Hello!

Quality Assurance

The foundation of SDLC

Children

As role model

Assignment

In lego.com we want to make sure that searching for Yoda is always available. Every release should make sure that buying Yodas is possible. To this end, we want to add a smoke test to the release process.

The automated test should simulate a user's interaction with the website. The scenario to automate is as follows:

1. User navigates to lego.com
2. User clicks on the search box
3. User types in `Yoda`
4. user presses enter
5. User is able to see a list of yoda products
6. Add one of the products to the basket
7. Validate that the product is actually in the basket

Prototyping = Python

Production = Playwright(TS)

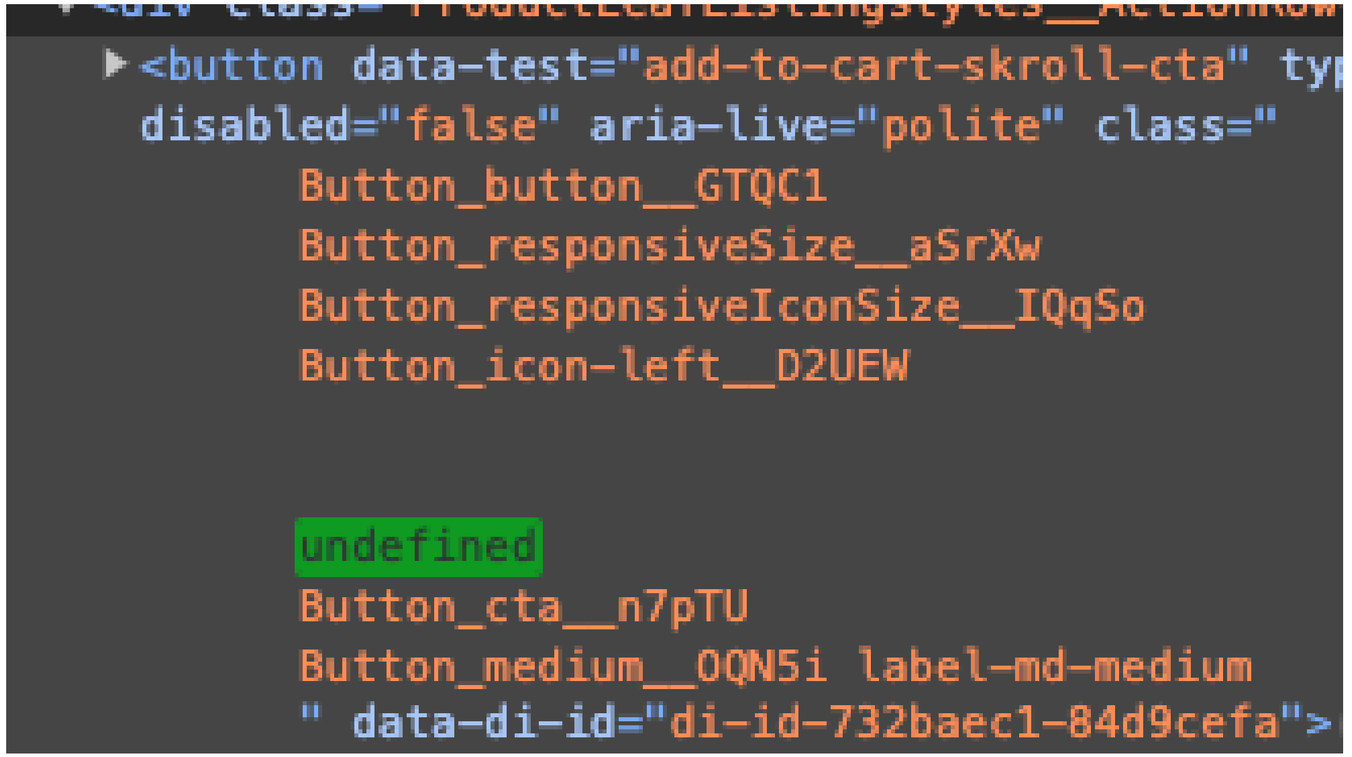
Pre-written helper library

```
def wait_selector(driver, selector, xpath, timeout):
    try:
        by = By.CSS_SELECTOR
        if xpath:
            by = By.XPATH

        wait = WebDriverWait(driver, timeout)
        wait.until(EC.presence_of_element_located((by, selector)))
        return True
    except:
        print_error("Selector {} not found".format(selector))
        return False

def click(driver, selector, xpath):
    by = By.CSS_SELECTOR
    if xpath:
        by = By.XPATH
    driver.find_element(by, selector).click()

def wait_click(driver, selector, xpath=False, timeout=3):
    if wait_selector(driver, selector, xpath, timeout):
        if wait_clickable(driver, selector, xpath, timeout):
            click(driver, selector, xpath)
            return True
    return False
```

Data-test

```
def data_test(value):
    return f"[data-test='{value}']"
```

Cosmetic finding



Custom Driver

```
class Driver(webdriver.Chrome):
    def __init__(self, headless=True, window_size=(1920, 995)):
        options = webdriver.ChromeOptions()
        if headless:
            options.add_argument("--headless")

        super().__init__(options=options)
        self.set_window_size(*window_size)
```

Page Object Model

```
class HomePage:
    def __init__(self, driver):
        self.driver = driver

    def navigate(self, url):
        self.driver.get(url)

    def accept_cookies_and_age_gate(self):
        wait_click(self.driver, self._grownUpBtn_selector)
        wait_click(self.driver, self._cookieAcptBtn_selector)

    def search_for_keyword(self, keyword):
        wait_click(self.driver, self._searchBtn_selector)
        wait_write(self.driver, self._searchInpt_selector, keyword)
        wait_write(self.driver, self._searchInpt_selector, Keys.ENTER)

    _grownUpBtn_selector = data_test("age-gate-grown-up-cta")
    _cookieAcptBtn_selector = data_test("cookie-accept-all")
    _searchBtn_selector = data_test("search-input-button")
    _searchInpt_selector = data_test("search-input")
```

Testflow

```
home_page.navigate(url)
home_page.accept_cookies_and_age_gate()
home_page.search_for_keyword(keyword)

test(
    keyword == search_page.get_search_title(),
    f"The search title is {keyword}",
    counter,
)
test(
    search_page.get_number_of_results() > 1,
    f"There are more than 1 result",
    counter,
)
```

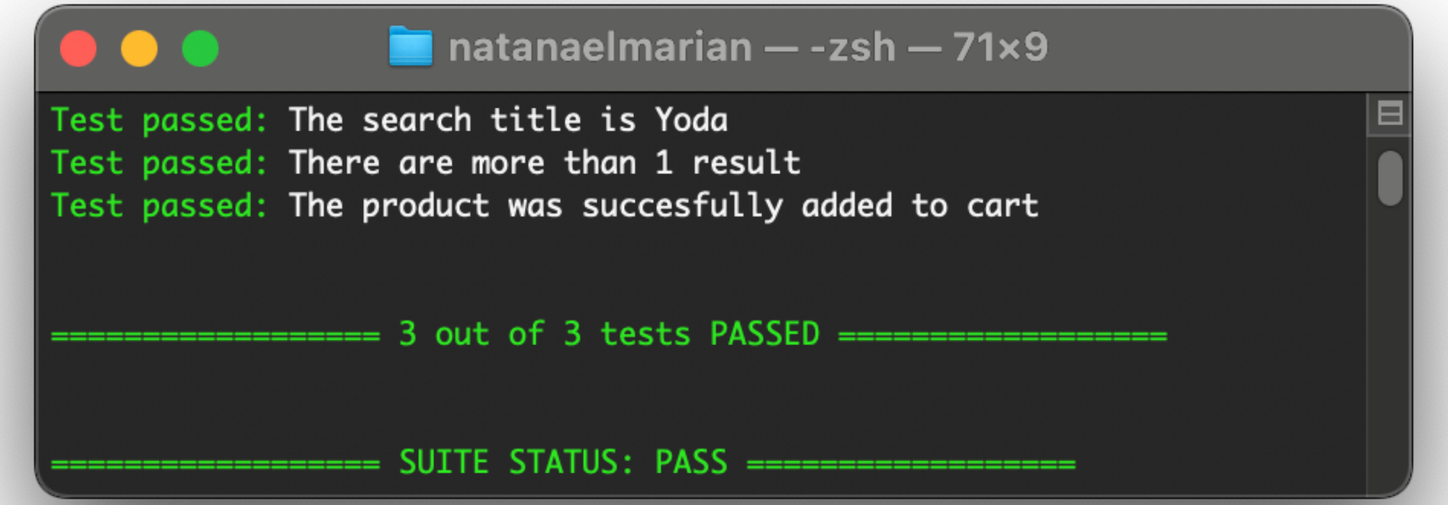
Testflow

```
search_page.add_first_product_to_cart()
product_title = search_page.get_product_title()

cart_page.navigate_to_cart()
cart_product_title = cart_page.get_cart_product_title()

test(
    cart_product_title == product_title,
    "The product was succesfully added to cart",
    counter,
)
```

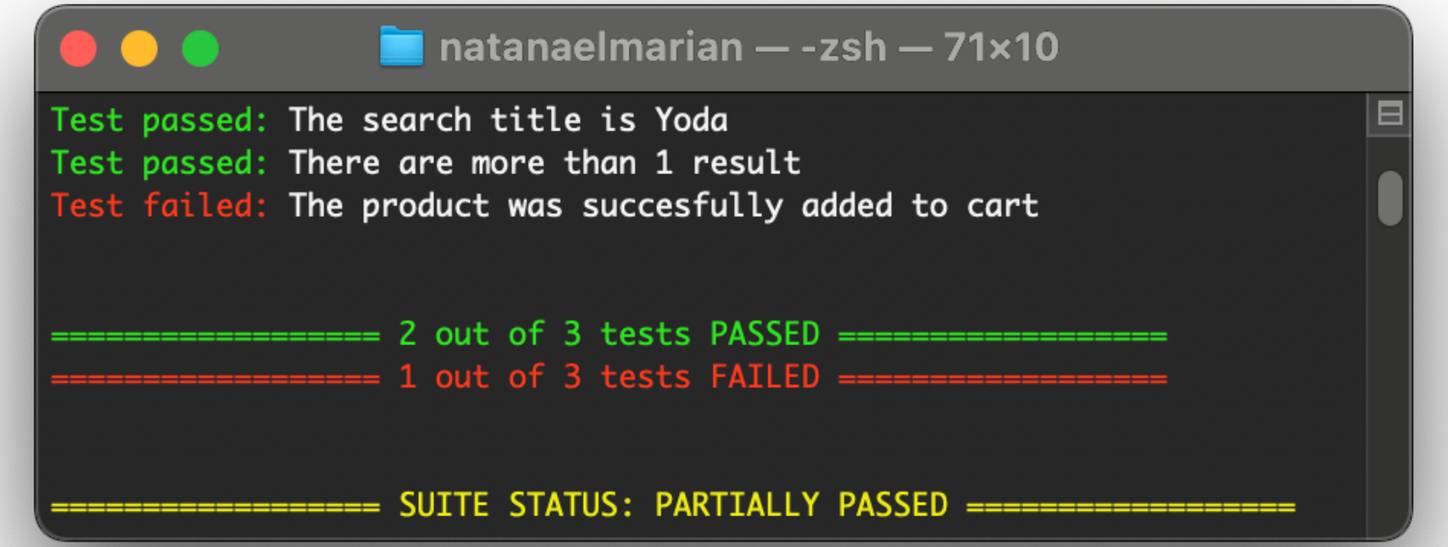
Testflow

```
def test_flow():
    counter = Counter()
    driver = Driver()

    home_page = HomePage(driver)
    search_page = SearchResultsPage(driver)
    cart_page = CartPage(driver)
    try:
        ...
    except Exception as e:
        return print_critical_msg(e)
    finally:
```

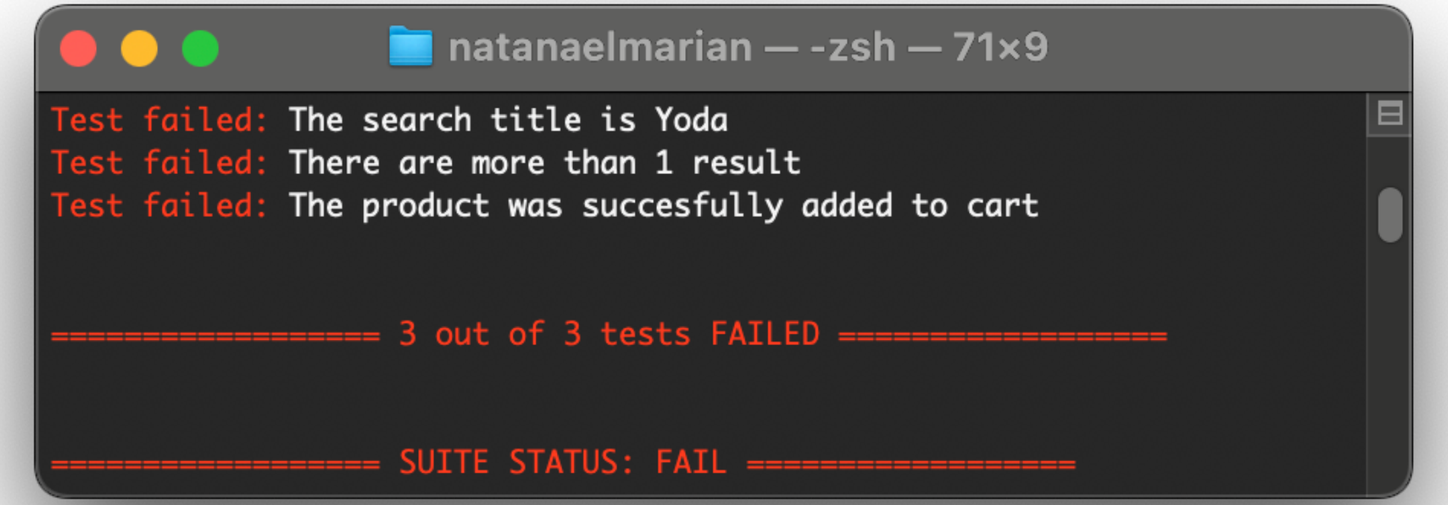
Prompts


natanaelmarian — -zsh — 71×9
Test passed: The search title is Yoda
Test passed: There are more than 1 result
Test passed: The product was succesfully added to cart
================== 3 out of 3 tests PASSED ==================
=================== SUITE STATUS: PASS ===================

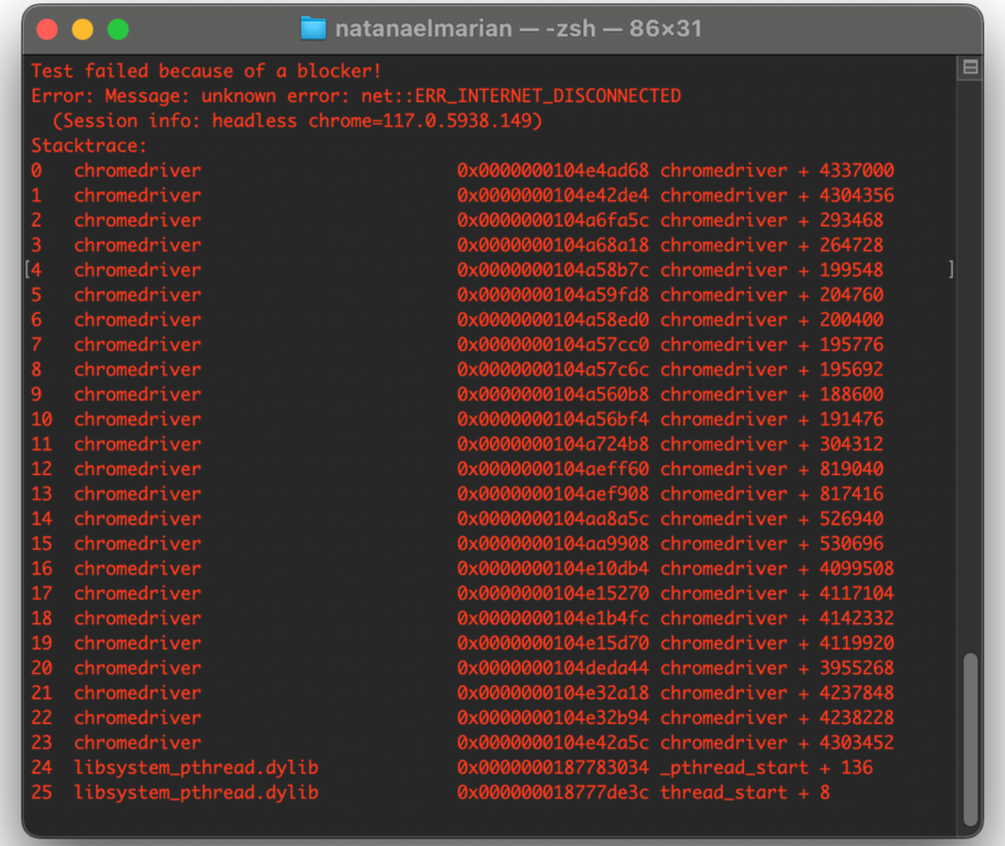
Prompts


natanaelmarian — -zsh — 71×10
Test passed: The search title is Yoda
Test passed: There are more than 1 result
Test failed: The product was succesfully added to cart
================== 2 out of 3 tests PASSED ==================
================== 1 out of 3 tests FAILED ==================
================== SUITE STATUS: PARTIALLY PASSED ==================

Prompts


natanaelmarian — -zsh — 71×9
Test failed: The search title is Yoda
Test failed: There are more than 1 result
Test failed: The product was succesfully added to cart
================== 3 out of 3 tests FAILED ==================
================== SUITE STATUS: FAIL ==================

Prompts


natanaelmarian — -zsh — 86×31
Test failed because of a blocker!
Error: Message: unknown error: net::ERR_INTERNET_DISCONNECTED
(Session info: headless chrome=117.0.5938.149)
Stacktrace:
0 chromedriver 0x0000000104e4ad68 chromedriver + 4337000
1 chromedriver 0x0000000104e42de4 chromedriver + 4304356
2 chromedriver 0x0000000104a6fa5c chromedriver + 293468
3 chromedriver 0x0000000104a68a18 chromedriver + 264728
4 chromedriver 0x0000000104a58b7c chromedriver + 199548
5 chromedriver 0x0000000104a59fd8 chromedriver + 204760
6 chromedriver 0x0000000104a58ed0 chromedriver + 200400
7 chromedriver 0x0000000104a57cc0 chromedriver + 195776
8 chromedriver 0x0000000104a57c6c chromedriver + 195692
9 chromedriver 0x0000000104a560b8 chromedriver + 188600
10 chromedriver 0x0000000104a56bf4 chromedriver + 191476
11 chromedriver 0x0000000104a724b8 chromedriver + 304312
12 chromedriver 0x0000000104aeff60 chromedriver + 819040
13 chromedriver 0x0000000104aef908 chromedriver + 817416
14 chromedriver 0x0000000104aa8a5c chromedriver + 526940
15 chromedriver 0x0000000104aa9908 chromedriver + 530696
16 chromedriver 0x0000000104e10db4 chromedriver + 4099508
17 chromedriver 0x0000000104e15270 chromedriver + 4117104
18 chromedriver 0x0000000104e1b4fc chromedriver + 4142332
19 chromedriver 0x0000000104e15d70 chromedriver + 4119920
20 chromedriver 0x0000000104deda44 chromedriver + 3955268
21 chromedriver 0x0000000104e32a18 chromedriver + 4237848
22 chromedriver 0x0000000104e32b94 chromedriver + 4238228
23 chromedriver 0x0000000104e42a5c chromedriver + 4303452
24 libsystem_pthread.dylib 0x0000000187783034 _pthread_start + 136
25 libsystem_pthread.dylib 0x000000018777de3c thread_start + 8

Additional Tests

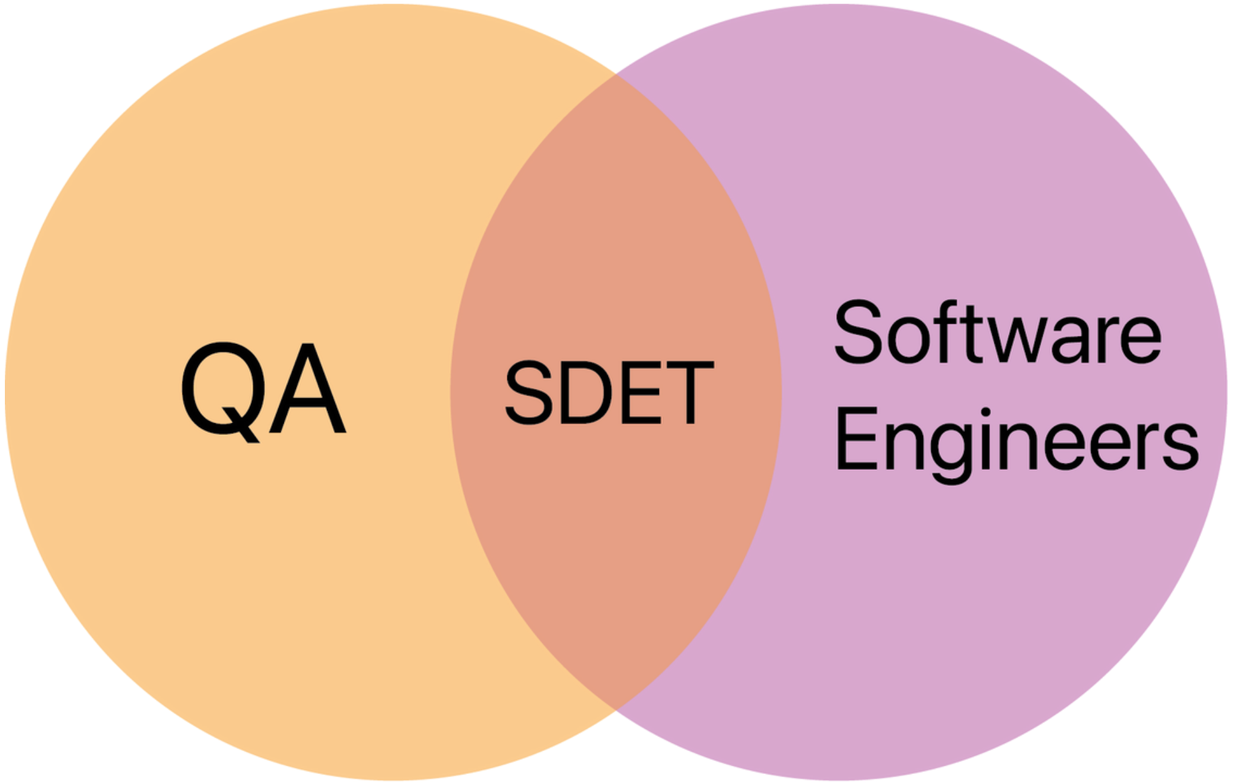
- Data Driven Approach
  - locale(″en-us″)
  - keyword(″Yoda″)
- Cross-platform testing
- Mobile testing
- Expanding smoke-test
  - Functionality Test
  - End-To-End Test

Dependencies and risks

- Website structure
  - `data-test` attribute
  - Dynamically generated
- External Dependencies
  - Network outage
  - Provider risks
  - Library Bugs(selenium)

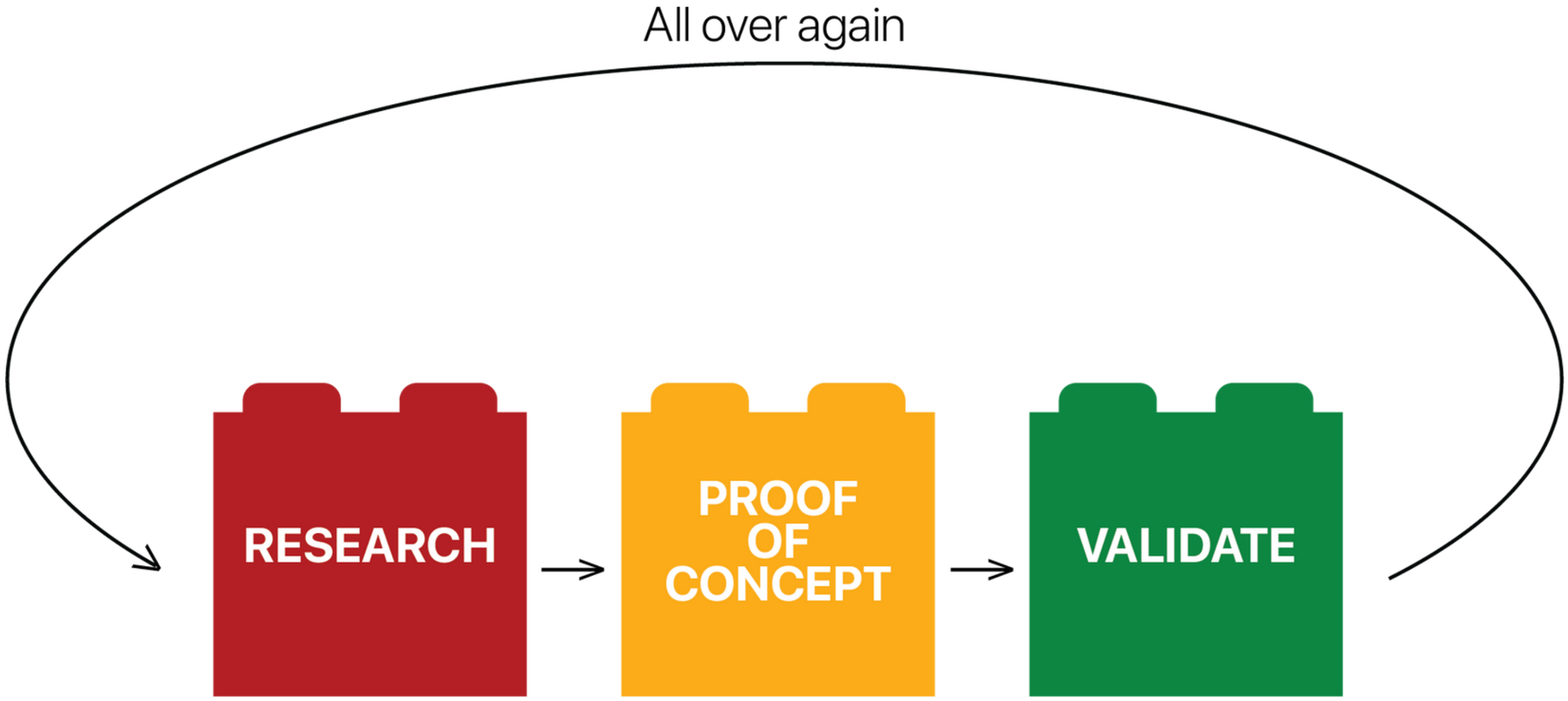
Scaling

Target Group definition



Scaling

Framework selection



Scaling

Documenting

- QMS(Guidelines, Working Instructions, SOPs)
- Environment set-up
- Data management
- Reporting
- Training
- Best practices
- Maintenance
- How-to?
  - Debugging
  - Execution
  - Flakiness management
- Integration with Dev-Ops and CI/CD

Scaling

Integrating

Thank you!