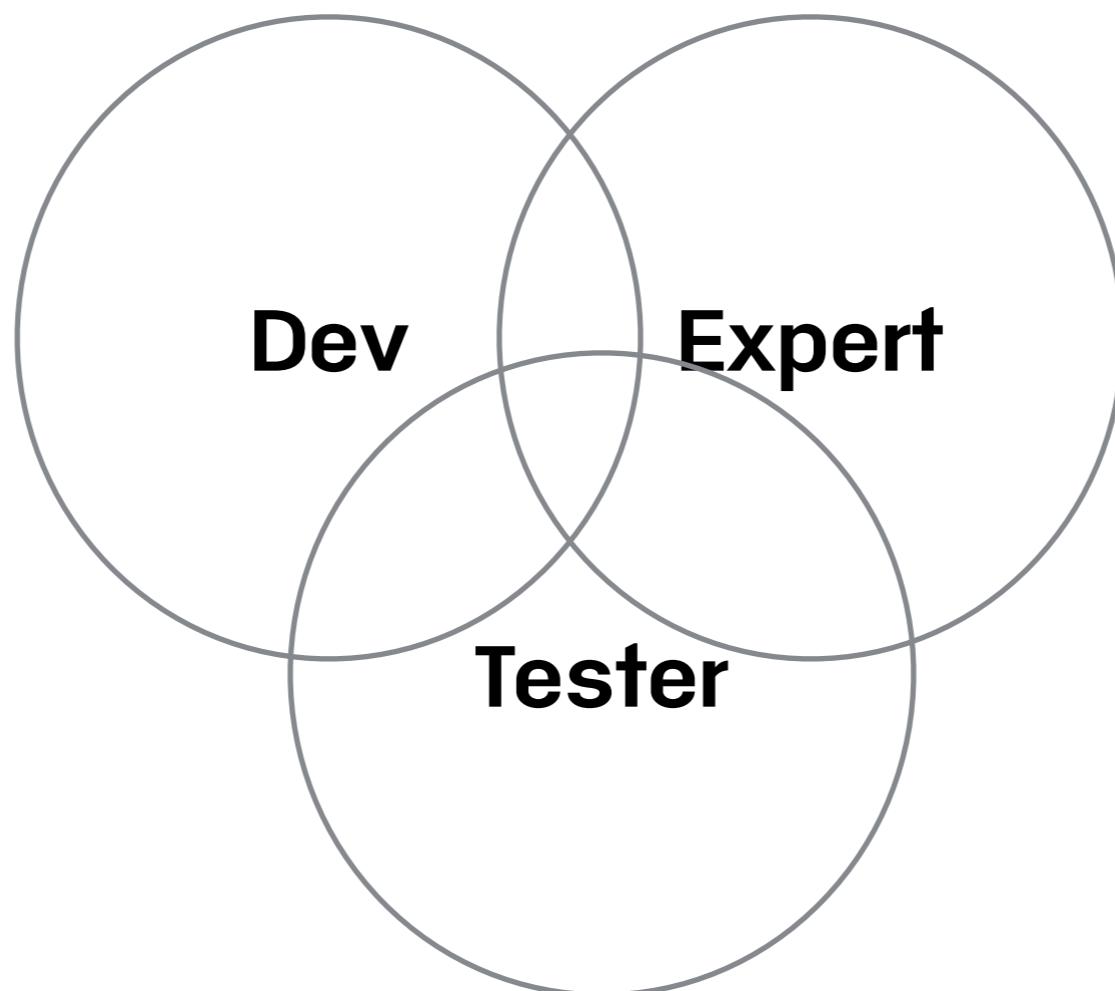


(Model developed with Pekka Klärck, Bas Vodde, and Craig Larman.)



# 1. Discuss

**Whole team** approach



# 1. Discuss

**Whole team** approach

**Sharing** understanding

**Clarify** the solution

**Concrete examples**

Examples can be use in **automated !!**



## 2. Develop

**Implement** work with specified examples

**Automation** of the examples

**Whole team** is responsible on automation

At the end, all automated examples **pass**



# 3. Deliver

Features are **demonstrated** to all stakeholders

All examples pass (new + existing)

**Feedback** as input to the next discuss



# Acceptance Tests

=

## Acceptance Criteria

+

## Examples(data + scenarios)



# Robot Framework



# Introduction

Test automation framework

Designed for Acceptance testing(ATDD)

Developed with Python

Compatible with Java (Jython)



# History

Started from **Pekka Klärck's** masters thesis

HELSINKI UNIVERSITY OF TECHNOLOGY		ABSTRACT OF THE MASTER'S THESIS
<b>Author:</b>	Pekka Laukkanen	
<b>Name of the thesis:</b> Data-Driven and Keyword-Driven Test Automation Frameworks		
<b>Date:</b>	February 24, 2006	<b>Number of pages:</b> 98 + 0
<b>Department:</b>	Department of Computer Science and Engineering	<b>Professorship:</b> T-76
<b>Supervisor:</b>	Prof. Reijo Sulonen	
<b>Instructor:</b>	Harri Töhönen, M.Sc.	



# History

Initialed in 2005 by Nokia Siemens Network

Opensource in 2008

Created [robotframework.org](http://robotframework.org)

Big communities at [Github](https://github.com)



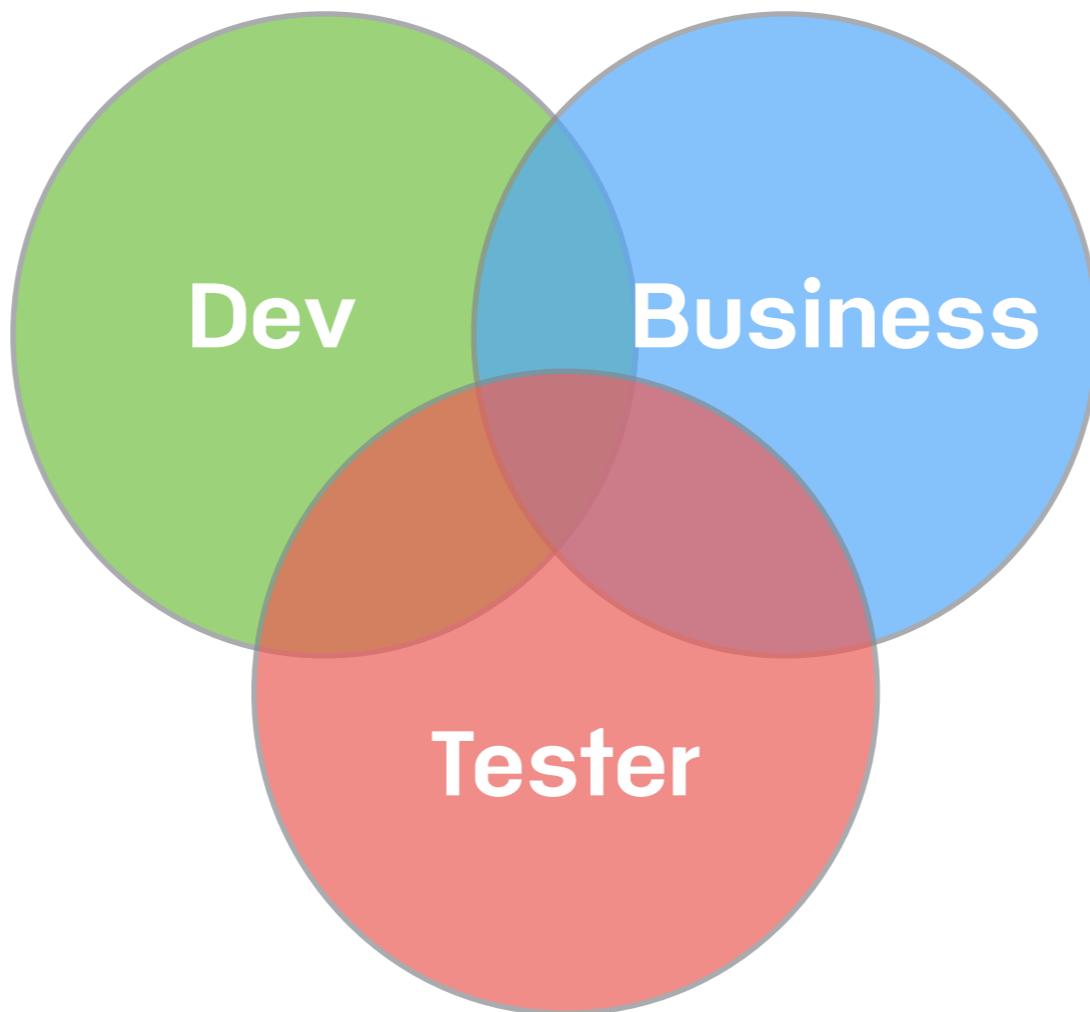
# Concepts

Acceptance Testing

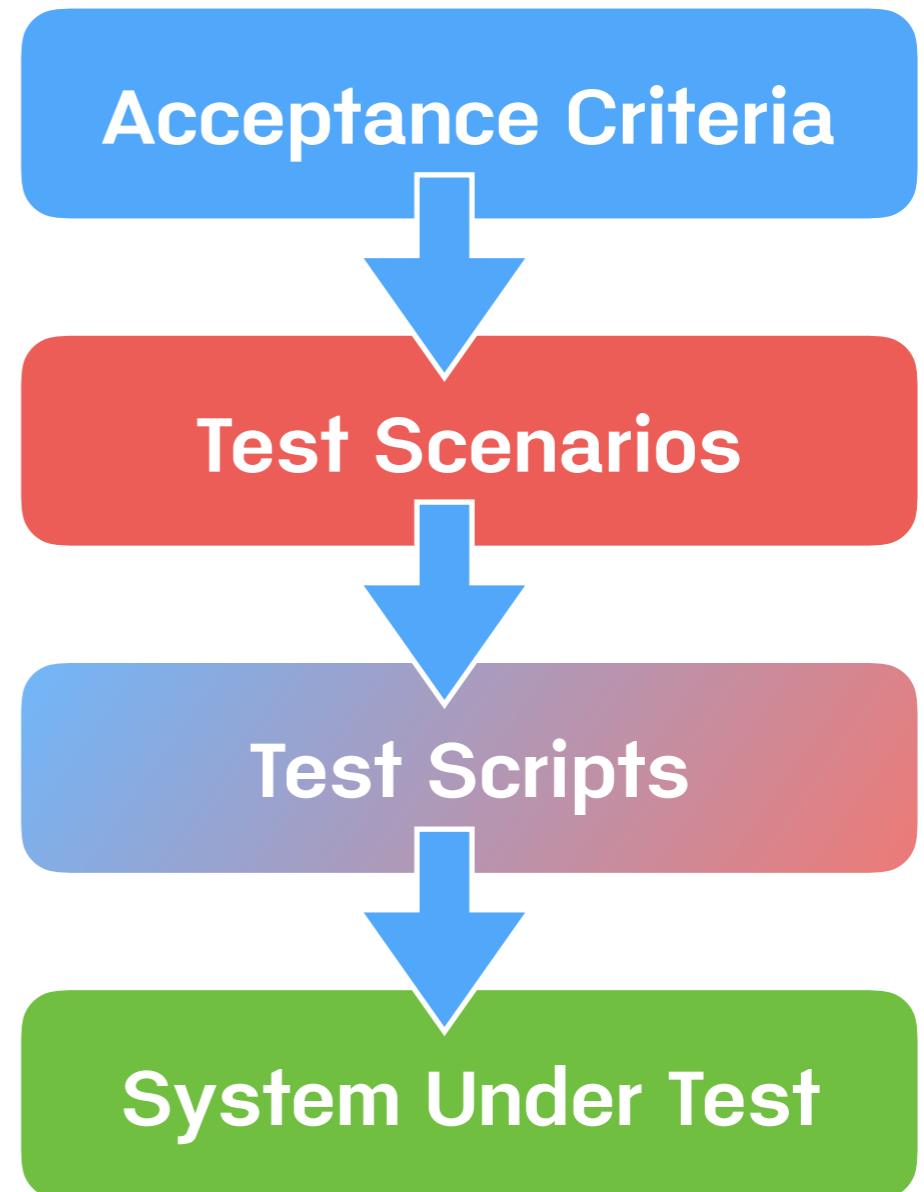
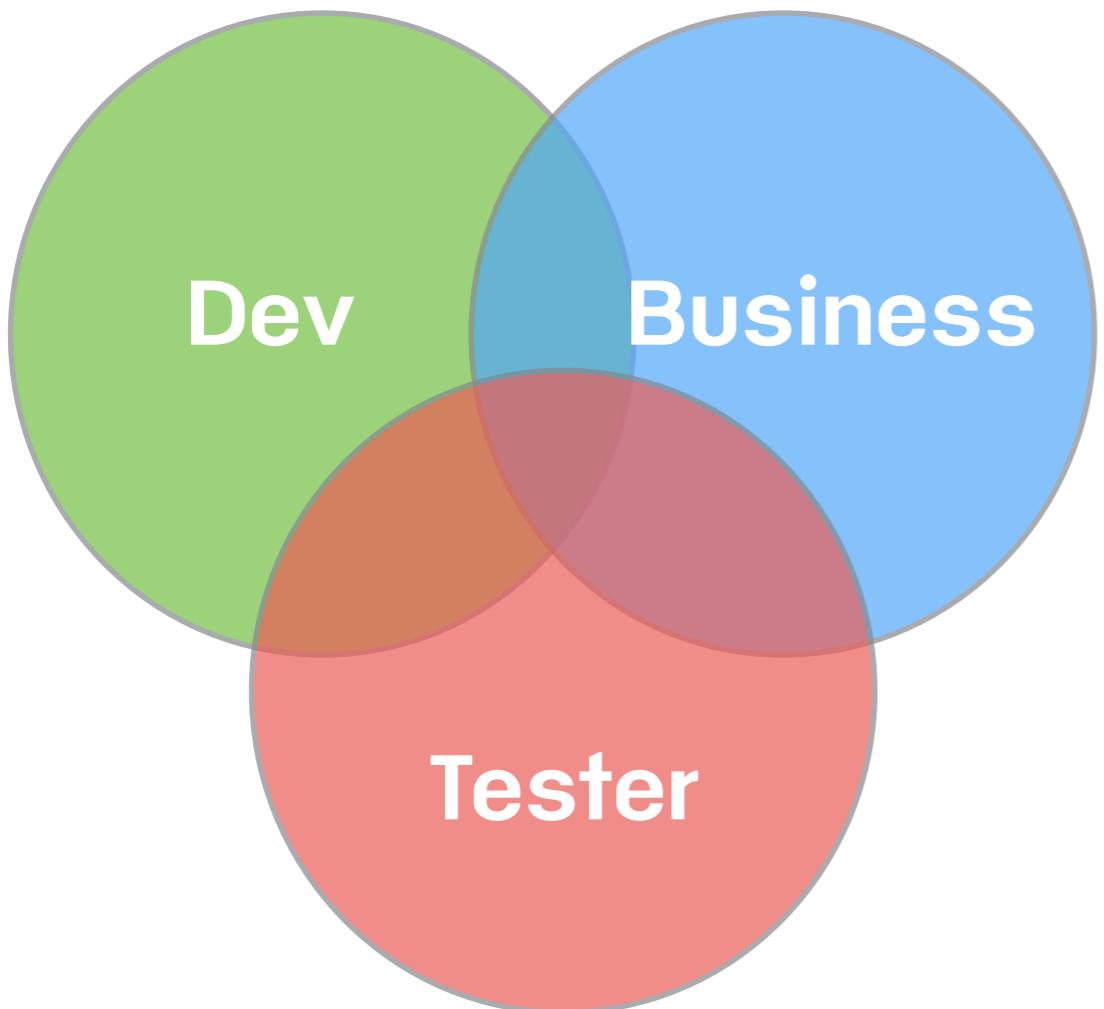
Keyword Driven Development



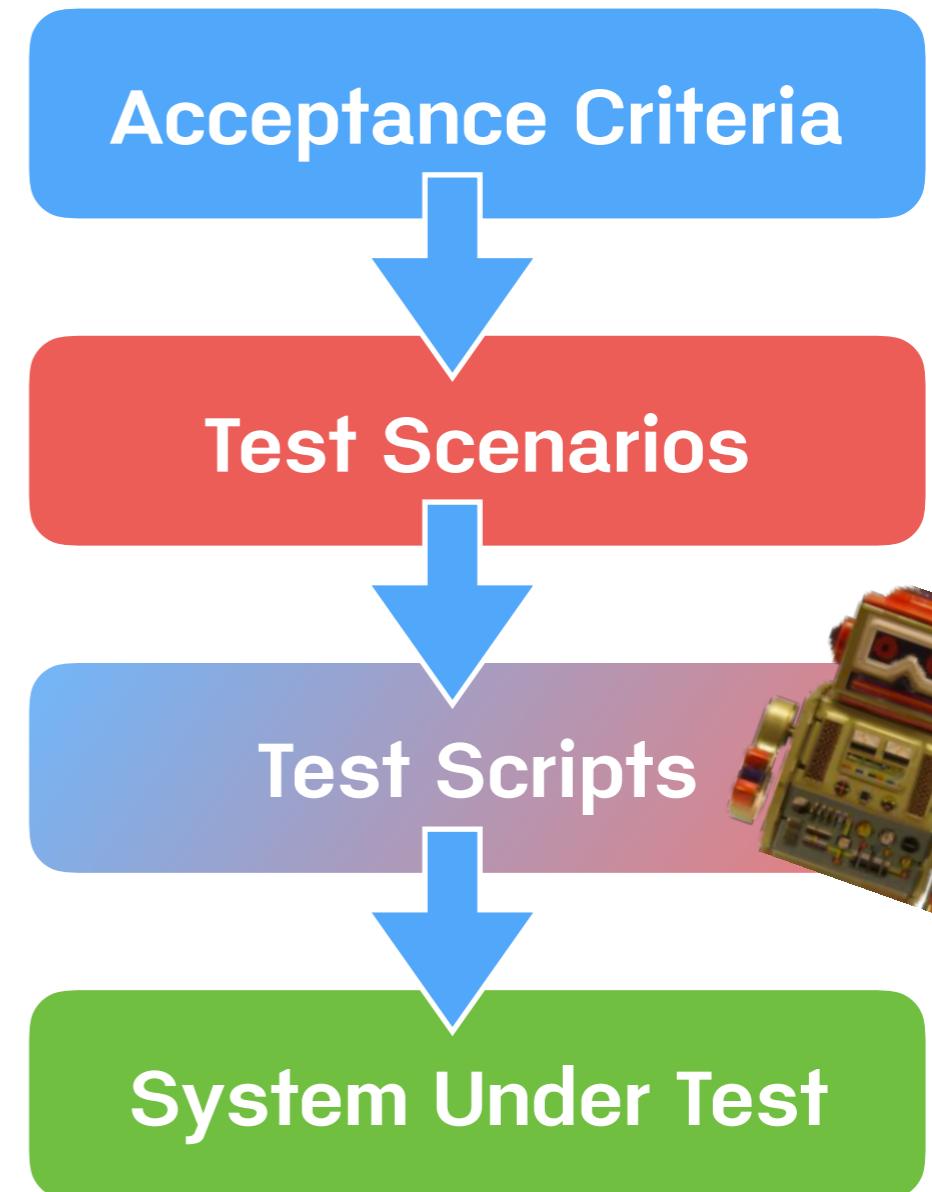
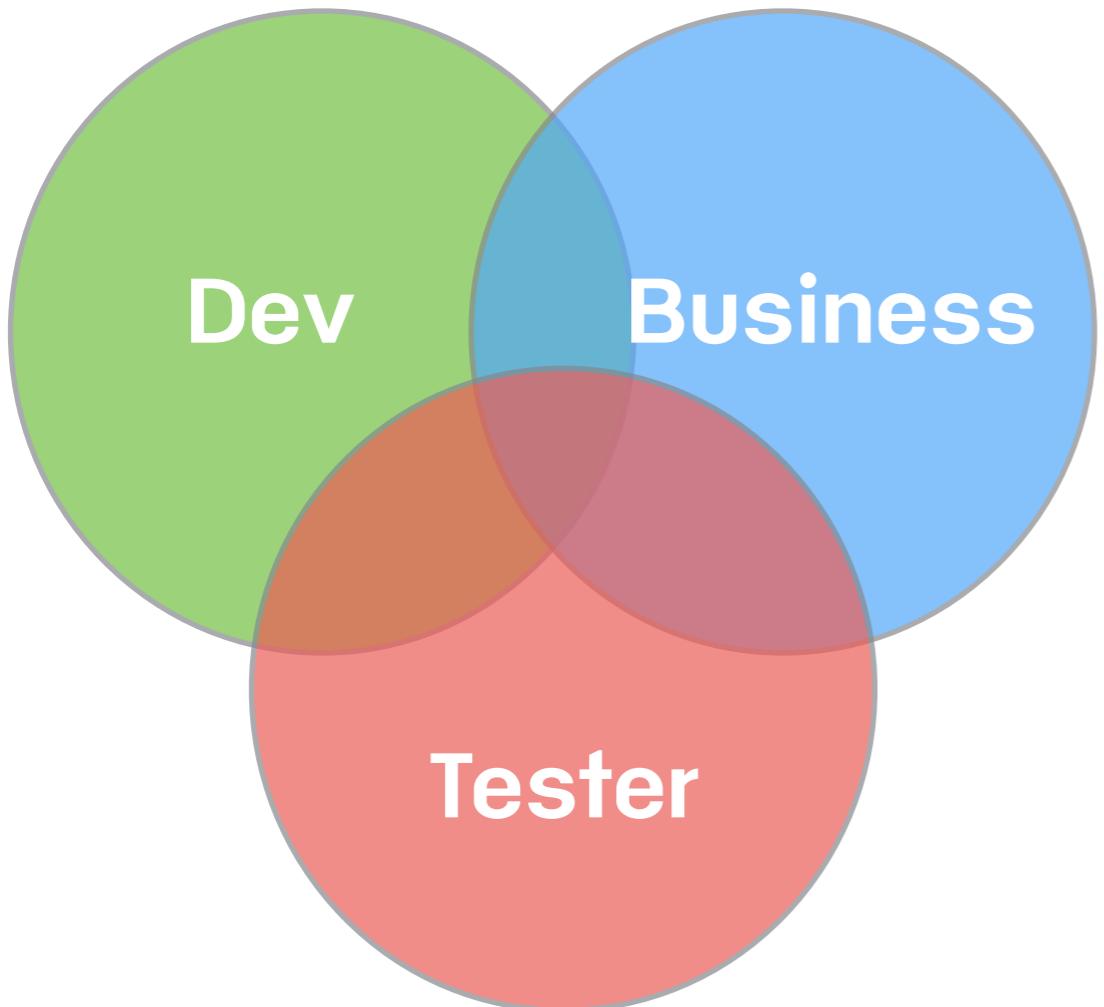
# Acceptance Testing



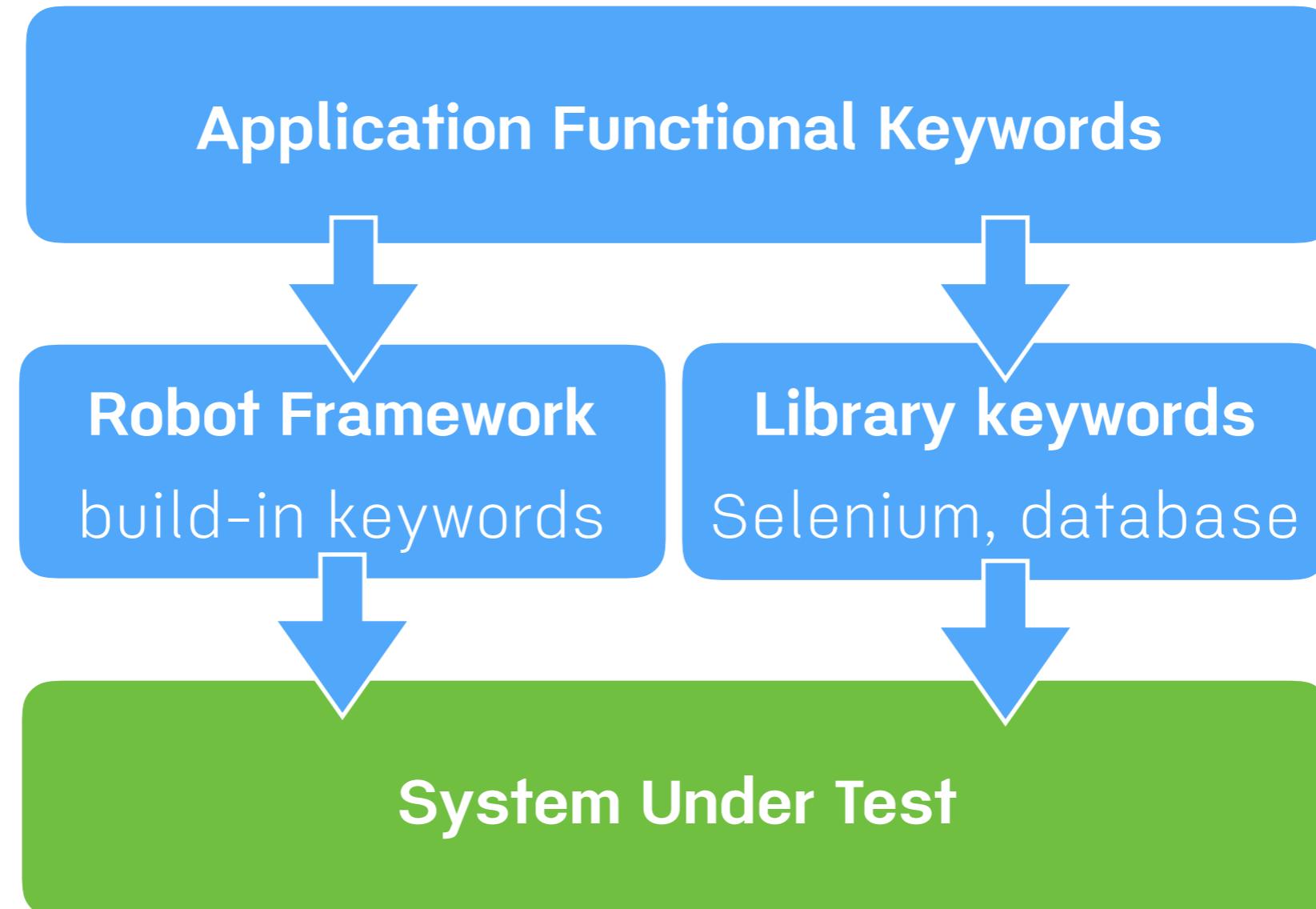
# Acceptance Testing



# Acceptance Testing



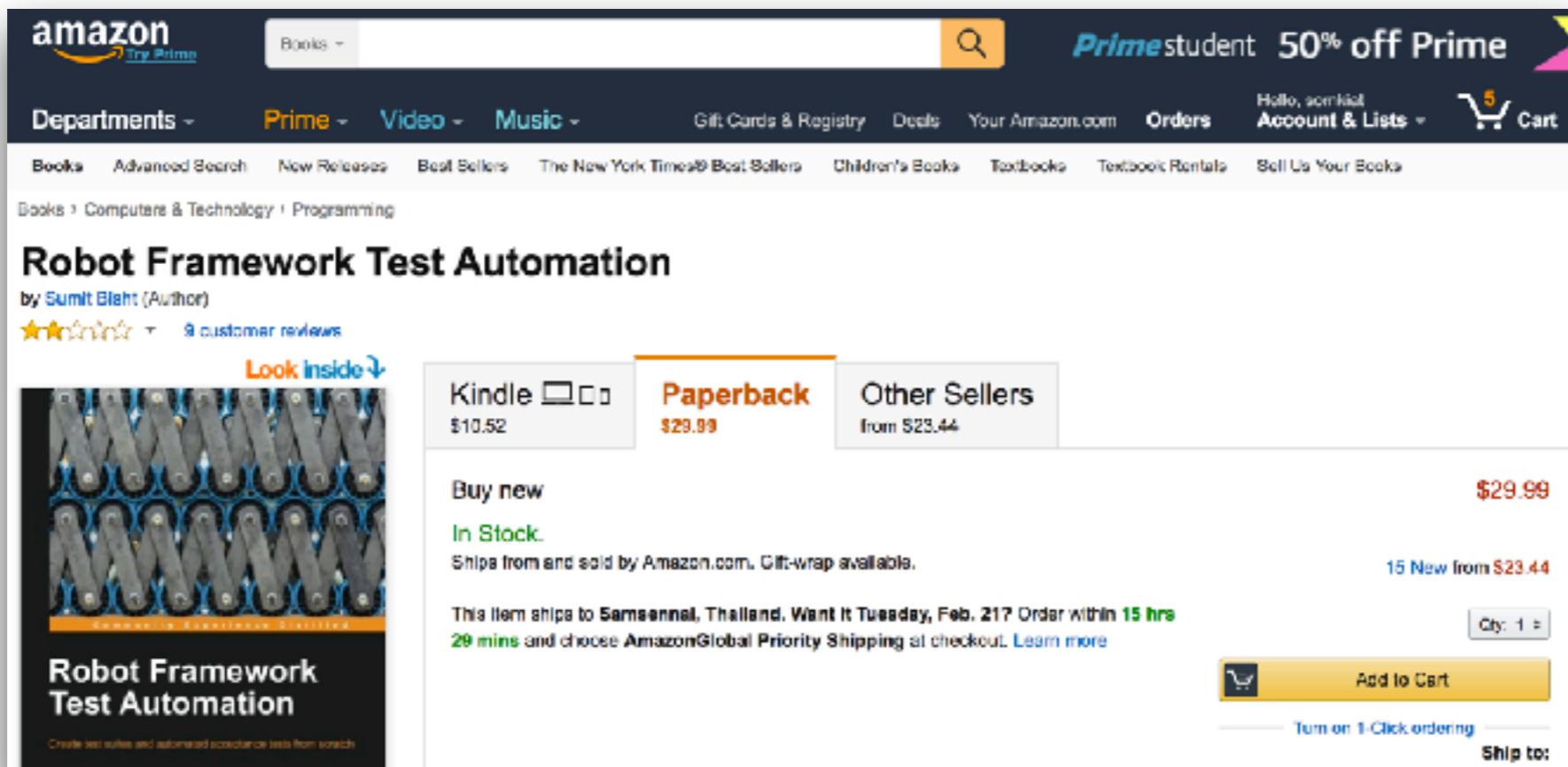
# Keyword Driven Development



# Keyword Driven Development

Example scenario

“Add product to cart”



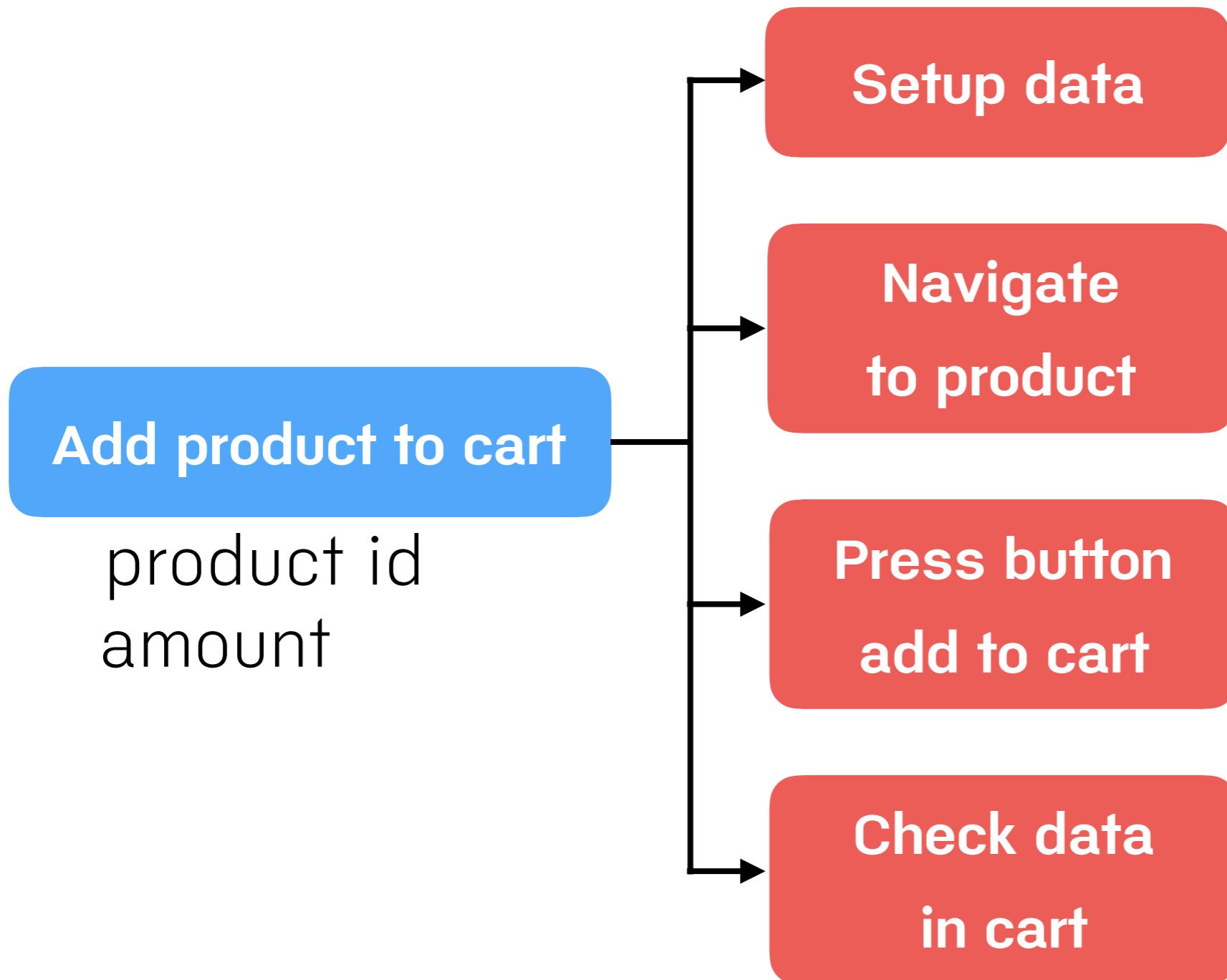
# Add product to cart

**Add product to cart**

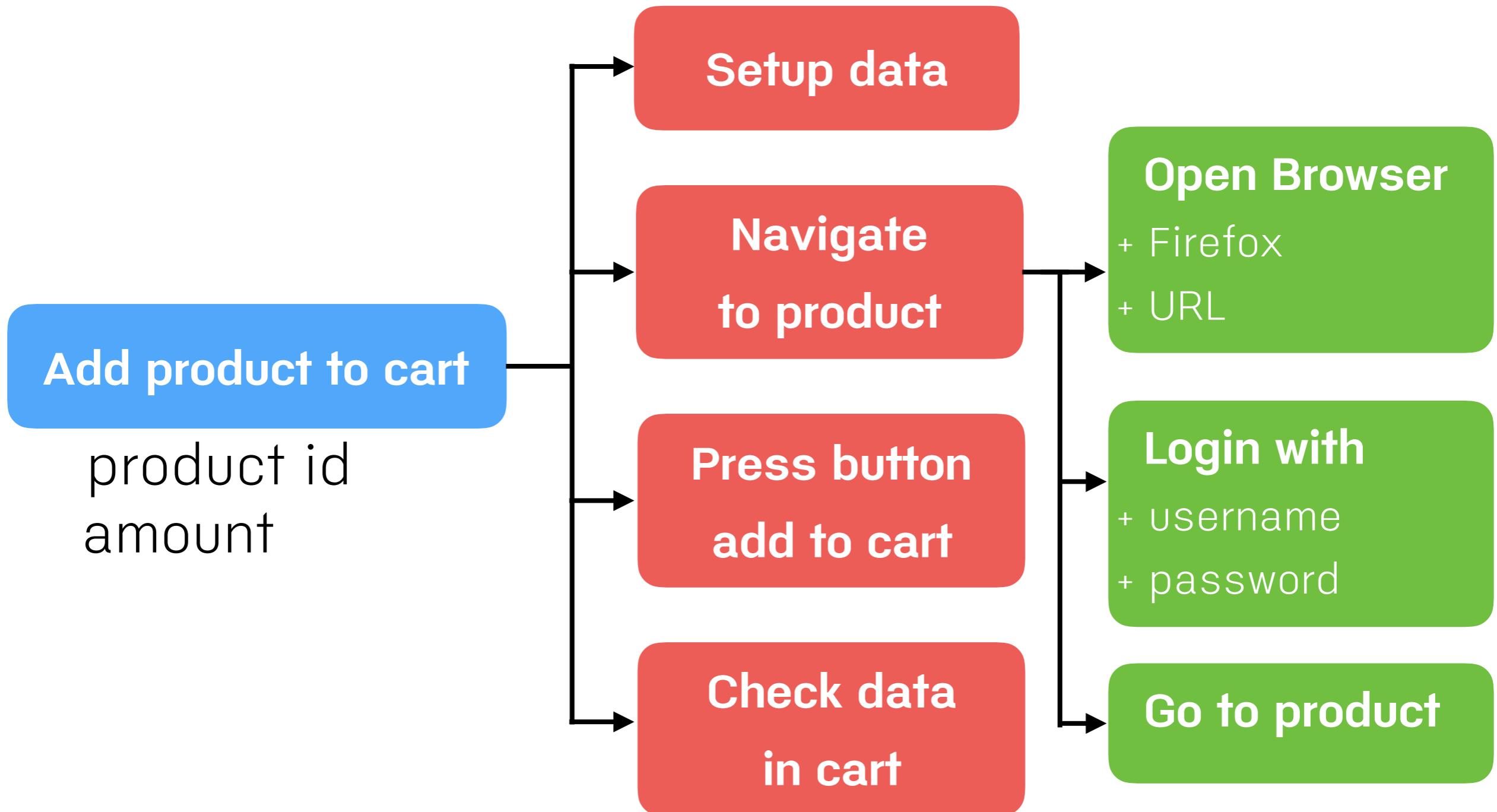
product id  
amount



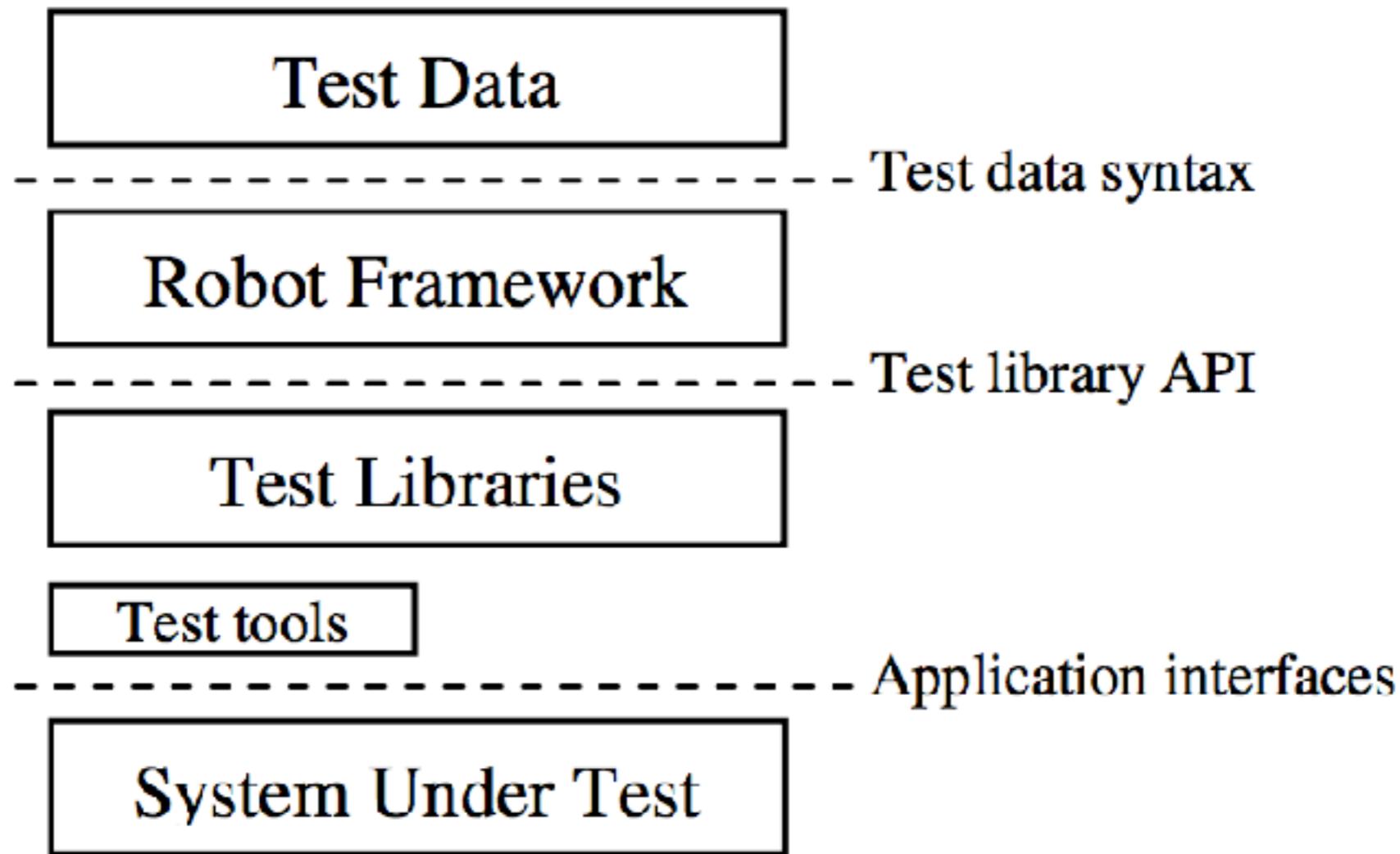
# Add product to cart



# Add product to cart



# High level architecture



# Official website



# ROBOT FRAME WORK/

## INTRODUCTION

**Robot Framework** is a generic test automation framework for acceptance testing and acceptance test-driven development (ATDD). It has easy-to-use tabular test data

<http://robotframework.org/>



# Robot Framework Development



# Installation

1. Python 2.7.13
2. PIP (Package manager for python)
3. Robot Framework
4. Robot Framework Libraries
5. IDE and Editor



# 1. Install python and pip



# For Windows



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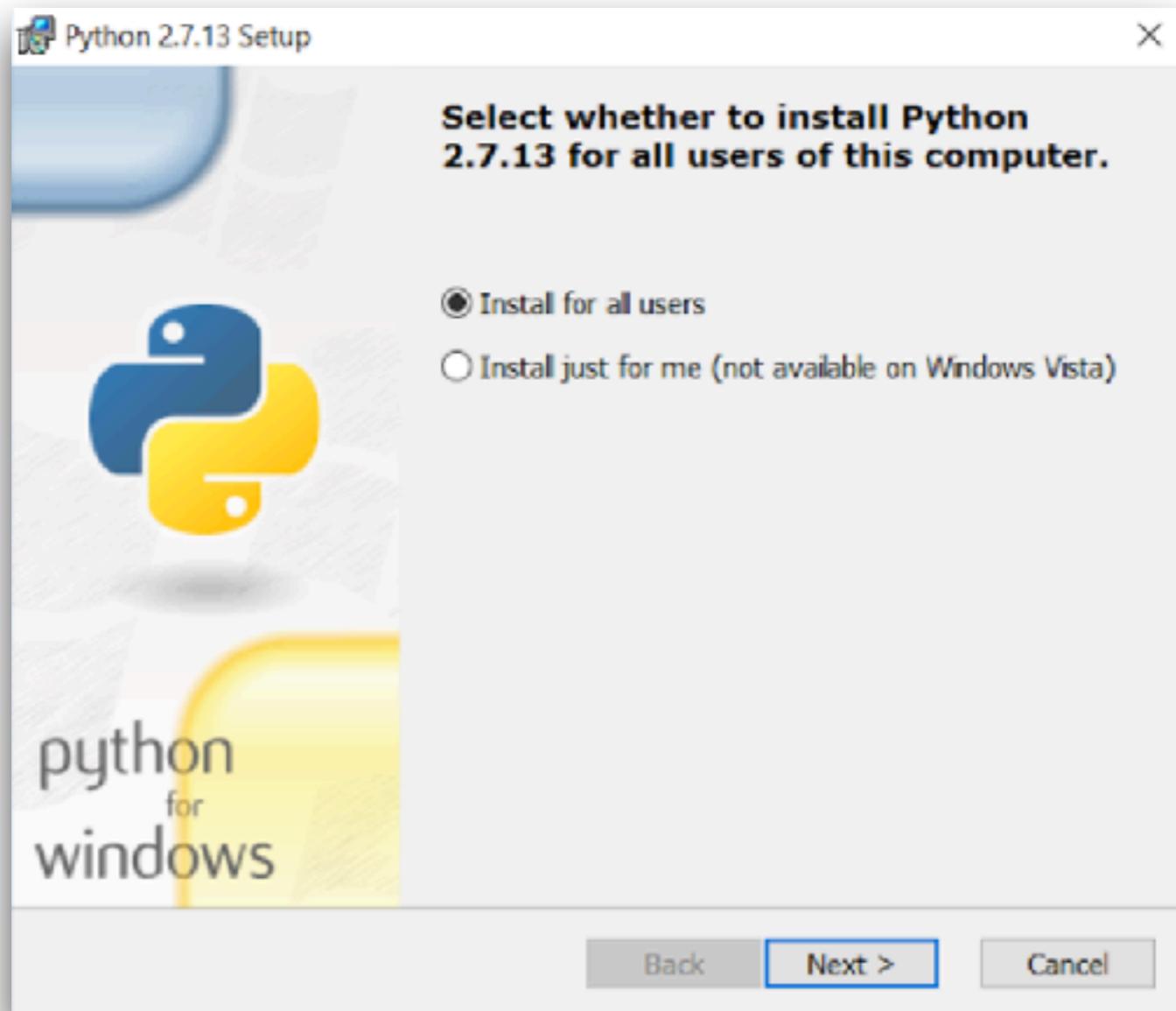
# Download Python 2.7.13

<https://www.python.org/>

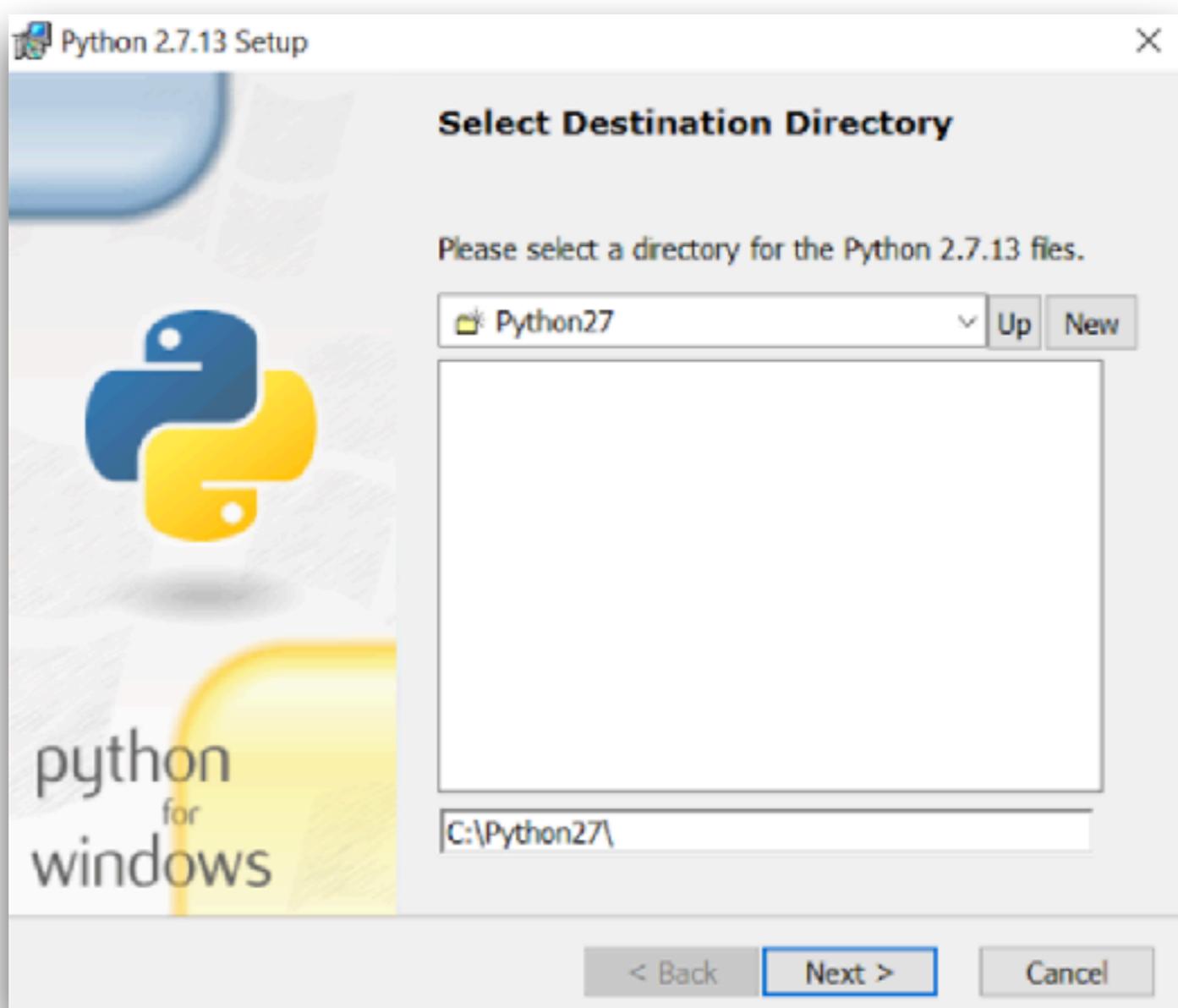
The screenshot shows the Python.org homepage. At the top, there is a navigation bar with links for About, Downloads, Documentation, Community, Success Stories, News, and Events. The 'Downloads' link is highlighted with a red circle. To its right is a search bar with a magnifying glass icon and a 'GO' button. Further to the right are 'Socialize' and 'Sign In' buttons. Below the navigation bar, there is a sidebar on the left containing a snippet of Python code and a list of download options: All releases, Source code, Windows, Mac OS X, Other Platforms, License, and Alternative Implementations. The main content area is titled 'Download for Mac OS X' and features two download buttons for 'Python 3.6.0' and 'Python 2.7.13'. Below these buttons, there is a note stating that Python can be used on many operating systems and environments, followed by a link to 'View the full list of downloads'. At the bottom of the page, there is a promotional message: 'Python is a programming language that lets you work quickly and integrate systems more effectively. [» Learn More](#)'.



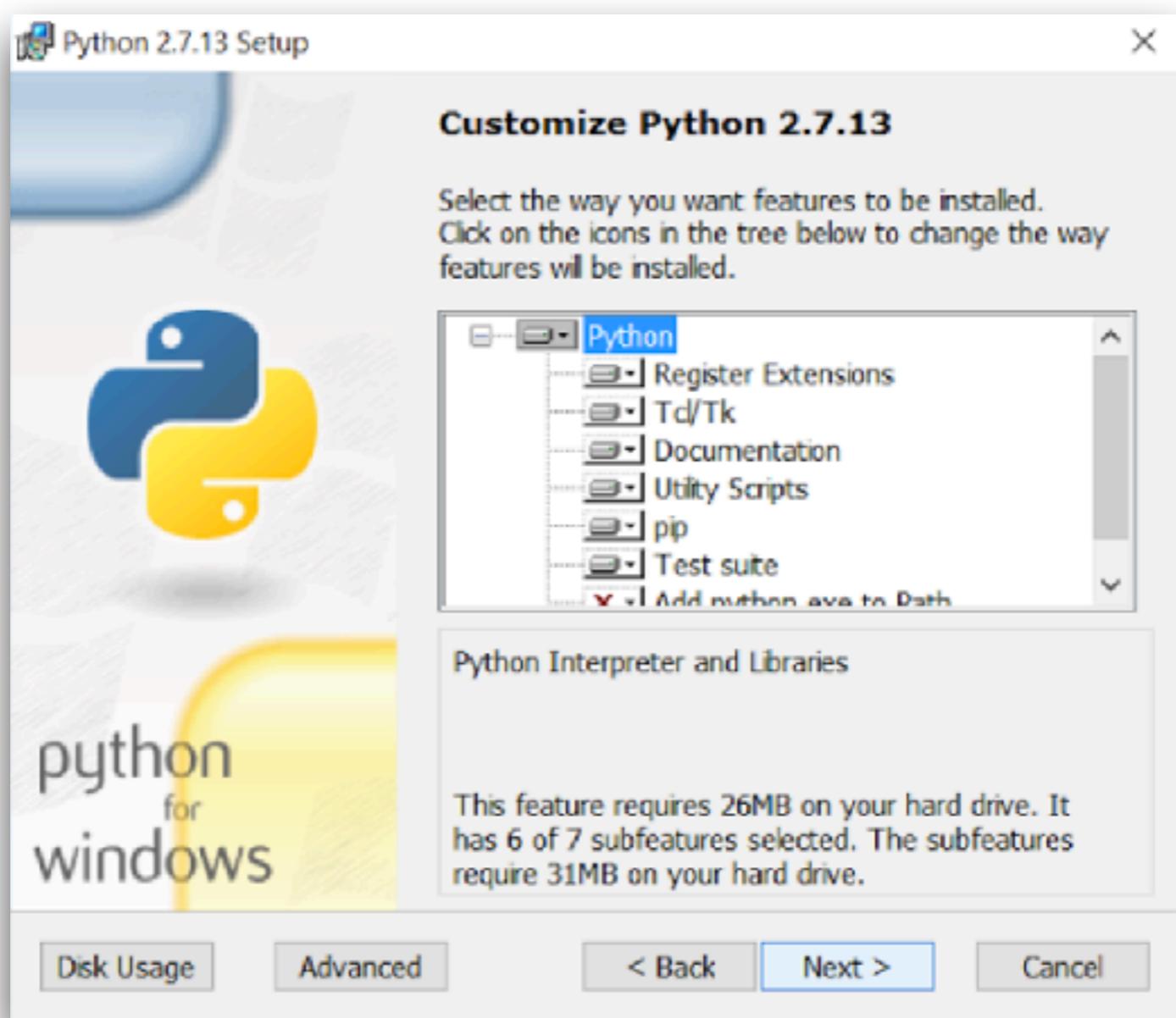
# Install Python 2.7.13



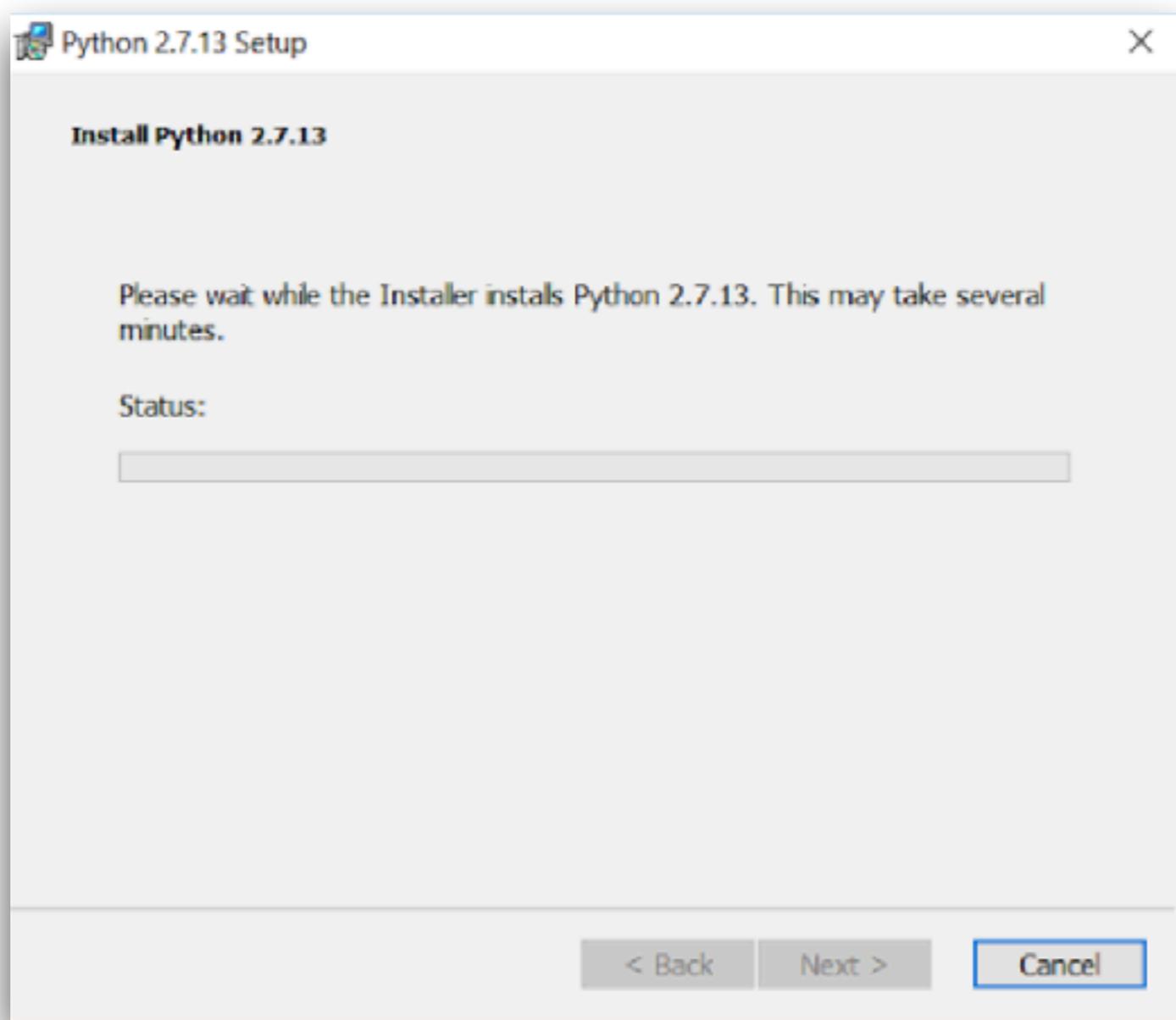
# Install Python 2.7.13



# Install Python 2.7.13



# Install Python 2.7.13



# Install Python 2.7.13



# Run python in command line

\$python

```
Command Prompt

C:\Users\SCK>python
'python' is not recognized as an internal or external command,
operable program or batch file.
```



# Run pip in command line

\$pip

```
Command Prompt

C:\Users\SCK>pip
'pip' is not recognized as an internal or external command,
operable program or batch file.
```



# Configuration in command line

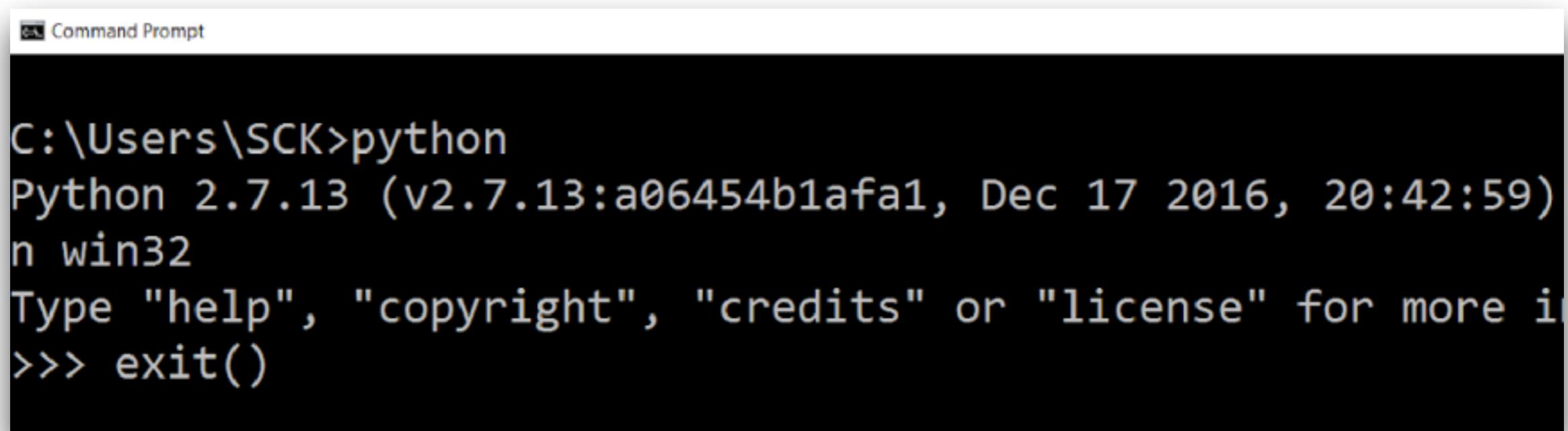
```
$set PYTHON_HOME=c:\python27
```

```
$set PATH=.;%PYTHON_HOME%;%PYTHON_HOME%\Scripts;%PATH%
```



# Run python in command line

\$python



A screenshot of a Windows Command Prompt window titled "Command Prompt". The window shows the following text:

```
C:\Users\SCK>python
Python 2.7.13 (v2.7.13:a06454b1afa1, Dec 17 2016, 20:42:59)
n win32
Type "help", "copyright", "credits" or "license" for more i
>>> exit()
```



# Run pip in command line

\$pip

```
Command Prompt

C:\Users\SCK>pip

Usage:
    pip <command> [options]

Commands:
    install                         Install packages.
    download                        Download packages.
    uninstall                       Uninstall packages.
    freeze                          Output installed packages in a requirements file.
    list                            List installed packages.
    show                            Show information about installed packages.
    check                           Verify installed packages.
    search                          Search PyPI for packages.
```



# Permanent configuration



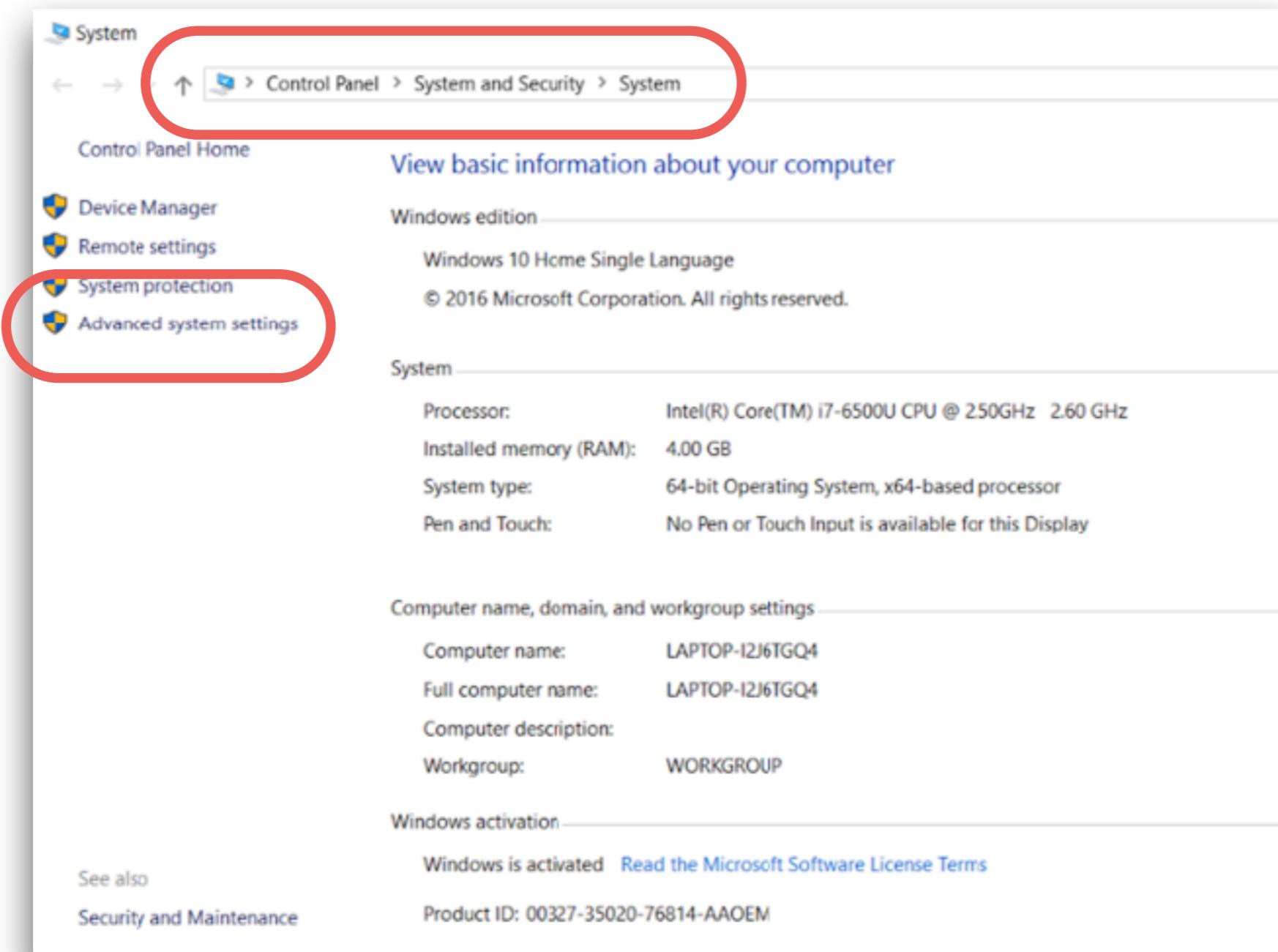
# Configuration

Go to Control Panel -> System and Security -> System

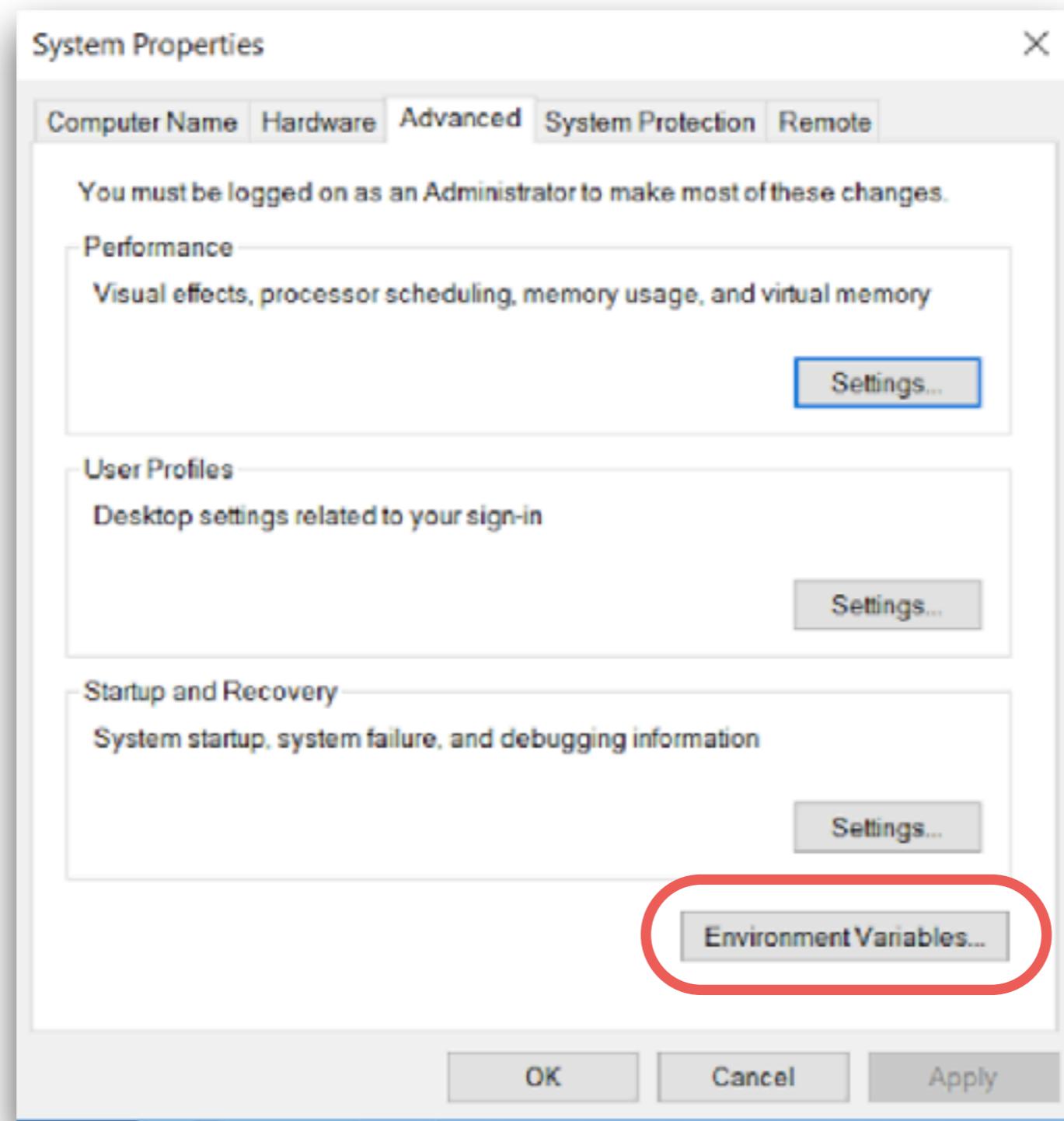
Go to Advanced system settings



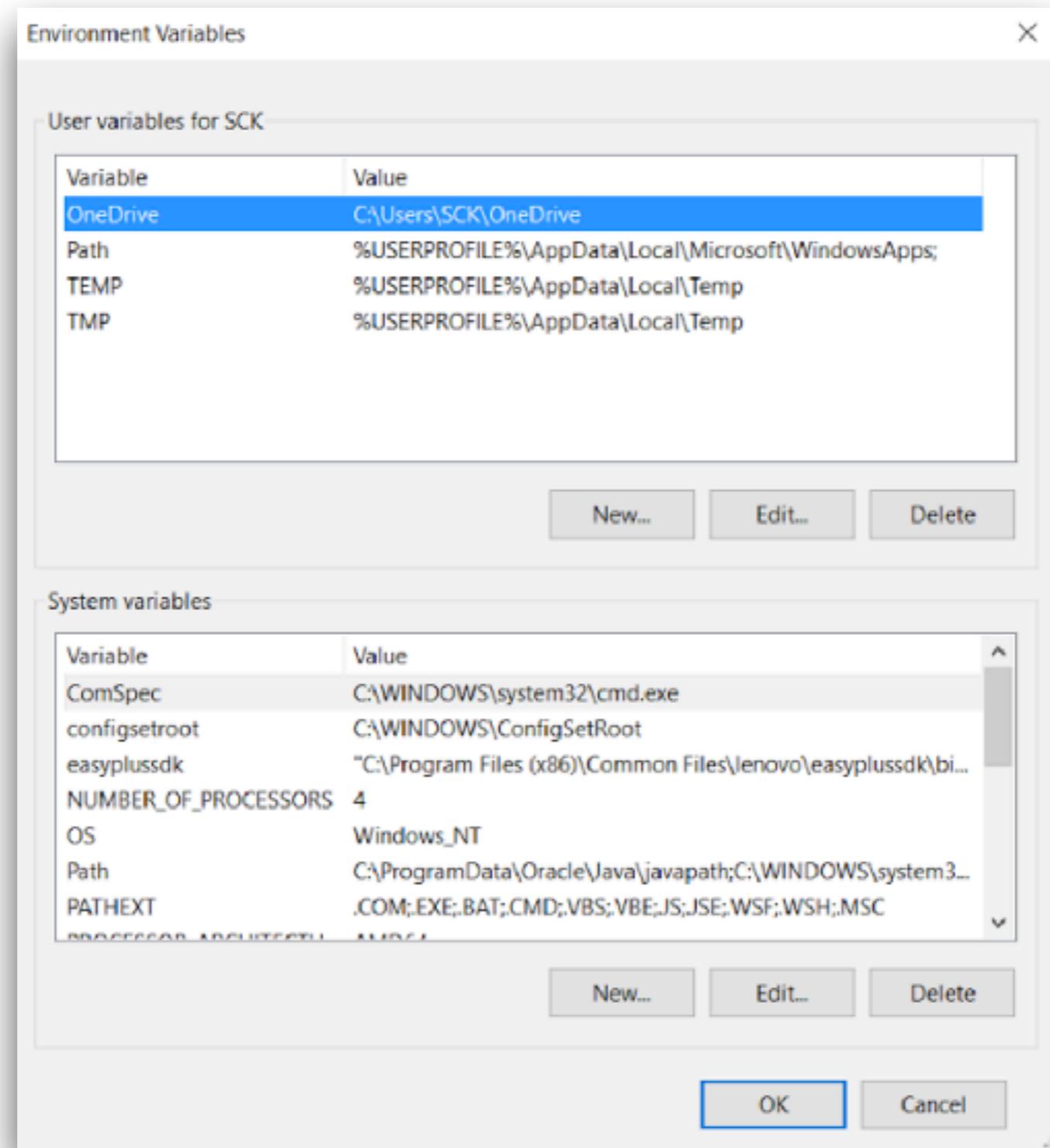
# Configuration



# Configuration



# Configuration



# Configuration

New User Variable X

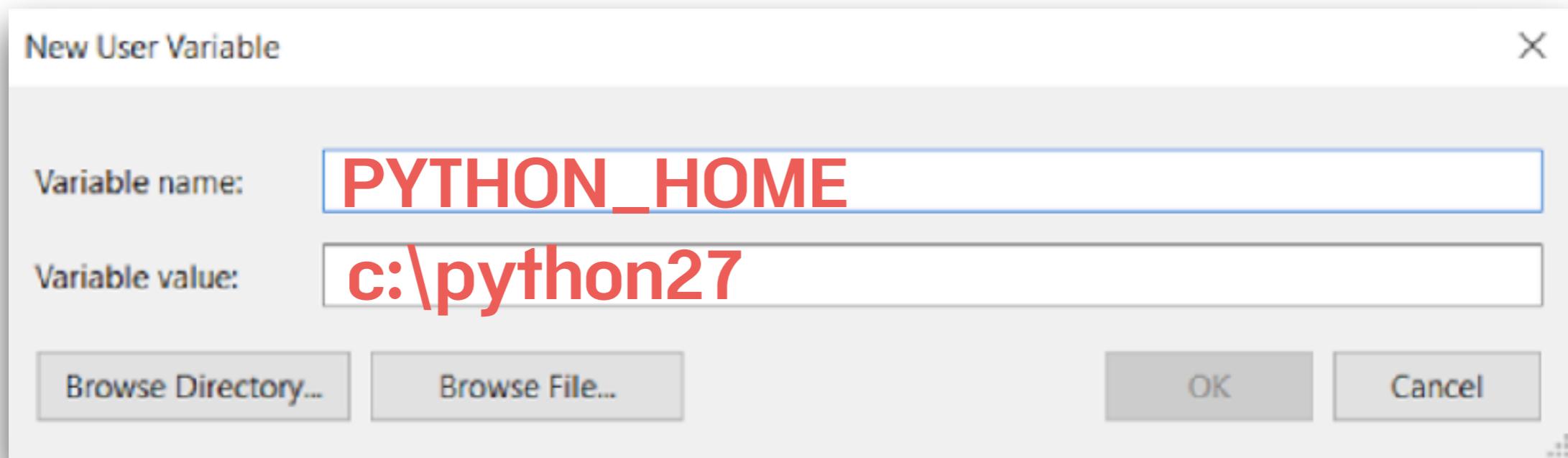
Variable name:

Variable value:

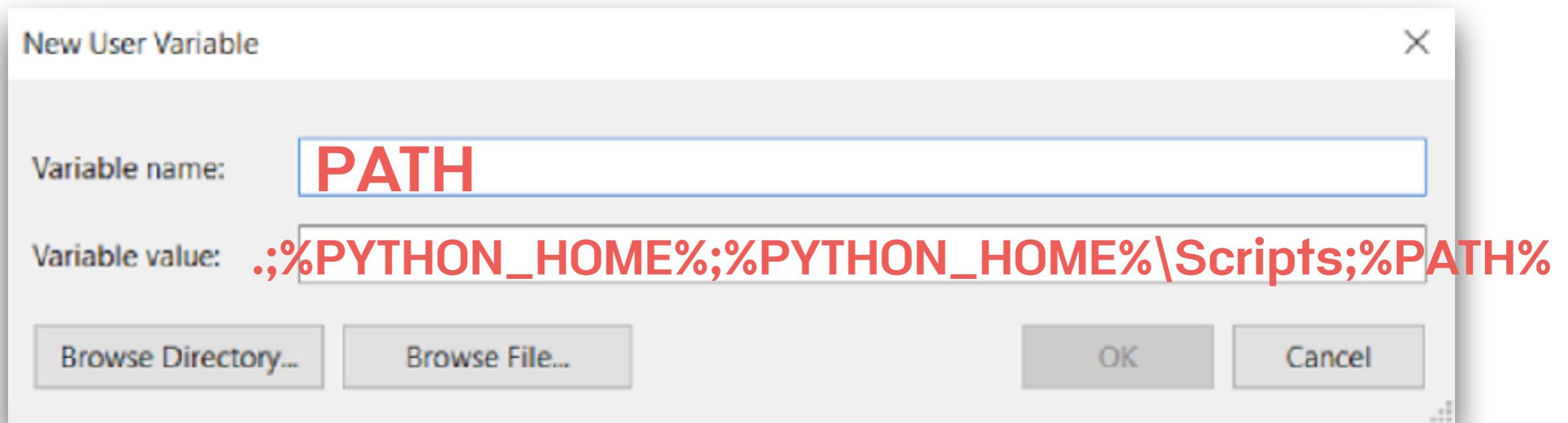
Browse Directory... Browse File... OK Cancel



# Configuration PYTHON\_HOME



# Configuration PATH



# For MacOs



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# Install pip

```
$easy_install pip
```



## 2. Install Robot Framework



# Install Robot Framework

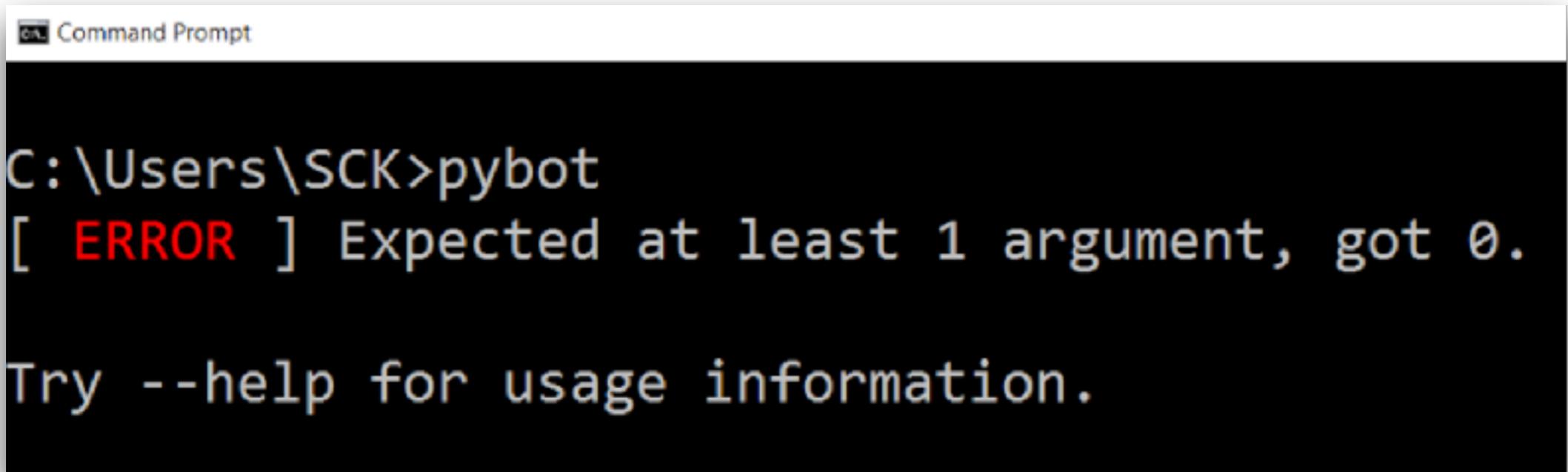
\$pip install robotframework

```
Command Prompt  
C:\Users\SCK>pip install robotframework  
Collecting robotframework  
  Downloading robotframework-3.0.2.tar.gz (440kB)  
    100% |#####|####|####|####|####|####|####|####|####| 450kB 656kB/s  
Installing collected packages: robotframework  
  Running setup.py install for robotframework ... done  
Successfully installed robotframework-3.0.2
```



# Check Robot Framework

\$pybot



```
Command Prompt
C:\Users\SCK>pybot
[ ERROR ] Expected at least 1 argument, got 0.

Try --help for usage information.
```



# Install Robot Framework Library

\$pip install robotframework-seleniumlibrary

```
C:\Users\SCK>pip install robotframework-seleniumlibrary
Collecting robotframework-seleniumlibrary
  Downloading robotframework-seleniumlibrary-1.8.0.tar.gz
    100% |#####| ###### ###### ###### ###### ######| 122kB 547kB/s
Collecting decorator>=3.3.2 (from robotframework-seleniumlibrary)
  Downloading decorator-4.0.11-py2.py3-none-any.whl
Collecting selenium>=2.32.0 (from robotframework-seleniumlibrary)
  Downloading selenium-3.0.2-py2.py3-none-any.whl (915kB)
    100% |#####| ###### ###### ###### ######| 921kB 437kB/s
Requirement already satisfied: robotframework>=2.6.0 in c:\users\sck\appdata\local\temp\pip-req-build-1qjwv\robotframework-seleniumlibrary
Installing collected packages: decorator, selenium, robotframework-seleniumlibrary
  Running setup.py install for robotframework-seleniumlibrary
Successfully installed decorator-4.0.11 robotframework-seleniumlibrary-1.8.0.2
```

<https://github.com/robotframework/SeleniumLibrary/>



# Check libraries

\$pip freeze

***robotframework==3.0.3***

***robotframework-seleniumlibrary==3.1.1***

***selenium==3.11.0***



# **3. Install IDE and Editor**



# Text Editor



**Sublime Text**



# Let's start to coding



# Test structure

```
test_000.txt *  
1 *** Settings ***  
2  
3  
4 *** Variables ***  
5  
6  
7 *** Testcases ***  
8  
9  
10 *** Keyword ***
```



# Settings

**Alias Name** => Setting, Settings, Metadata

Define metadata for test suites and test cases

Import test libraries

Resource files



# Variables

**Alias Name => Variable, Variables**



# Test cases

**Alias Name** => Testcases, Test Case, Test Cases

Create test cases from keywords



# Keywords

**Alias Name =>** Keyword, Keywords, User Keyword,  
User Keywords

Create user keywords from existing low-level keyword



# Web UI testing



# SeleniumLibrary

<https://github.com/robotframework/SeleniumLibrary/>



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# SeleniumLibrary Keywords

Add Cookie · Add Location Strategy · Alert Should Be Present · Alert Should Not Be Present · Assign Id To Element · Capture Page Screenshot · Checkbox Should Be Selected · Checkbox Should Not Be Selected · Choose Cancel On Next Confirmation · Choose File · Choose Ok On Next Confirmation · Clear Element Text · Click Button · Click Element · Click Element At Coordinates · Click Image · Click Link · Close All Browsers · Close Browser · Close Window · Confirm Action · Create Webdriver · Current Frame Contains · Current Frame Should Contain · Current Frame Should Not Contain · Delete All Cookies · Delete Cookie · Dismiss Alert · Double Click Element · Drag And Drop · Drag And Drop By Offset · Element Should Be Disabled · Element Should Be Enabled · Element Should Be Focused · Element Should Be Visible · Element Should Contain · Element Should Not Be Visible · Element Should Not Contain · Element Text Should Be · Element Text Should Not Be · Execute Async Javascript · Execute Javascript · Focus · Frame Should Contain · Get Alert Message · Get All Links · Get Cookie · Get Cookie Value · Get Cookies · Get Element Attribute · Get Element Count · Get Element Size · Get Horizontal Position · Get List Items · Get Location · Get Locations · Get Matching Xpath Count · Get Selected List Label · Get Selected List Labels · Get Selected List Value · Get Selected List Values · Get Selenium Implicit Wait · Get Selenium Speed · Get Selenium Timeout · Get Source · Get Table Cell · Get Text · Get Title · Get Value · Get Vertical Position · Get WebElement · Get WebElements · Get Window Handles · Get Window Identifiers · Get Window Names · Get Window Position · Get Window Size · Get Window Titles · Go Back · Go To · Handle Alert · Input Password · Input Text · Input Text Into Alert · Input Text Into Prompt · List Selection Should Be · List Should Have No Selections · List Windows · Location Should Be · Location Should Contain · Locator Should Match X Times · Log Location · Log Source · Log Title · Maximize Browser Window · Mouse Down · Mouse Down On Image · Mouse Down On Link · Mouse Out · Mouse Over · Mouse Up · Open Browser · Open Context Menu · Page Should Contain · Page Should Contain Button · Page Should Contain Checkbox · Page Should Contain Element · Page Should Contain Image · Page Should Contain Link · Page Should Contain List · Page Should Contain Radio Button · Page Should Contain Textfield · Page Should Not Contain · Page Should Not Contain Button · Page Should Not Contain Checkbox · Page Should Not Contain Element · Page Should Not Contain Image · Page Should Not Contain Link · Page Should Not Contain List · Page Should Not Contain Radio Button · Page Should Not Contain Textfield · Press Key · Radio Button Should Be Set To · Radio Button Should Not Be Selected · Register Keyword To Run On Failure · Reload Page · Remove Location Strategy · Select All From List · Select Checkbox · Select Frame · Select From List · Select From List By Index · Select From List By Label · Select From List By Value · Select Radio Button · Select Window · Set Browser Implicit Wait · Set Focus To Element · Set Screenshot Directory · Set Selenium Implicit Wait · Set Selenium Speed · Set Selenium Timeout · Set Window Position · Set Window Size · Simulate · Simulate Event · Submit Form · Switch Browser · Table Cell Should Contain · Table Column Should Contain · Table Footer Should Contain · Table Header Should Contain · Table Row Should Contain · Table Should Contain · Textarea Should Contain · Textarea Value Should Be · Textfield Should Contain · Textfield Value Should Be · Title Should Be · Unselect All From List · Unselect Checkbox · Unselect Frame · Unselect From List · Unselect From List By Index · Unselect From List By Label · Unselect From List By Value · Wait For Condition · Wait Until Element Contains · Wait Until Element Does Not Contain · Wait Until Element Is Enabled · Wait Until Element Is Not Visible · Wait Until Element Is Visible · Wait Until Page Contains · Wait Until Page Contains Element · Wait Until Page Does Not Contain · Wait Until Page Does Not Contain Element · Xpath Should Match X Times

<http://robotframework.org/SeleniumLibrary/SeleniumLibrary.html>

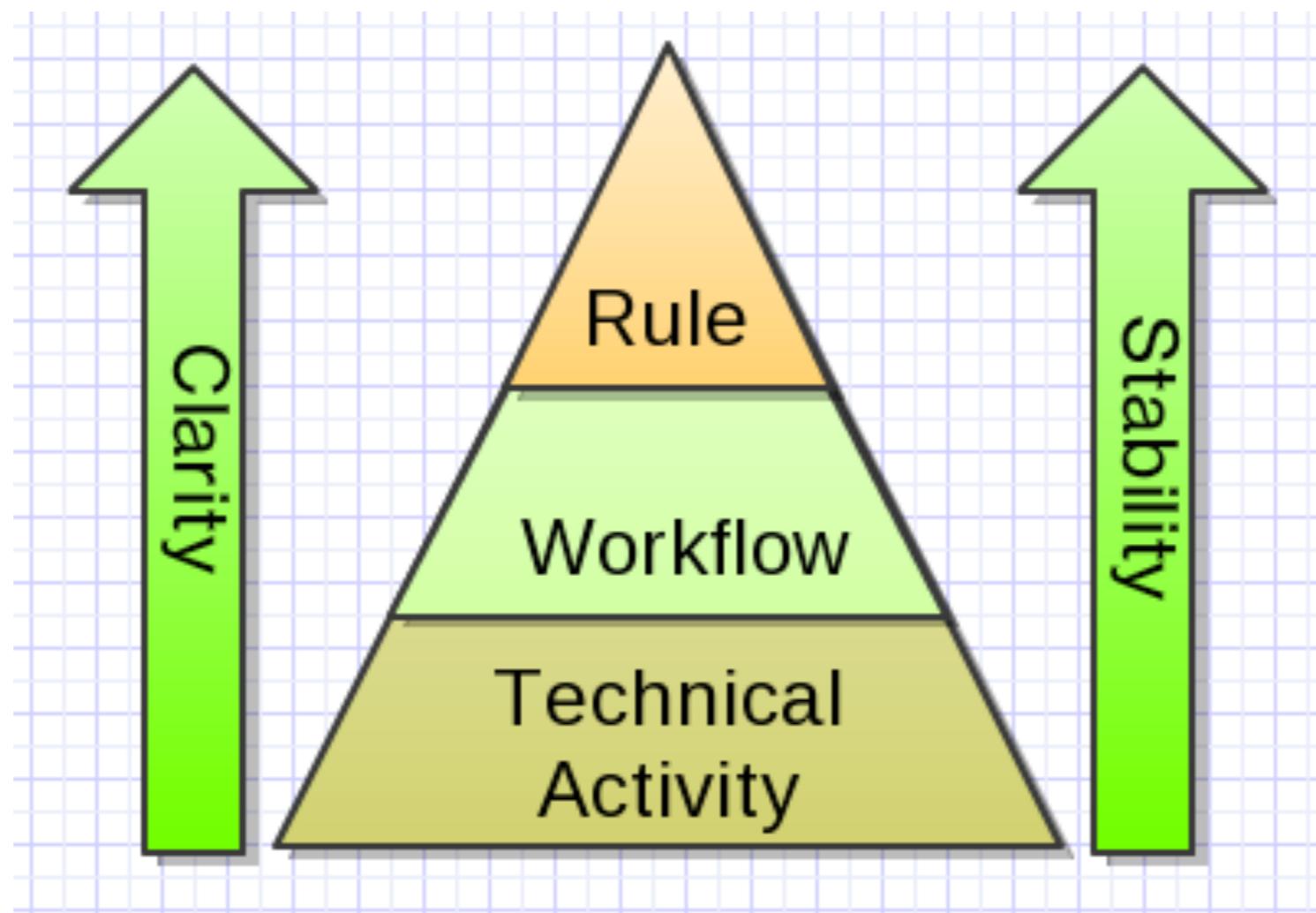


# Hello with google

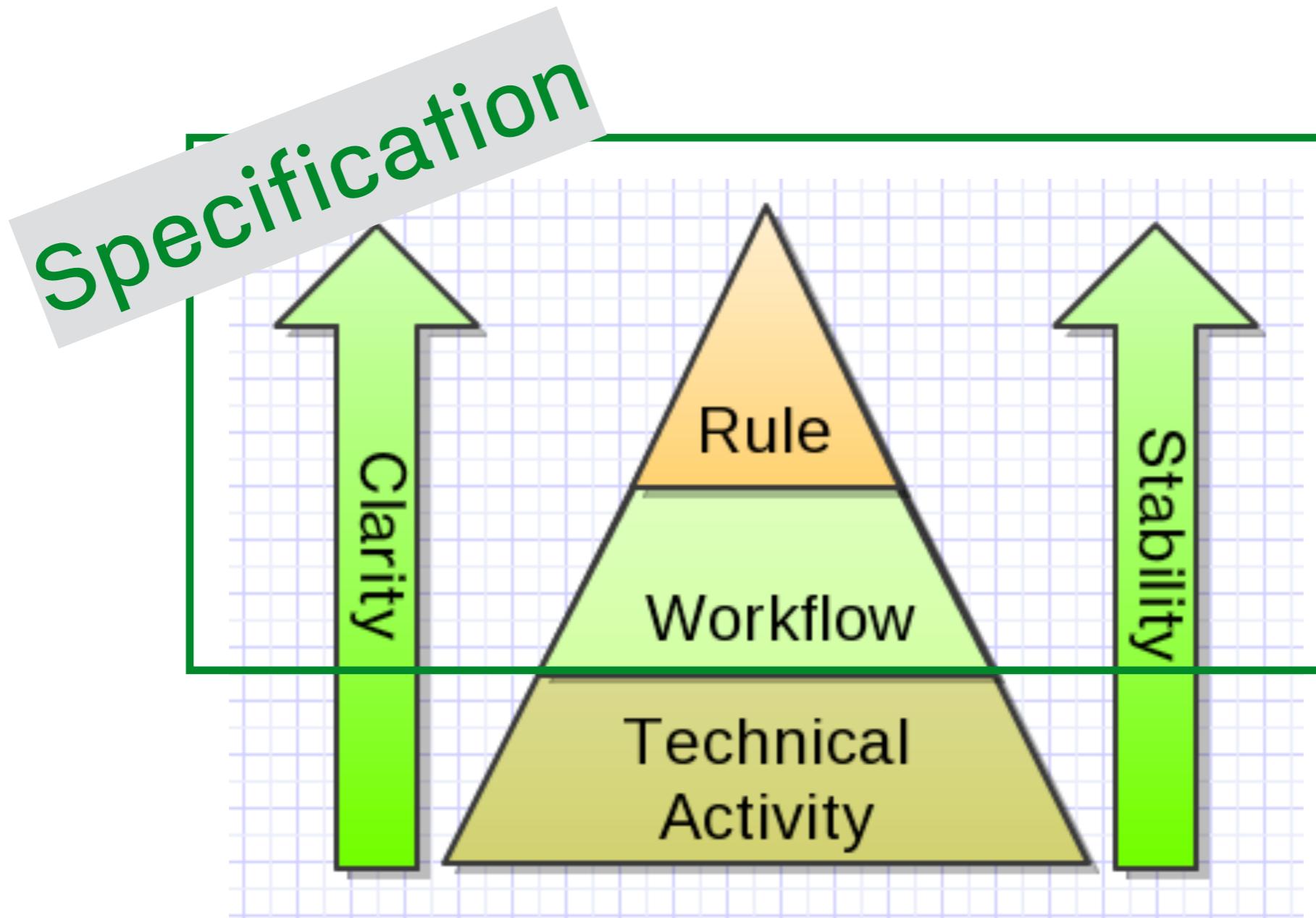


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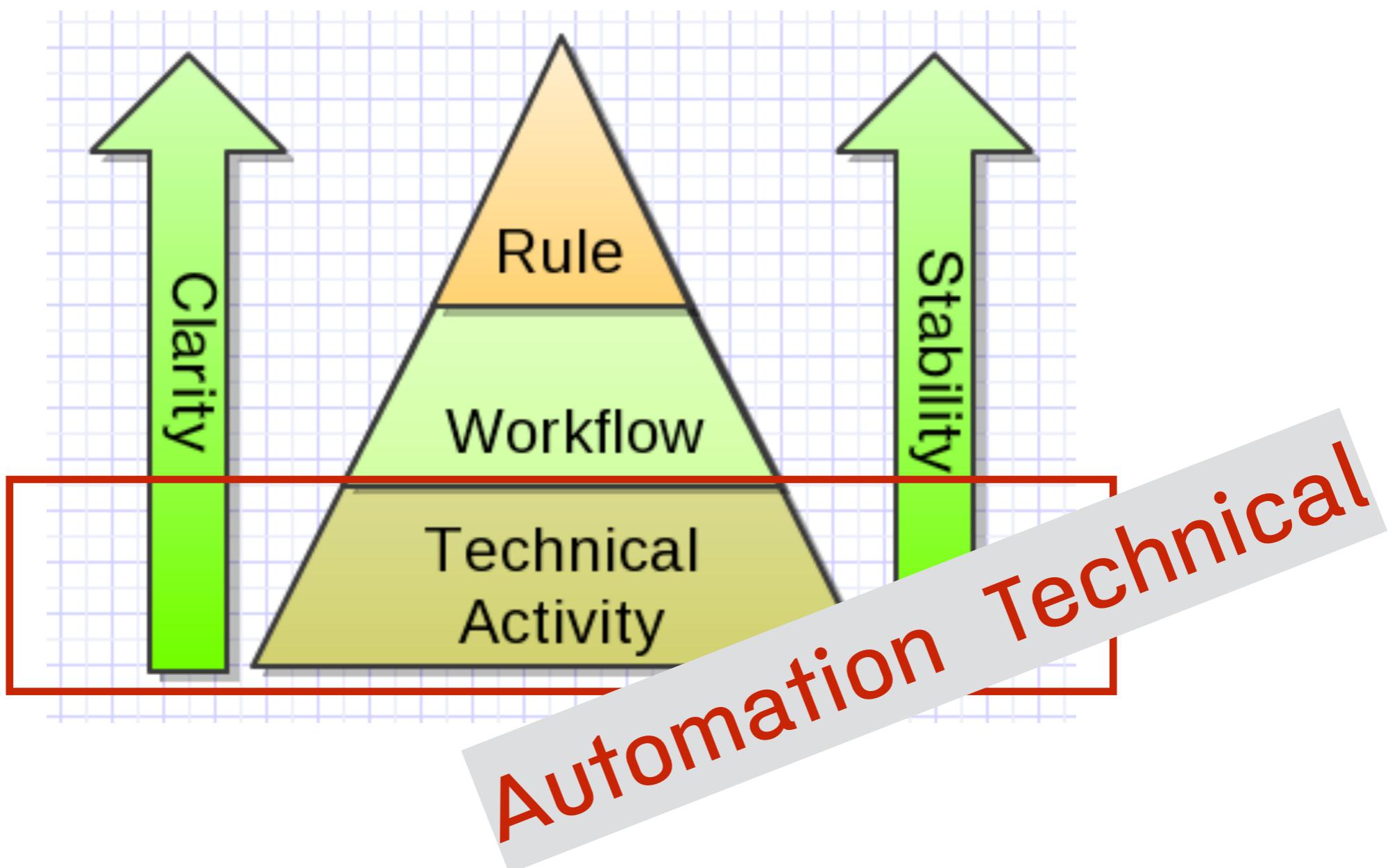
# Good to start



# Good to start



# Good to start



# Start with first test case

Human language

Easy to read and understand



# Start with first test case

Search BNK

[Tags] testing

เปิด browser chrome ไปที่ google

ค้นหาคำว่า BNK

ต้องเจอ web BNK48 Official Website



# Write your keyword



# Keywords

```
*** Keywords ***
```

```
เปิด browser chrome ไปที่ google
```

```
Open Browser    ${URL}    browser=chrome
```

```
Capture Page Screenshot
```

```
ค้นหาคำว่า
```

```
[Arguments]    ${keyword}
```

```
Input Text    name:q    ${keyword}
```

```
Capture Page Screenshot
```

```
Press Key    name:q    \\13
```

```
Capture Page Screenshot
```



# Open Browser

Browser	Name(s)
Firefox	firefox, ff
Google Chrome	googlechrome, chrome, gc
Headless Firefox	headlessfirefox
Headless Chrome	headlesschrome
Internet Explorer	internetexplorer, ie
Edge	edge
Safari	safari
Opera	opera
Android	android
Iphone	iphone
PhantomJS	phantomjs
HTMLUnit	htmlunit
HTMLUnit with Javascript	htmlunitwithjs

<http://robotframework.org/SeleniumLibrary/SeleniumLibrary.html>



# Chrome Driver

## ChromeDriver - WebDriver for Chrome

 Search this site[CHROMEDRIVER](#)[CAPABILITIES & CHROMEOPTIONS](#)[CHROME EXTENSIONS](#)[CHROMEDRIVER CANARY](#)[CONTRIBUTING](#)[DOWNLOADS](#)

### GETTING STARTED

[ANDROID](#)[CHROMEOS](#)

### LOGGING

[PERFORMANCE LOG](#)[MOBILE EMULATION](#)

### NEED HELP?

[CHROME DOESN'T START OR CRASHES  
IMMEDIATELY](#)[CHROMEDRIVER CRASHES](#)[CLICKING ISSUES](#)

## Downloads

### Latest Release: [ChromeDriver 2.41](#)

Supports Chrome v67-69

Changes include:

- Fixed issue when ChromeDriver runs with "whitelisted-ips" option
- Remote Debugging Port is returned in capabilities
- Implemented getting window size on Android
- Desktop Chrome launch error messages are improved
- ChromeDriver fails fast when unable to start Chrome binaries
- Close Window return value conforms with spec

### [ChromeDriver 2.40](#)

Supports Chrome v66-68

<http://chromedriver.chromium.org/downloads>



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# Google Chrome Headless

Problem with size of window !!

Set Window Size    width    height

<http://www.somkiat.cc/robotframework-problem-with-chrome-headless/>



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# Variables

```
*** Variables ***
${URL}  http://www.google.com
${FIRST_RESULT}  xpath://*[@id="rso"]
```



# Keyword Arguments

Search BNK

[Tags] testing

เปิด browser chrome ไปที่ google

ค้นหาคำว่า BNK

ต้องเจอกับ BNK48 Official Website

\*\*\* Keywords \*\*\*

ค้นหาคำว่า

[Arguments] \${keyword}

Input Text name:q \${keyword}

Capture Page Screenshot

Press Key name:q \\13

Capture Page Screenshot



# **Embedding arguments in keywords**

<http://robotframework.org/robotframework/latest/RobotFrameworkUserGuide.html#embedding-arguments-into-keyword-name>



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# Embedding arguments

Easier to read and clear sentences

\*\*\* Keywords \*\*\*

Select \${animal} from list

Open Page Pet Selection  
Select Item From List animal\_list

→ \${animal}



# Return value from keyword

```
Search BNK
[Tags] testing
เปิด browser chrome ไปที่ google
${result}= ค้นหาคำว่า BNK
ต้องเจอ web BNK48 Official Website
```

```
*** Keywords ***
ค้นหาคำว่า
[Arguments] ${keyword}
Input Text name:q ${keyword}
Capture Page Screenshot
Press Key name:q \\13
[Return] 200
```



# Build-in variables

<http://robotframework.org/robotframework/latest/RobotFrameworkUserGuide.html#built-in-variables>



# Build-in variables

Operating system variables

Number variables

Boolean and None/Null variables

Space and Empty variables

Automatic variables



# Space and Empty

Usage	Description
<code> \${SPACE}</code>	<code>\ \</code>
<code>"\${SPACE}"</code>	<code>" "</code>
<code> \${SPACE * 5}</code>	<code>\ \ \ \ \</code>
<code>"\${SPACE * 5}"</code>	<code>" \ \ \ \ "</code>
<code> \${EMPTY}</code>	<code>\</code>

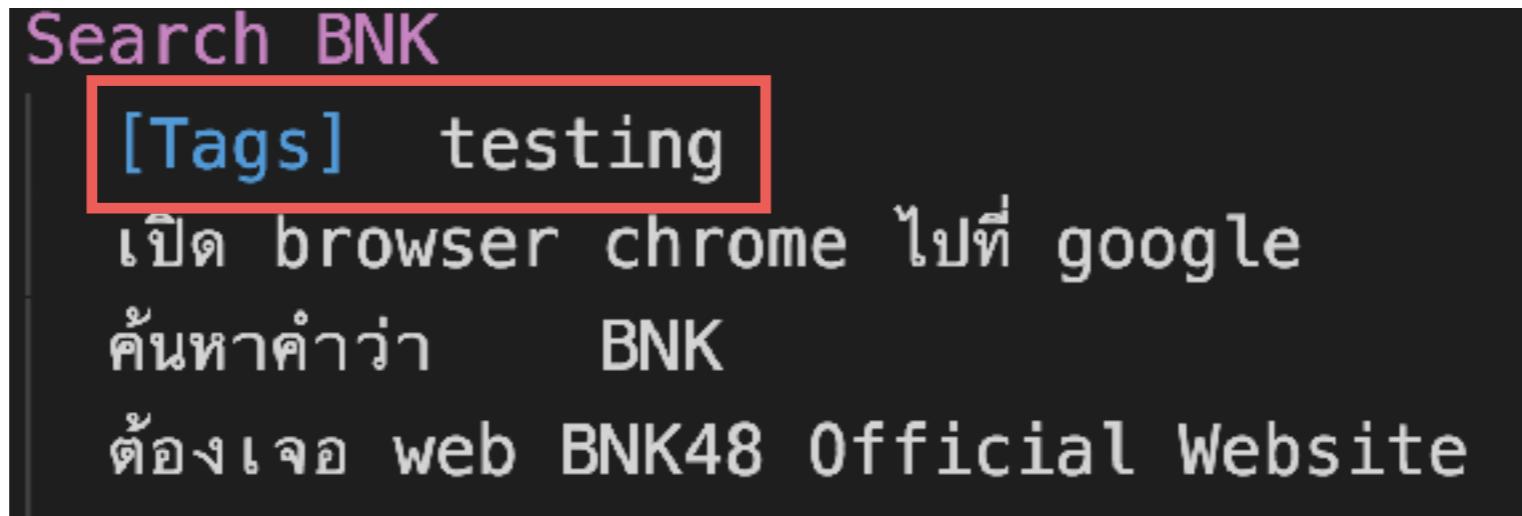


# Escaping special characters

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



# Working with Tags



```
$pybot -i testing file.robot
```



# Set variable value from command line



# Working with variables

```
*** Variables ***
${URL}  http://www.google.com
${FIRST_RESULT}  xpath://*[@id="rso"]
```

```
$pybot -v URL:value file.robot
```



# Report of Robotframework

\$pybot -d v1 login.robot

\$pybot -T login.robot



# **Workshop upload file**

<https://goo.gl/YE27iy>



### Select files

Base drop zone

Another drop zone with its own settings

Multiple  
 No file chosen

Single  
 No file chosen

### Upload queue

Queue length: 0

Name	Size	Progress	Status	Actions
------	------	----------	--------	---------

Queue progress:



# **Google chrome vs Firefox**



# Test Life Cycle



# Suite



# Suite

Test case 1

Test case 2

Test case 3



# Suite

Suite Setup

Test case 1

Test case 2

Test case 3

Suite Teardown



# Suite

## Suite Setup

Test Setup  
Test case 1  
Test Teardown

Test case 2

Test case 3

## Suite Teardown



# Suite

## Suite Setup

Test Setup  
Test case 1  
Test Teardown

Test Setup  
Test case 2  
Test Teardown

Test case 3

## Suite Teardown



# Suite

## Suite Setup

Test Setup  
Test case 1  
Test Teardown

Test Setup  
Test case 2  
Test Teardown

Test Setup  
Test case 3  
Test Teardown

## Suite Teardown



# Test life cycle

\*\*\* Settings \*\*\*

Library

SeleniumLibrary

Suite Setup

เปิด browser chrome ไปที่ google

Suite Teardown

Close Browser

Test Setup

Back to search page

Test Teardown

Do somthing



# Test Template (1)



# Test Template for all test

```
*** Settings ***
Resource          resources/sample.robot
Suite Setup       เปิด browser chrome ไปที่ google
Suite Teardown    Close Browser
Test Setup        Back to search page
Test Template     Search Template

*** Testcases ***
#-----
#  Test case name | Keyword           | Expected result |
#-----
Search robotframework   robotframework   Robot Framework
Search BNK              BNK             BNK48 Official Website

*** Keywords ***
Search Template
| [Arguments]  ${keyword}  ${result}
| ค้นหาคำว่า      ${keyword}
| ต้องเจอ web     ${result}
```



# Test Template (2)



# Use Template in each test

```
*** Settings ***
Resource          resources/sample.robot
Suite Setup        เปิด browser chrome ไปที่ google
Suite Teardown    Close Browser

*** Testcases ***
Search
[Template] Search Template
robotframework   Robot Framework
BNK             BNK48 Official Website

*** Keywords ***
Search Template
[Arguments] ${keyword} ${result}
ค้นหาคำว่า      ${keyword}
ต้องเชื่อ web    ${result}
[Teardown]        Back to search page
```



# Working with resources



# Using resource

\*\*\* Settings \*\*\*

Resource resources/sample.robot

Suite Setup เปิด browser chrome ไปที่ google

Suite Teardown Close Browser



# Page object pattern



<https://goo.gl/iCce7C>

Name

First name

Last name

Address

Zipcode

**Sign up**

**Thank you!**

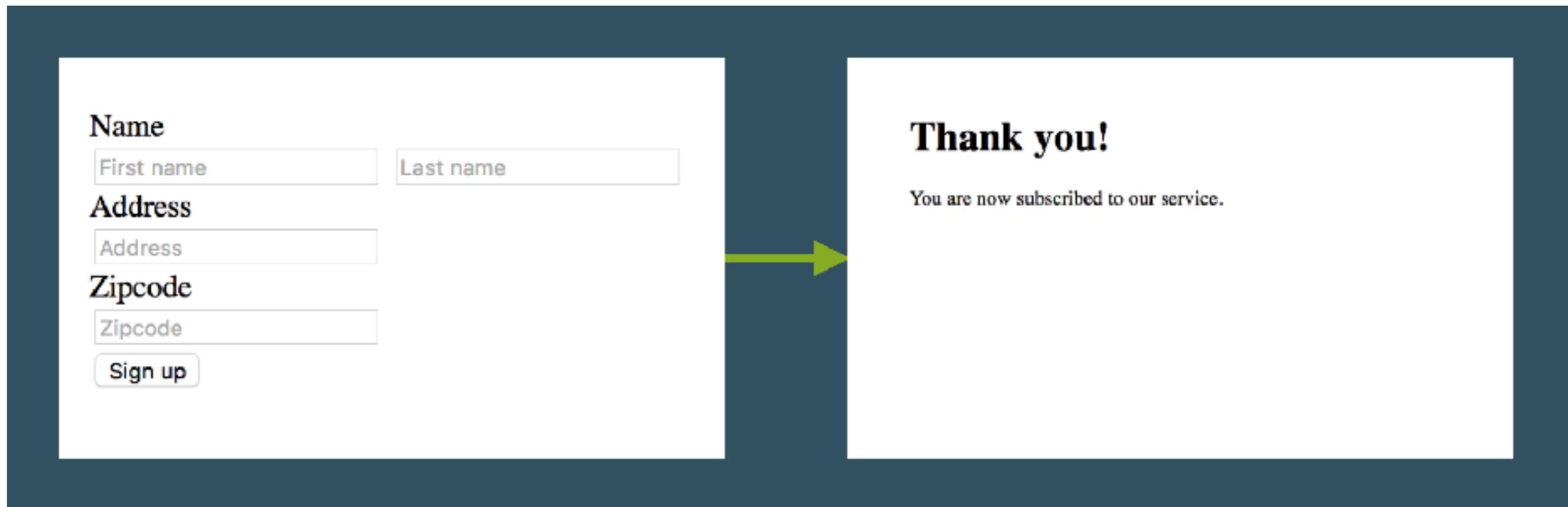
You are now subscribed to our service.



# Create page object

SignUpPage

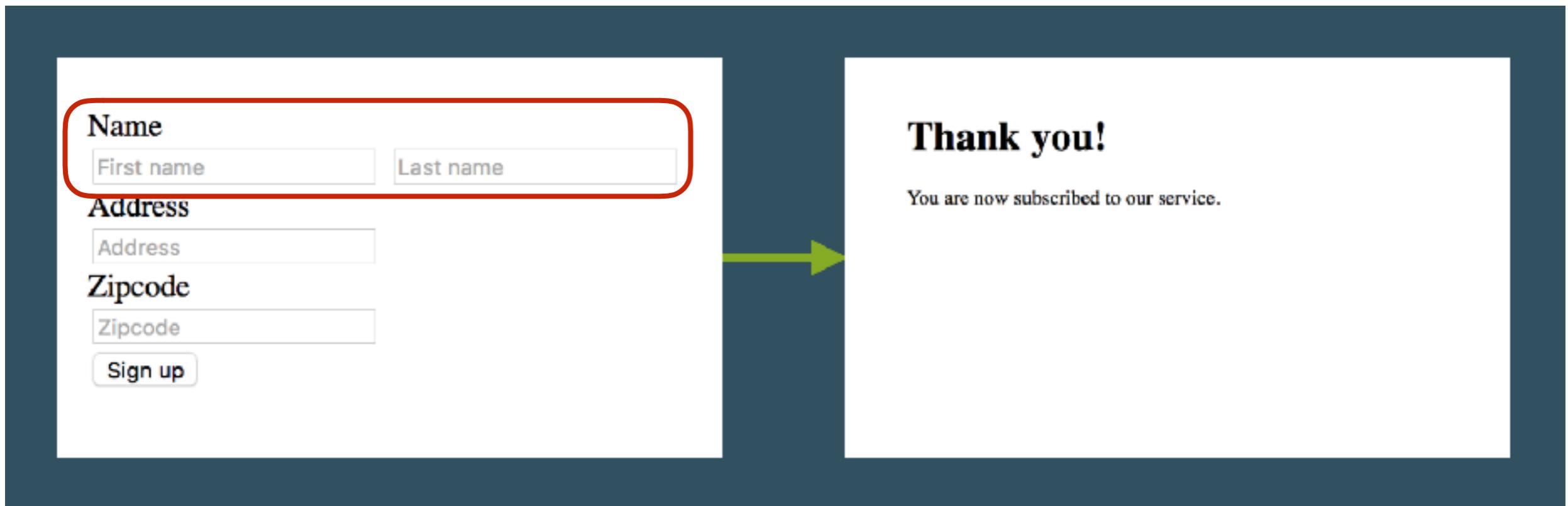
ThankyouPage



# Add behaviors

SignUpPage

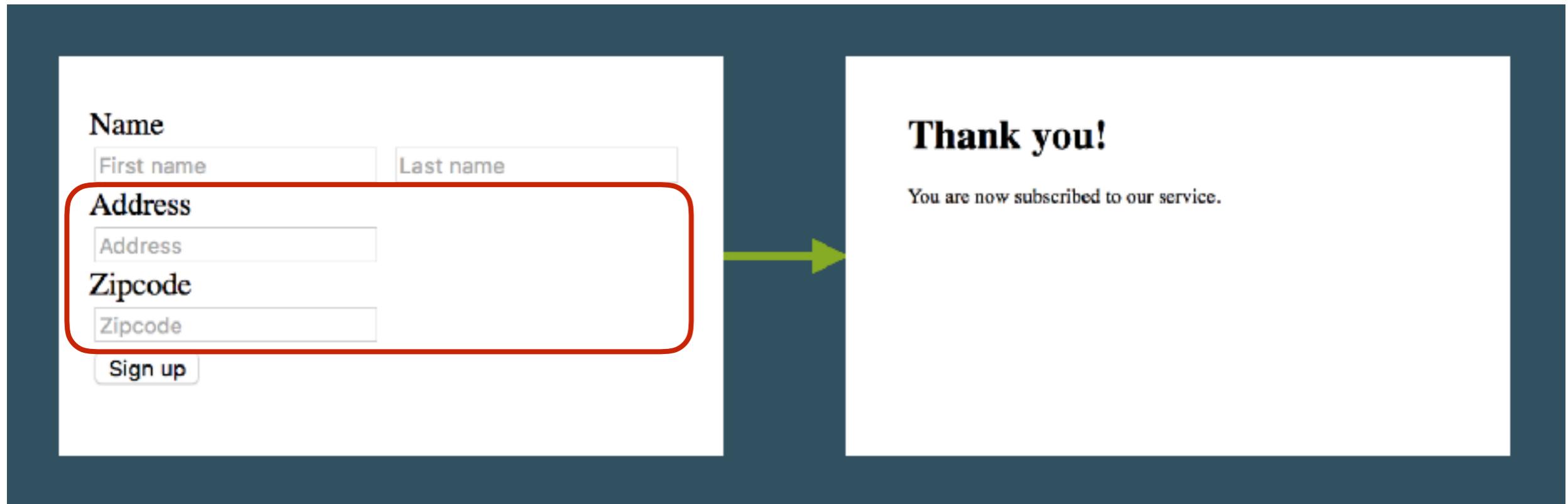
ThankyouPage



# Add behaviors

SignUpPage

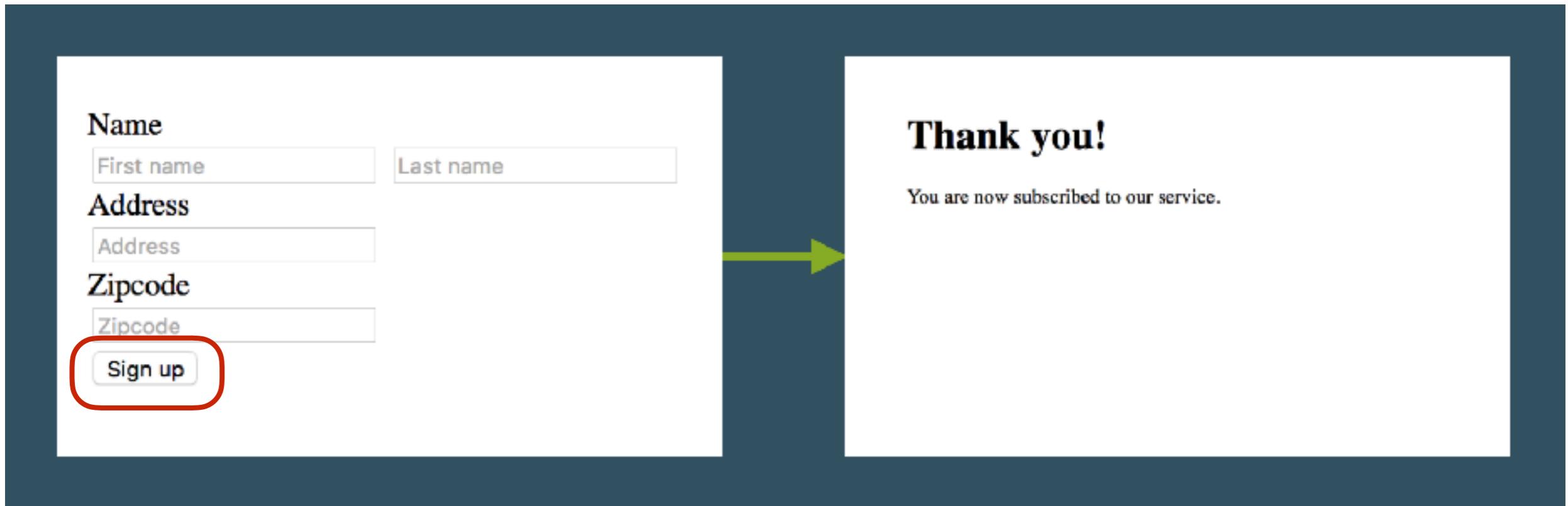
ThankyouPage



# Add behaviors

SignUpPage

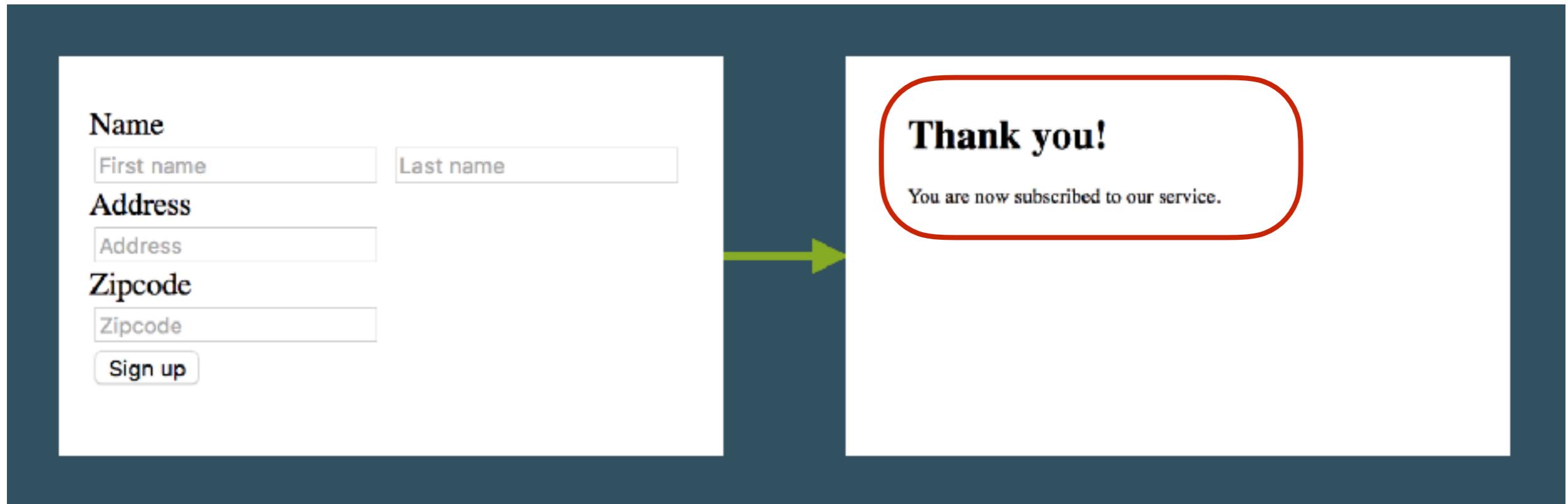
ThankyouPage



# Add behaviors

SignUpPage

ThankyouPage



# Workshop with Page Object



# FirstPage

**E-FILING**  
ยื่นแบบ - ชำระเงินออนไลน์  
ทุกคลิก บันใจ

 บริการตั้งรหัสผ่านใหม่ สำหรับผู้ยื่นแบบ ภ.ง.ด.90/91/94 ทางอินเทอร์เน็ต

กรมสรรพากร  
กองบริหารการเสียภาษีทางอิเล็กทรอนิกส์



เลือกประเภทการลงทะเบียน(เพื่อตั้งรหัสผ่านใหม่)

- บุคคลธรรมดา
  - สัญชาติไทย
  - ต่างด้าว
- คณบุคคล
  - ห้างหุ้นส่วนสามัญ
  - กองมรดกที่ยังไม่ได้แบ่ง



# SecondPage

**E-FILING**  
แบบ - ช่องทางเดียวจบออนไลน์  
**ทุกคดี บันใจ**

**กรมสรรพากร**  
กองบริหารการเสียภาษีทางอิเล็กทรอนิกส์

**บริการตั้งรหัสผ่านใหม่ สำหรับผู้ยื่นแบบ ก.ง.ค.90/91/94 ผ่านทางอินเทอร์เน็ต**

**บริการตั้งรหัสผ่านใหม่ กรณีจำคำถูกต้องได้ (บุคคลธรรมด้า สัญชาติไทย)**

**โปรดกรอกข้อมูลตามขั้นตอนดังนี้**

**1. ระบุข้อมูลส่วนบุคคล**

เลขประจำตัวผู้เสียภาษีอากร :  \* โปรดกรอกเลขประจำตัวผู้เสียภาษีอากร ของท่าน ตามที่ท่านแจ้งไว้ขณะลงทะเบียน

ชื่อ :  \* โปรดกรอกชื่อของท่าน โดยไม่ต้องใส่คำนำหน้าชื่อ

ชื่อกลาง :  โปรดกรอกชื่อกลางของท่าน (ถ้ามี)

ชื่อสกุล :  \* โปรดกรอกชื่อสกุลของท่าน

วันเดือนปีเกิด :  \* โปรดกรอกวันที่ เดือน และปี พ.ศ. ที่ท่านเกิด เช่น 28112498 [ค้างหน้า]

**2. ระบุคำถูกต้องที่ท่านเลือกไว้**

คำถูกต้อง :  \* โปรดเลือกคำถูกต้องที่ท่านแจ้ง ขณะที่ลงทะเบียน

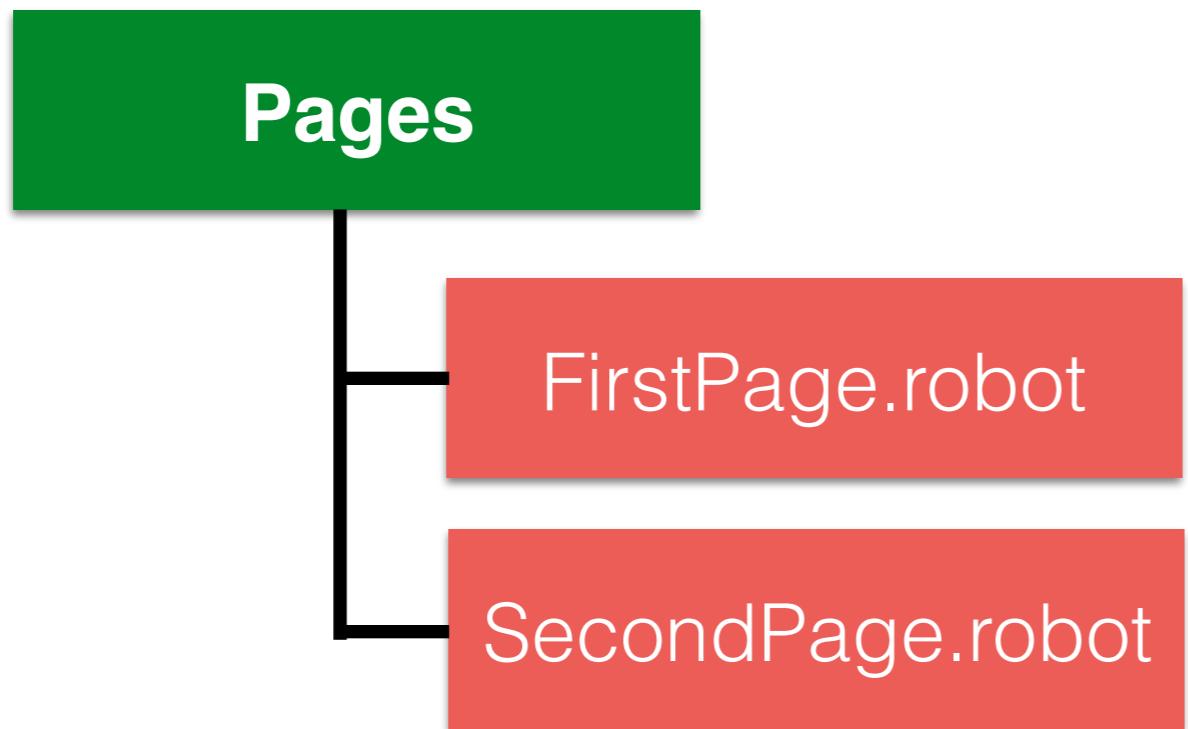
คำต้อง :  \*

**ออกจากระบบ** **ล้างข้อมูล** **ตกลง**

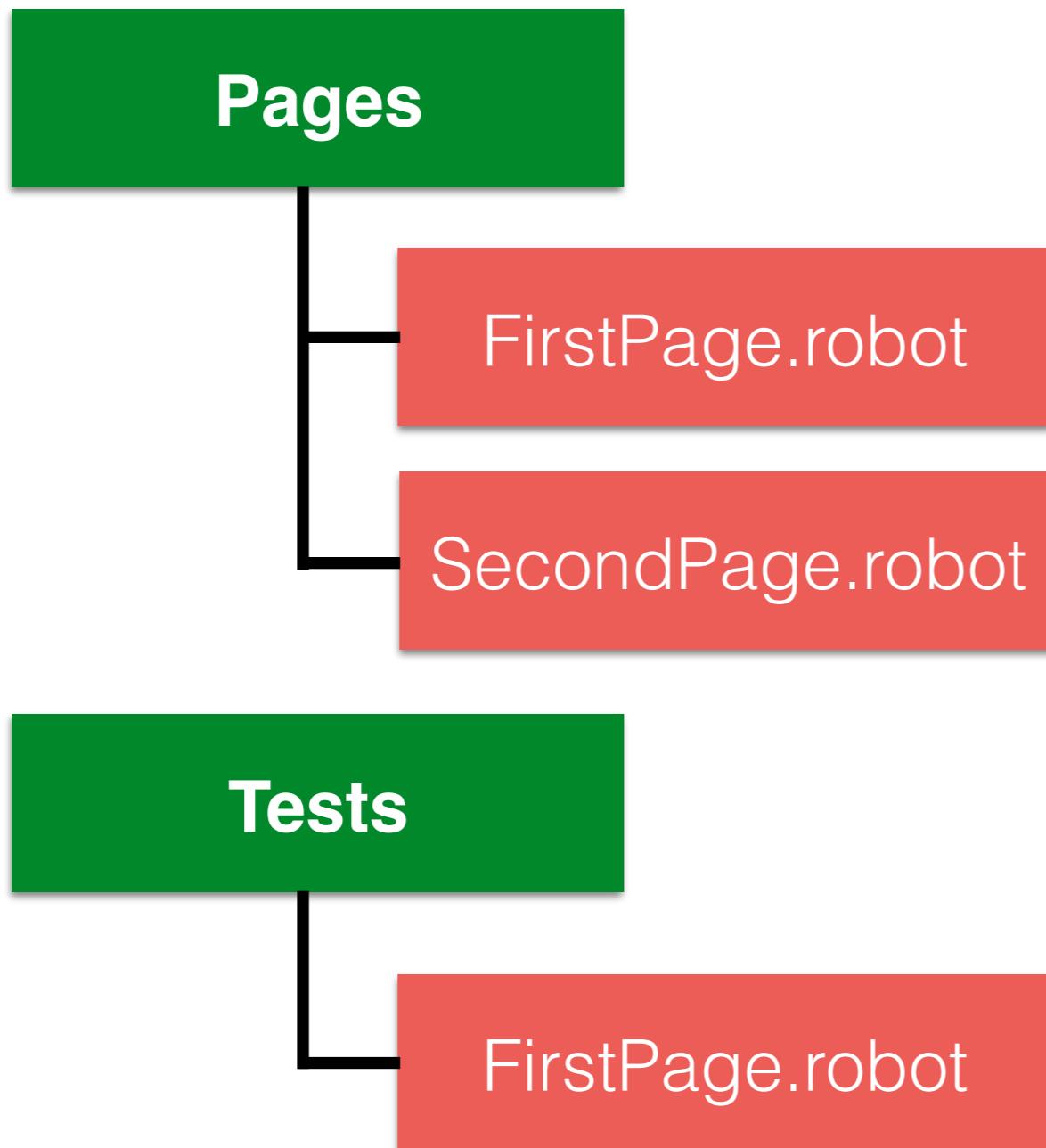
กรณีที่ท่านลืม คำถูกต้อง และหรือ คำต้อง ขอให้ท่านเข้าสู่ระบบ "ขอรหัสผ่านใหม่" เพื่อท่านจะได้รหัสผ่านใหม่ในการยื่นแบบฯ [ขอรหัสผ่านใหม่](#)



# Project structure



# Project structure



# API Testing



บริษัท สยามชนาญกิจ จำกัด และเพื่อนพ้องน้องพี่

# Request Library

\$pip install requests

\$pip install robotframework-requests

<https://github.com/bulkan/robotframework-requests/>



# Request Library

## Introduction

`RequestsLibrary` is a [Robot Framework](#) test library that uses the [Requests](#) HTTP client.

Here is an example testcase

*** Settings ***			
Library	Collections		
Library	RequestsLibrary		
*** Test Cases ***			
Get Requests			
	Create Session	github	<a href="http://api.github.com">http://api.github.com</a>
	Create Session	google	<a href="http://www.google.com">http://www.google.com</a>
	S{resp}=	Get Request	google /
	Should Be Equal As Strings	\${resp.status_code}	200
	S{resp}=	Get Request	github /users/bulkan
	Should Be Equal As Strings	\${resp.status_code}	200
	Dictionary Should Contain Value	\${resp.json()}	Bulkan Savun Evcimén

## Shortcuts

[Create Digest Session](#) · [Create Ntlm Session](#) · [Create Session](#) · [Delete](#) · [Delete All Sessions](#) · [Delete Request](#) · [Get](#) · [Get Request](#) · [Head](#) · [Head Request](#) · [Options](#) · [Options Request](#) · [Patch](#) · [Patch Request](#) · [Post](#) · [Post Request](#) · [Put](#) · [Put Request](#) · [To Json](#)

<http://bulkan.github.io/robotframework-requests/>



# Workshop with API Testing



# HTTP GET

\*\*\* Keywords \*\*\*

Search product by keyword adidas

```
Create Session    search    http://localhost:8882
${response}=  Get Request  search /search?q#adidas
Should Be Equal  ${response.status_code}  ${200}
Should Be Equal  ${response.json()['header']['code']}  ${200}
${size_of_product}=  Get length  ${response.json()['body']}
Should Be Equal  ${size_of_product}  ${2}
Should Be Equal  ${response.json()['body'][0]['product_id']}  ${1000}
```



# HTTP POST

Add product id=1000 to empty basket

```
Create Session      baskets      http://localhost:8882
&{headers}= Create Dictionary Content-Type=application/json
&{data}= Create Dictionary
...   product_id=${1000}
...   product_name=Adidas
...   product_price=${1500}
...   product_image=http://xxx.jpg
...   quantity=${1}
${response}= Post Request  baskets  /baskets
...   data=${data}  headers=${headers}
Should Be Equal As Strings  ${response.status_code}  200
```



<http://httpbin.org/>

<https://jsonplaceholder.typicode.com/>



# Mock/Stub RESTful APIs



# Using Stubby4j



<https://github.com/azagniotov/stubby4j>



# Create YAML

example => api.yaml

```
- request:  
    method: GET  
    url: /user/1  
  
response:  
    status: 200  
    headers:  
        content-type: application/json  
    file: user1.json
```



# Create JSON for result

example => user1.json

```
{  
    "id": 1,  
    "name": "somkiat"  
}
```



# Parallel testing with pabot



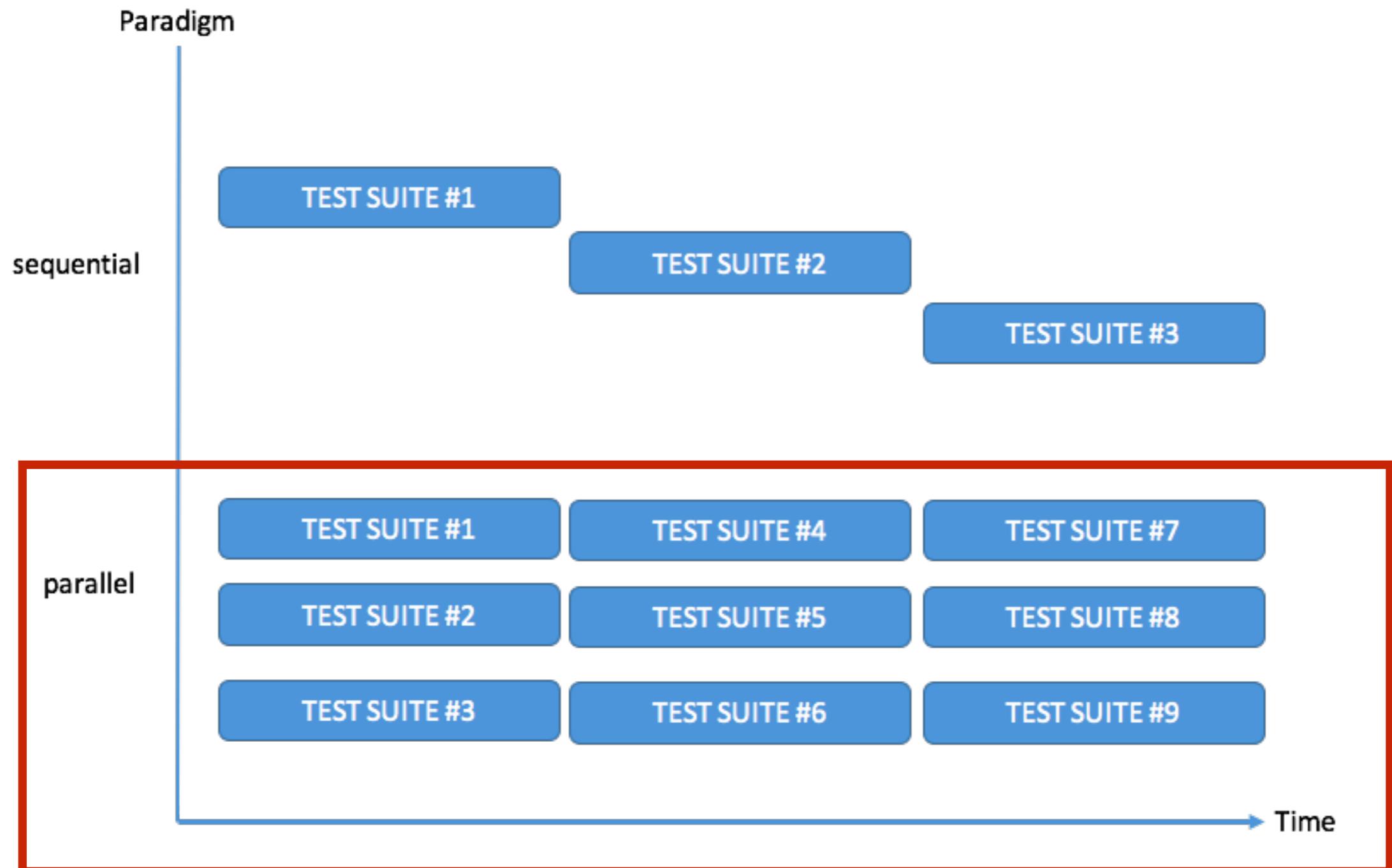
# Problems

More test cases **more problems**

More test cases **more testing time**



# Parallel Testing



# Pabot

\$pip install robotframework-pabot

\$pabot

<https://github.com/mkorpela/pabot>



# How to write good test case ?

<https://github.com/robotframework/HowToWriteGoodTestCases/blob/master/HowToWriteGoodTestCases.rst>



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# User guide

<http://robotframework.org/robotframework/#user-guide>



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# Do and Don't

<https://www.slideshare.net/pekkaklarck/robot-framework-dos-and-donts>



# Goals

**Easy** to understand

**Easy** to maintain

**Fast** to execute



# Naming

Good name is explicit and easy to understand

Test suites, Test cases, Keywords, Variables

Namespaces

Name should tell “**what**” not “**how**”



# Documentation

**Test suites** should have documentation

Well named tests not need extra documentation

**Reuse keywords** must be documented



# Do :: appropriate abstraction level

\*\*\* Test cases \*\*\*

Valid login

Open login page

Input user name demo

Input password password

Submit credentials

Welcome page should be open



# Don't :: too low abstraction level

\*\*\* Test cases \*\*\*

Valid login

Open Browser \${LOGIN URL} \${Browser}

Set Selenium Speed \${DELAY}

Maximize Browser Window

Title Should Be Login Page

Input Text id:username\_field demo

Input Text id:password\_field password

Click Button id:login\_button

Title Should Be Welcome Page

Location Should Be \${WELCOME URL}



# Don't :: comments instead of abstraction

```
*** Test cases ***
```

```
Valid login
```

```
# Open login page
```

```
Open Browser ${LOGIN URL} ${Browser}
```

```
Set Selenium Speed ${DELAY}
```

```
Maximize Browser Window
```

```
Title Should Be Login Page
```

```
# Input user name
```

```
Input Text id:username_field demo
```

```
# Input password
```

```
Input Text id:password_field password
```

```
# Submit credentials
```

```
Click Button id:login_button
```

```
# Welcome page should be open
```

```
Title Should Be Welcome Page
```

```
Location Should Be ${WELCOME URL}
```



# Don't :: tests without checks

\*\*\* Test cases \*\*\*

Valid login

Open login page

Input user name demo

Input password password

Submit credentials



# Don't :: overuse variables

```
*** Variables ***
```

```
 ${USERNAME FIELD}    id:username_field
```

```
*** Keywords ***
```

```
Input user name
```

```
    [Arguments]  ${username}
```

```
    Input Text   ${USERNAME FIELD}    ${username}
```



# Don't :: complex login in test

```
*** Keywords ***
Get MAX Line Length
[Arguments]    ${string}
${max}=  Set Variable  ${0}
@{lines}=  Split To Lines  ${string}
:: FOR  ${line}  IN  ${lines}
\\  ${length}=  Get Length  ${line}
\\  ${max}=  Set Variable If  ${length} >  ${max}
\\  ...  ${length}  ${max}
[Return]  ${max}
```



# Avoid Dependencies between test case



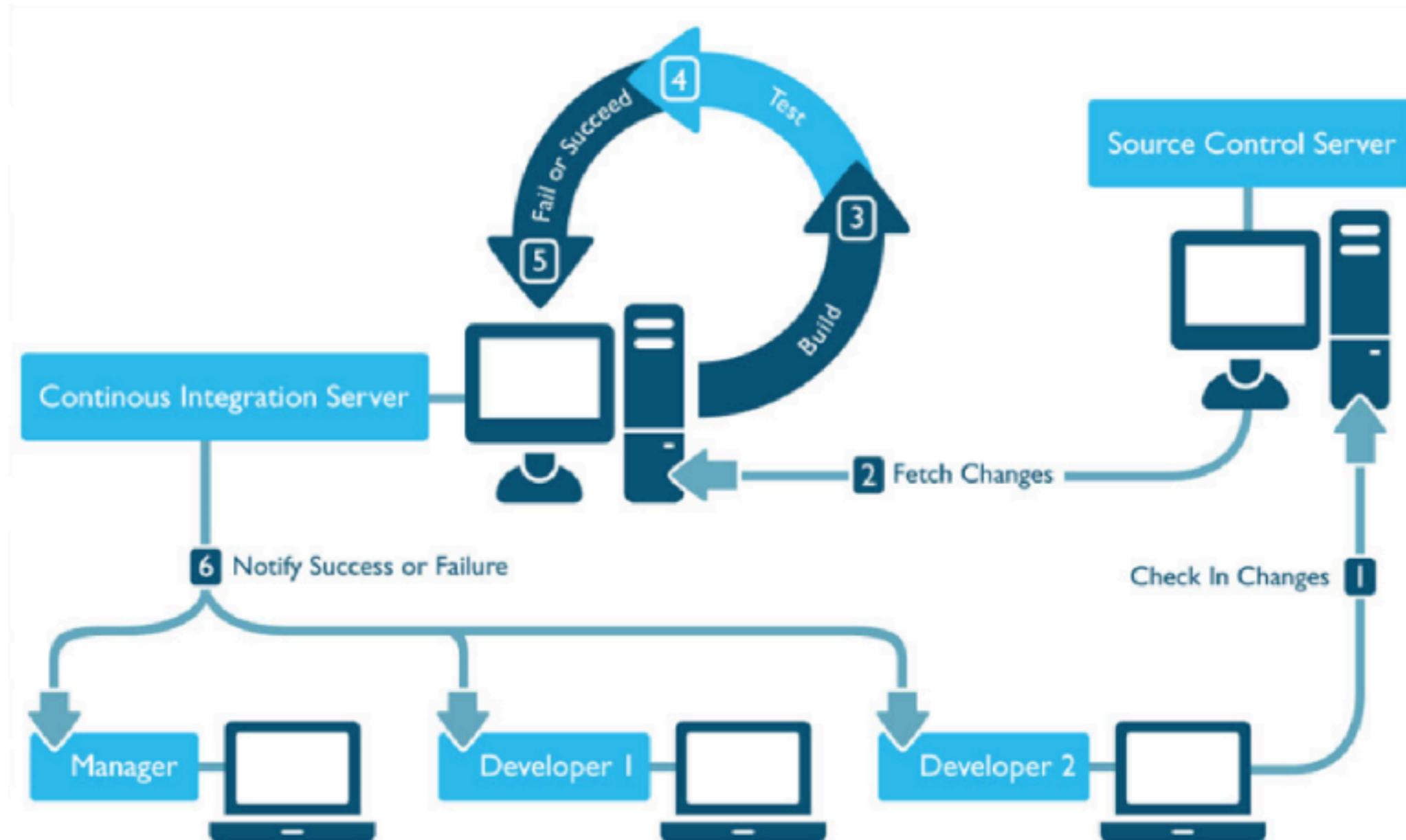
# Continuous Integration



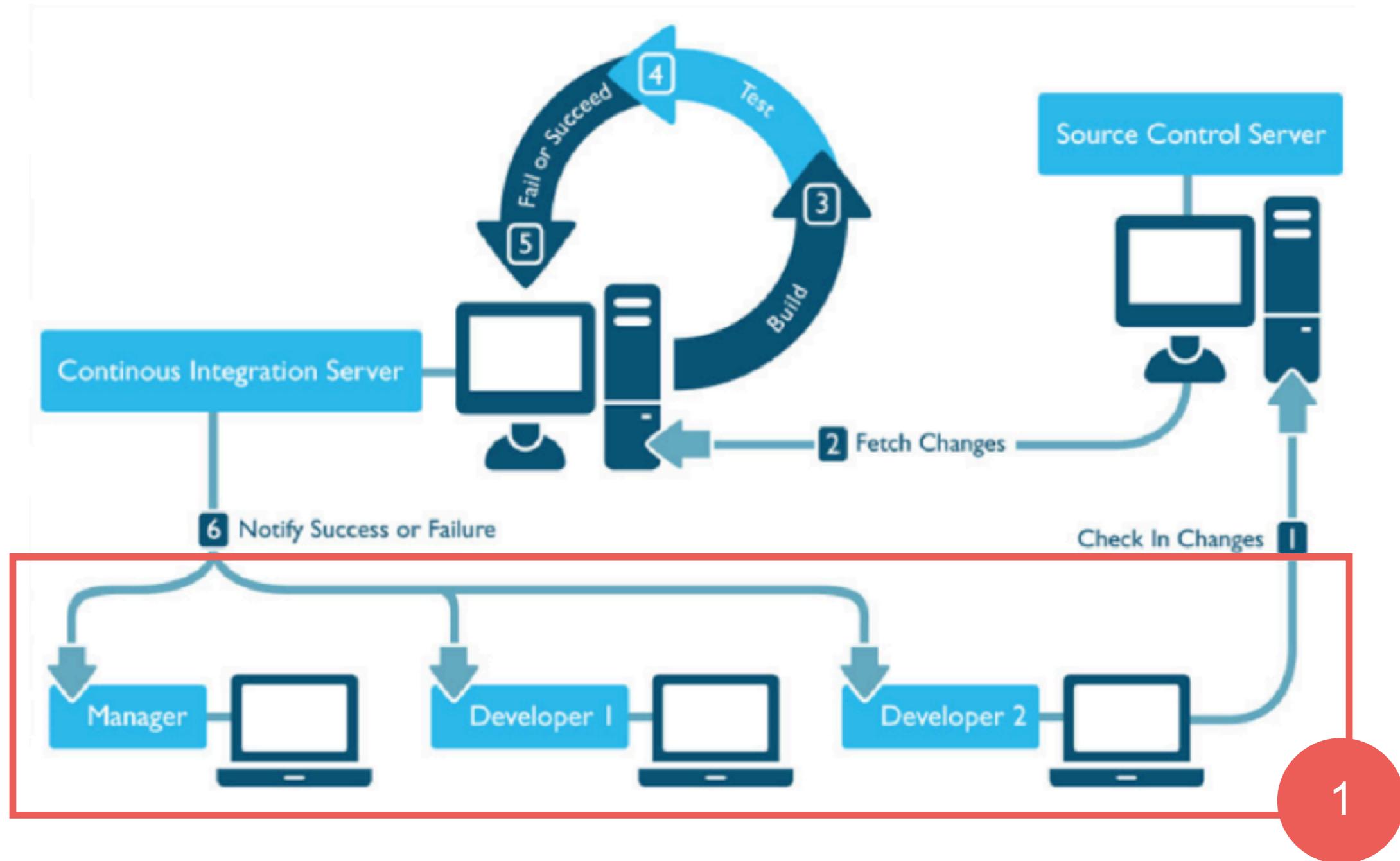
<https://jenkins.io/>



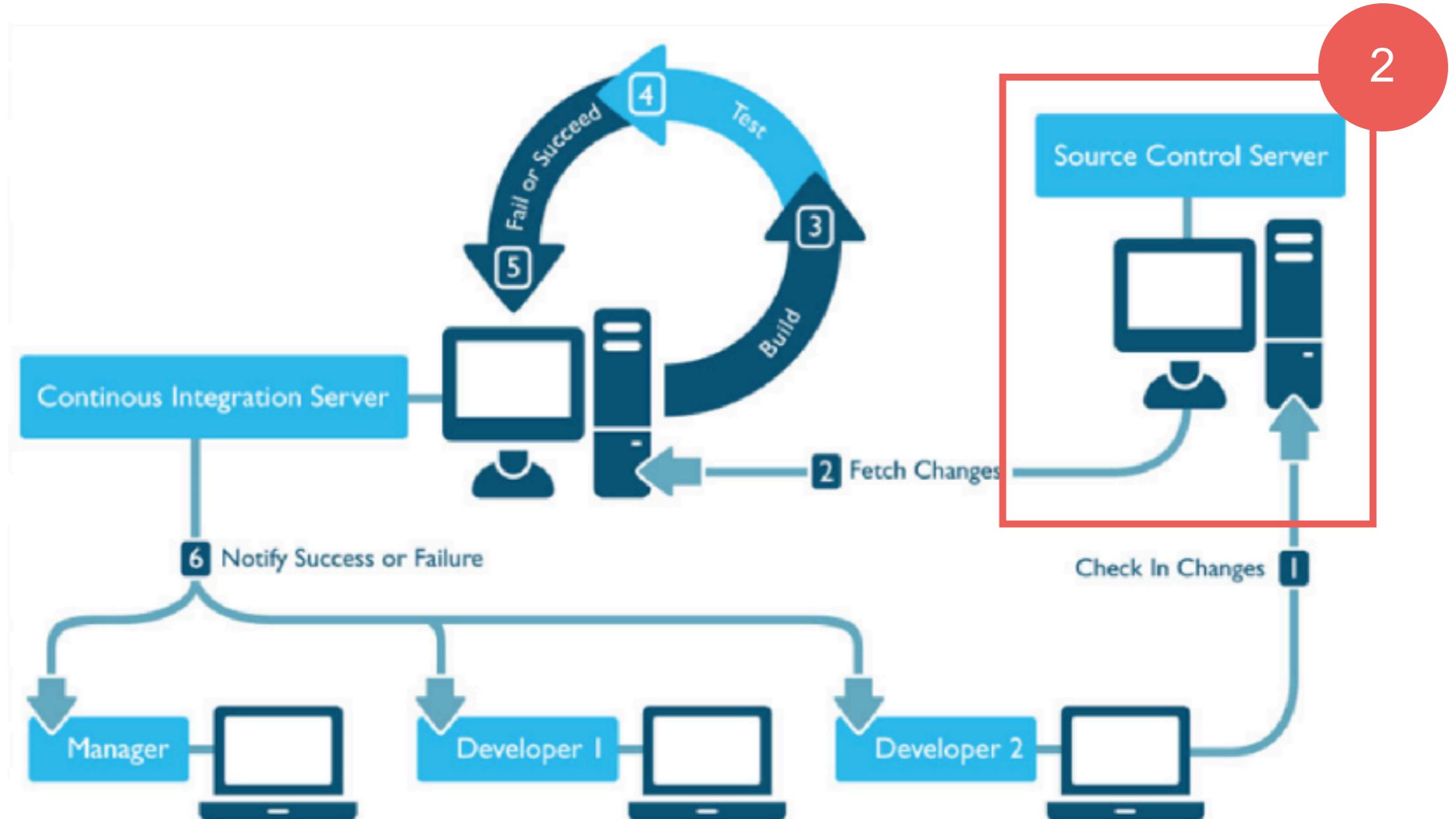
# Continuous Integration



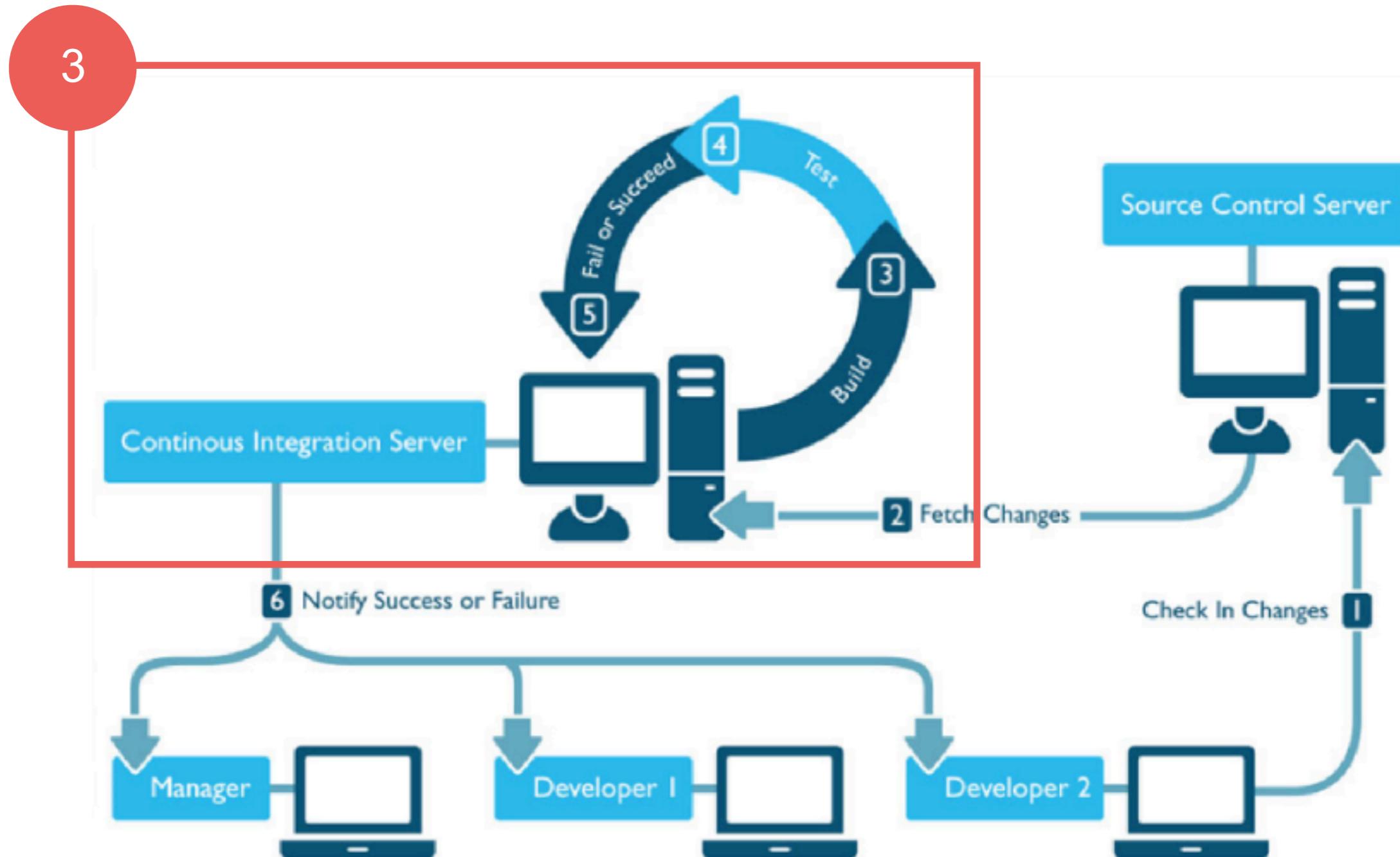
# Continuous Integration



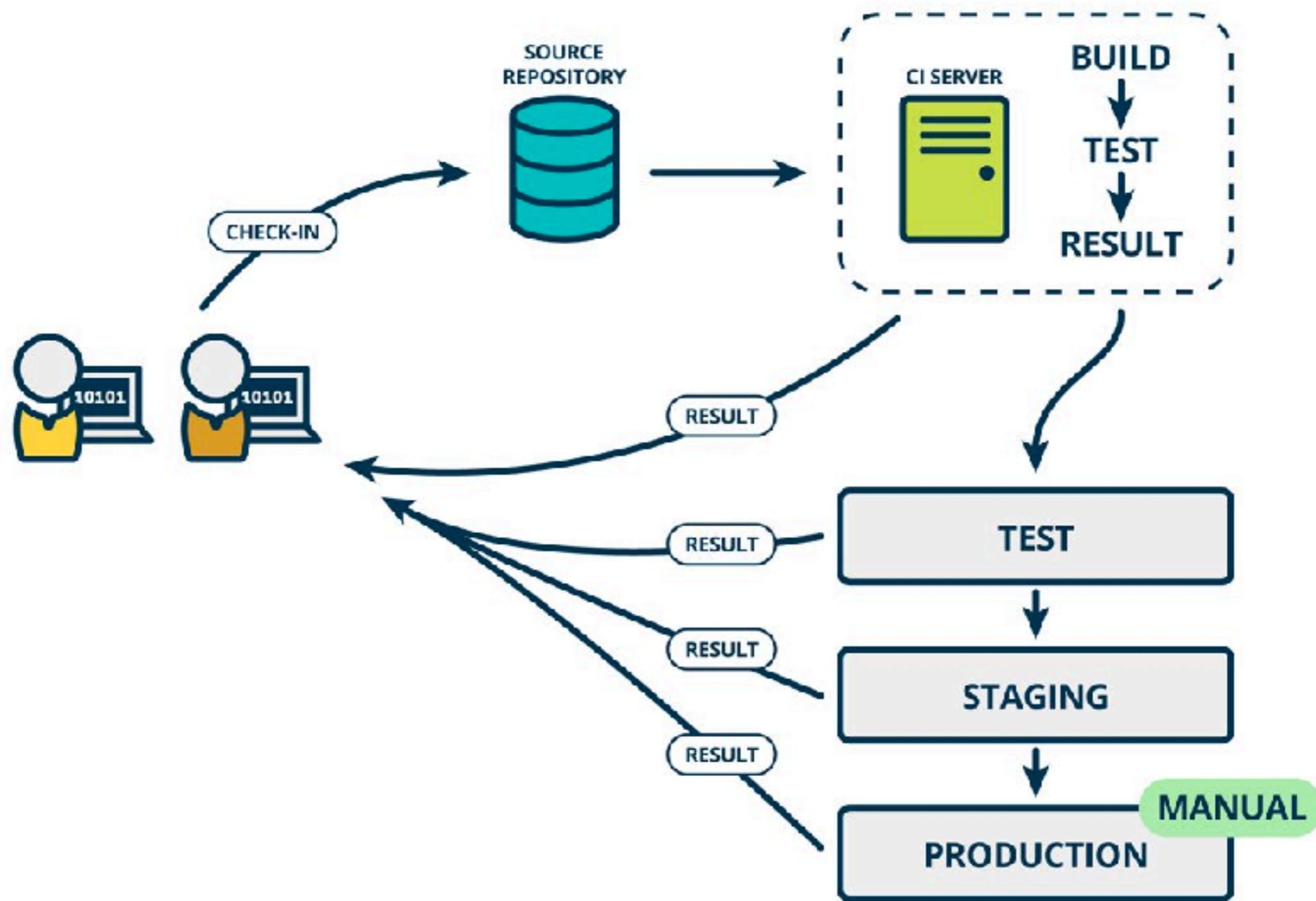
# Continuous Integration



# Continuous Integration



# Continuous Delivery



# Continuous Delivery

Use version control

Automated your deployment process

Implement continuous integration

**Implement test automation**

**Support test data management**

Focus on security and performance



# Working with Jenkins



<https://jenkins.io/>



# Start Jenkins

```
$java -jar jenkins.war
```

Jenkins initial setup is required. An admin user  
been created and a password generated.  
Please use the following password to proceed to :  
llation:

```
07be76a843f54c3bae1d259ee38ed2d9
```

This may also be found at: /Users/somkiat/data/s  
robot-framework/thaibev-20180806/ci/v2/secrets/i  
lAdminPassword



# Open in browser

<http://localhost:8080>

The screenshot shows the Jenkins 'Unlock Jenkins' setup page. At the top left, there's a 'Getting Started' link. The main title is 'Unlock Jenkins'. Below it, a text block says: 'To ensure Jenkins is securely set up by the administrator, a password has been written to the log ([not sure where to find it?](#)) and this file on the server: /Users/somkiat/data/slide/robot-framework/thaibev-20180806/ci/v2/secrets/initialAdminPassword'. A placeholder text area labeled 'Administrator password' is provided for pasting the password. At the bottom right is a blue 'Continue' button.

Getting Started

## Unlock Jenkins

To ensure Jenkins is securely set up by the administrator, a password has been written to the log ([not sure where to find it?](#)) and this file on the server:

/Users/somkiat/data/slide/robot-framework/thaibev-20180806/ci/v2/secrets/initialAdminPassword

Please copy the password from either location and paste it below.

Administrator password

Continue



# Install suggested plugins

Getting Started X

## Customize Jenkins

Plugins extend Jenkins with additional features to support many different needs.

**Install suggested plugins**

Install plugins the Jenkins community finds most useful.

**Select plugins to install**

Select and install plugins most suitable for your needs.

Jenkins 2.121.3



# Install suggested plugins

Getting Started

Robot Framework

## Getting Started

<a href="#">Folders</a>	<a href="#">OWASP Markup Formatter</a>	<a href="#">Build Timeout</a>	<a href="#">Credentials Binding</a>	** JDK Tool ** Script Security
<a href="#">Timestamper</a>	<a href="#">Workspace Cleanup</a>	<a href="#">Ant</a>	<a href="#">Gradle</a>	
<a href="#">Pipeline</a>	<a href="#">GitHub Branch Source</a>	<a href="#">Pipeline: GitHub Groovy Libraries</a>	<a href="#">Pipeline: Stage View</a>	
<a href="#">Git</a>	<a href="#">Subversion</a>	<a href="#">SSH Slaves</a>	<a href="#">Matrix Authorization Strategy</a>	
<a href="#">PAM Authentication</a>	<a href="#">LDAP</a>	<a href="#">Email Extension</a>	<a href="#">Mailer</a>	

\*\* - required dependency

Jenkins 2.121.3



# Install suggested plugins

Getting Started

Robot Framework

## Getting Started

<a href="#">Folders</a>	<a href="#">OWASP Markup Formatter</a>	<a href="#">Build Timeout</a>	<a href="#">Credentials Binding</a>	** JDK Tool ** Script Security
<a href="#">Timestamper</a>	<a href="#">Workspace Cleanup</a>	<a href="#">Ant</a>	<a href="#">Gradle</a>	
<a href="#">Pipeline</a>	<a href="#">GitHub Branch Source</a>	<a href="#">Pipeline: GitHub Groovy Libraries</a>	<a href="#">Pipeline: Stage View</a>	
<a href="#">Git</a>	<a href="#">Subversion</a>	<a href="#">SSH Slaves</a>	<a href="#">Matrix Authorization Strategy</a>	
<a href="#">PAM Authentication</a>	<a href="#">LDAP</a>	<a href="#">Email Extension</a>	<a href="#">Mailer</a>	

\*\* - required dependency

Jenkins 2.121.3



# Create admin user

Getting Started

## Create First Admin User

Username:

Password:

Confirm password:

Full name:

E-mail address:

Jenkins 2.121.3

Continue as admin

Save and Continue



# Instance configuration

Getting Started

## Instance Configuration

Jenkins URL:

The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the `BUILD_URL` environment variable provided to build steps.

The proposed default value shown is not saved yet and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.

Jenkins 2.121.3

[Not now](#) [Save and Finish](#)



# Ready !!!

Getting Started

## Jenkins is ready!

Your Jenkins setup is complete.

[Start using Jenkins](#)

Jenkins 2.121.3



# Hello Jenkins

The screenshot shows the Jenkins dashboard with the following elements:

- Welcome to Jenkins!**: A large heading on the right.
- Please [create new jobs](#) to get started.**: A call-to-action message in a teal box.
- New Item**, **People**, **Build History**, **Manage Jenkins**, **My Views**, **Credentials**, and **New View**: Links in the left sidebar.
- Build Queue**: A section showing "No builds in the queue."
- Build Executor Status**: A section showing "1 Idle" and "2 Idle".

