

BDD

Behavior-Driven Development





Somkiat Puisungnoen

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What's on your mind?

Public Post

Intro

Software Craftsmanship

Software Practitioner at สยามชานนาภิเษก พ.ศ. 2556

Agile Practitioner and Technical at SPRINT3r

Somkiat Puisungnoen 15 mins · Bangkok · ...

Java and Bigdata



Topics ?

Behavior-Driven Development ?

Pain points

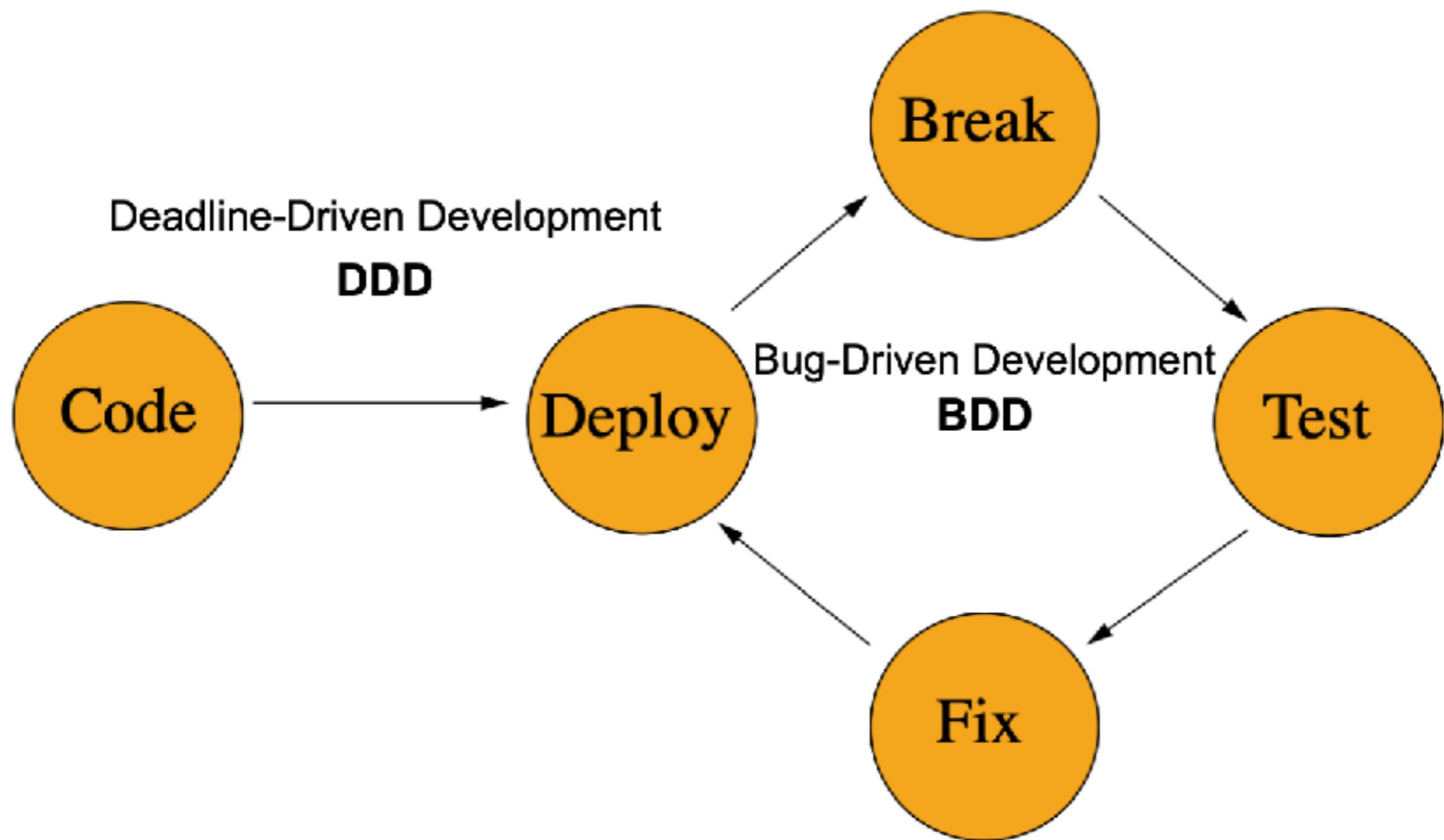
Life cycle of BDD

BDD vs ATDD vs TDD

Demo

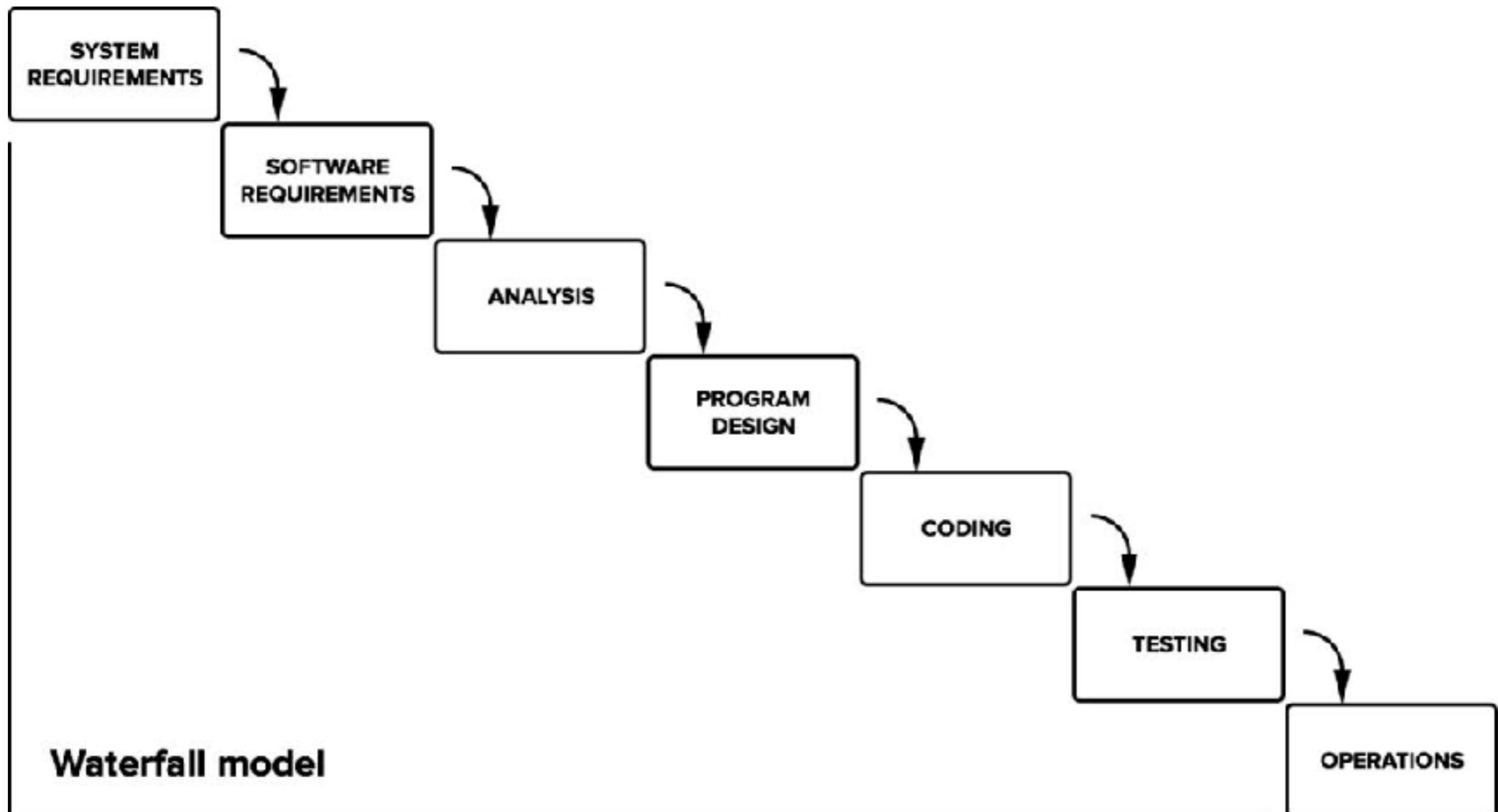


DDD and BDD !!



Start with problem !!





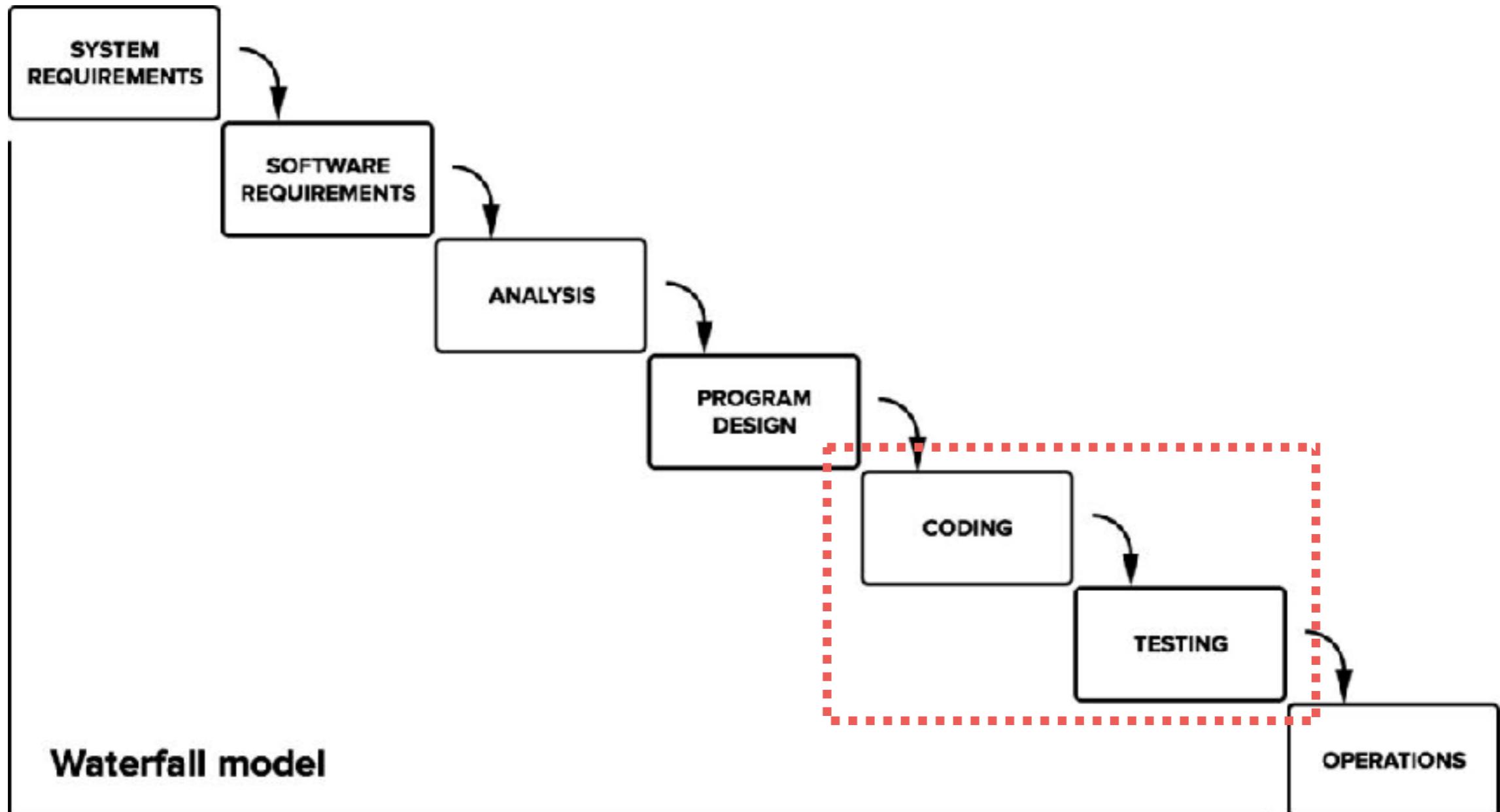
<https://semaphore.io/community/tutorials/behavior-driven-development>





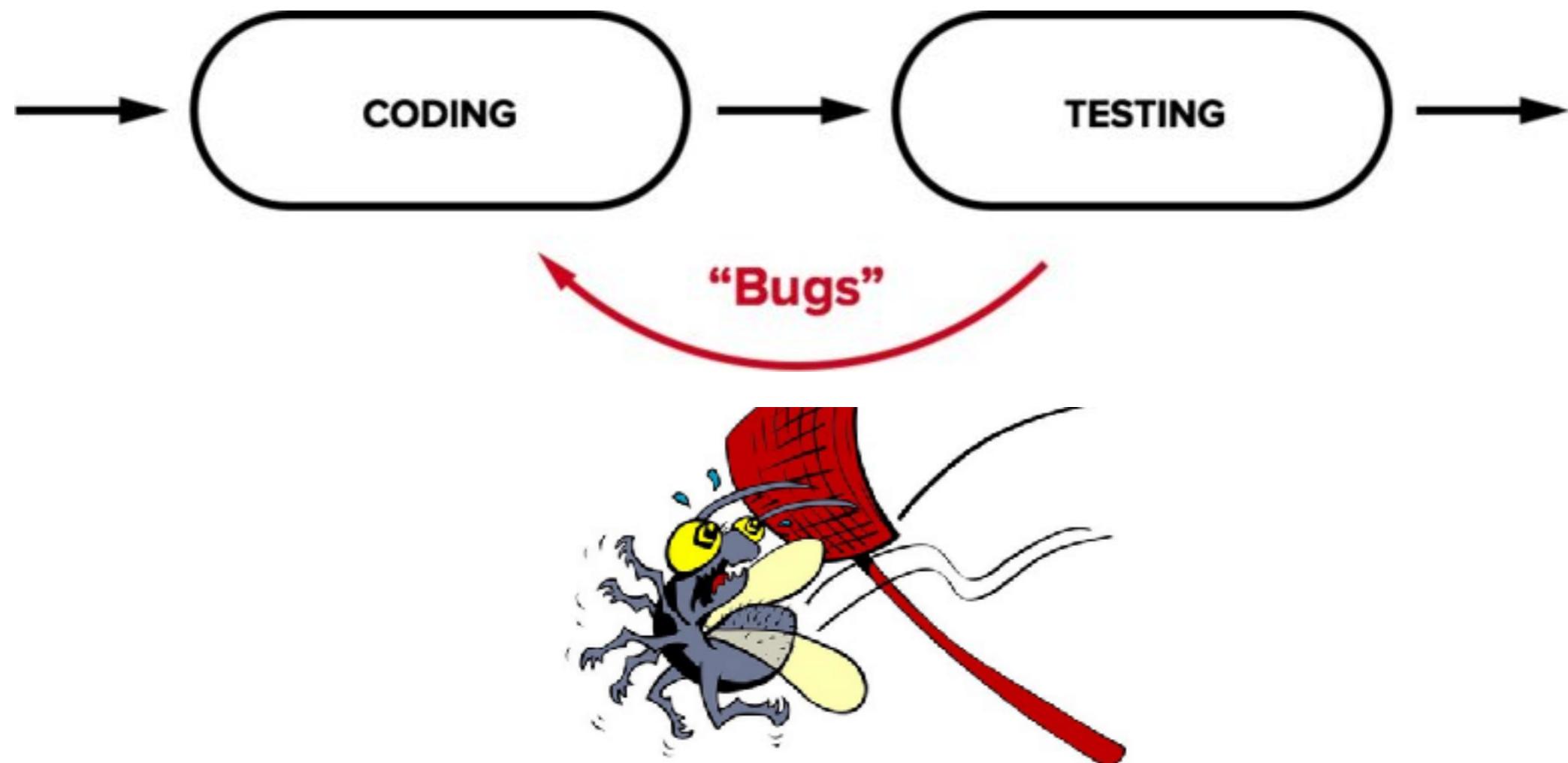
Try to solve problem !!



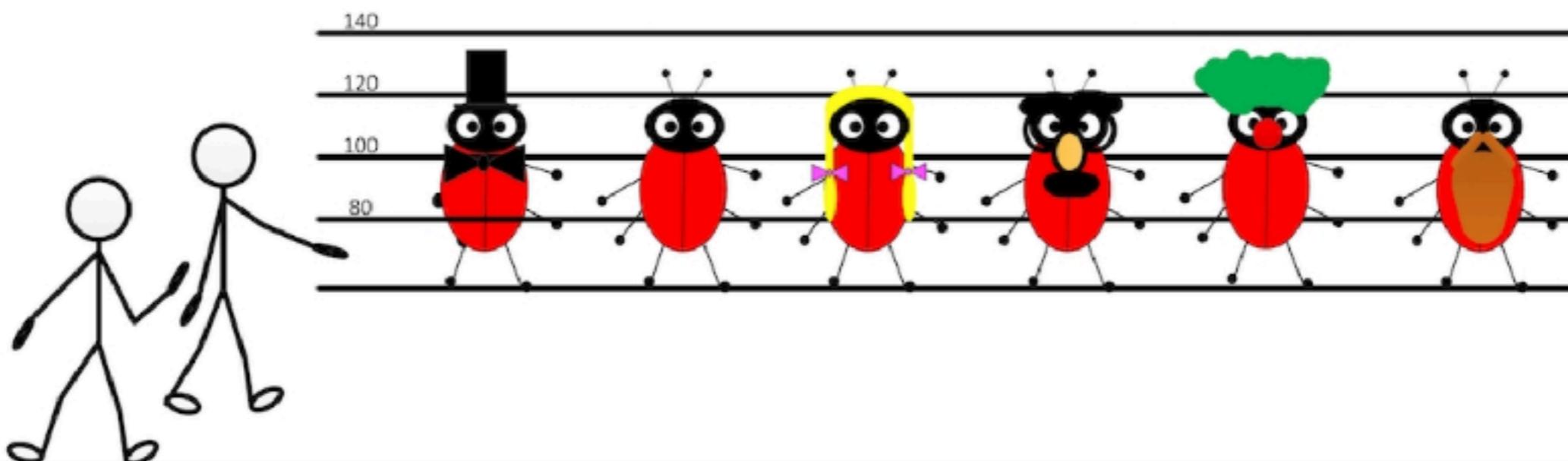


Developer

Tester/QA



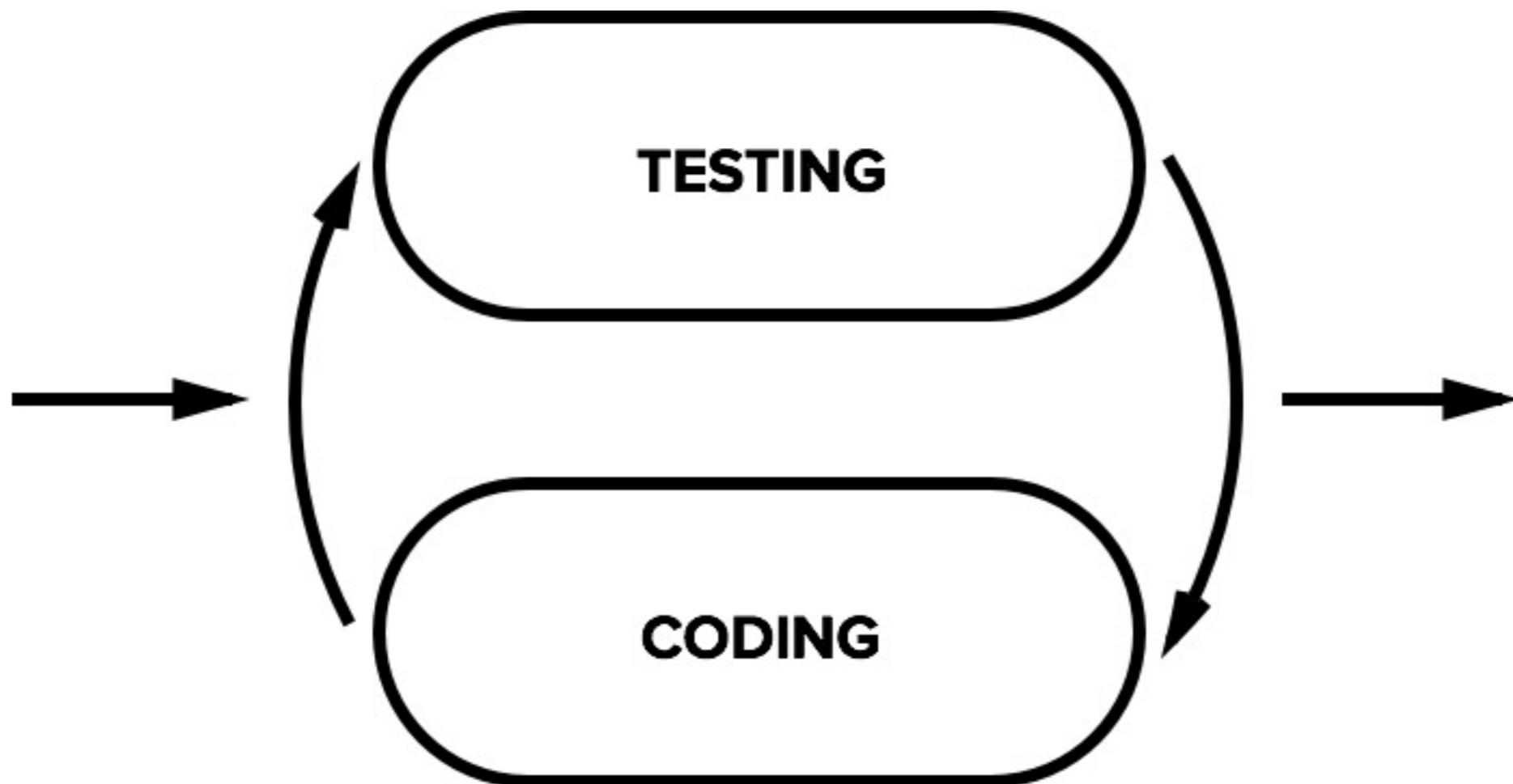
Bug Review



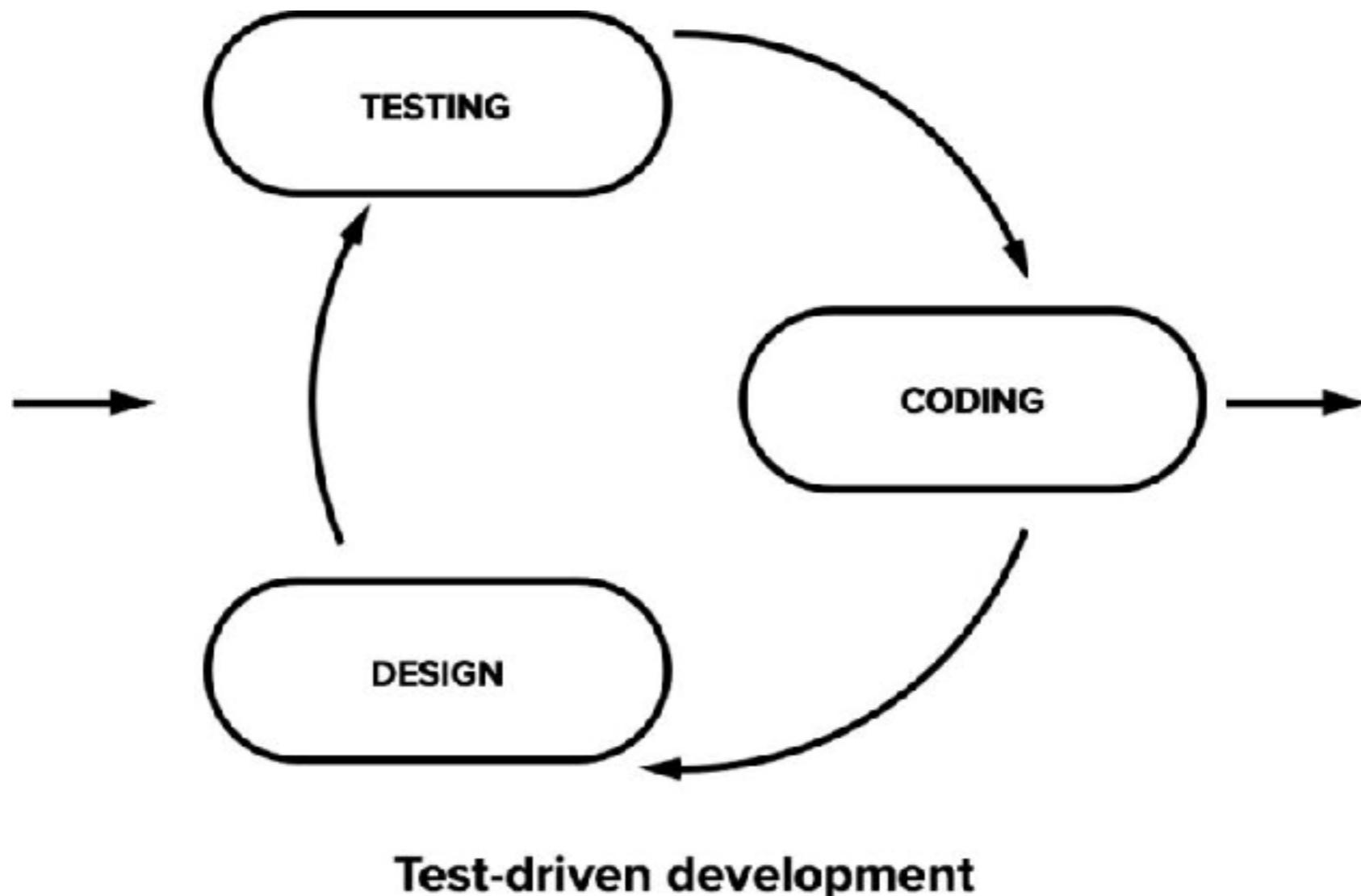
They all look a bit familiar to me



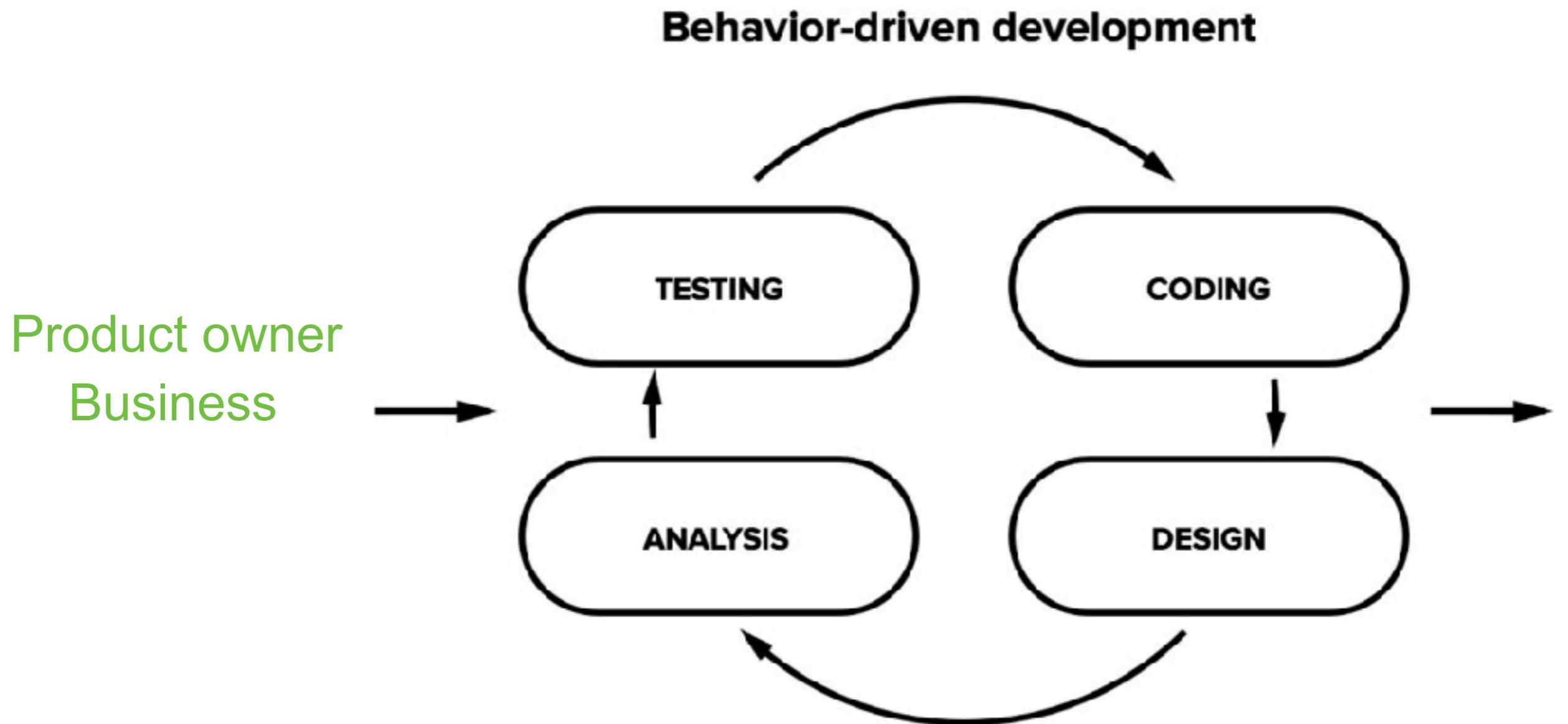
Developer and Tester/QA

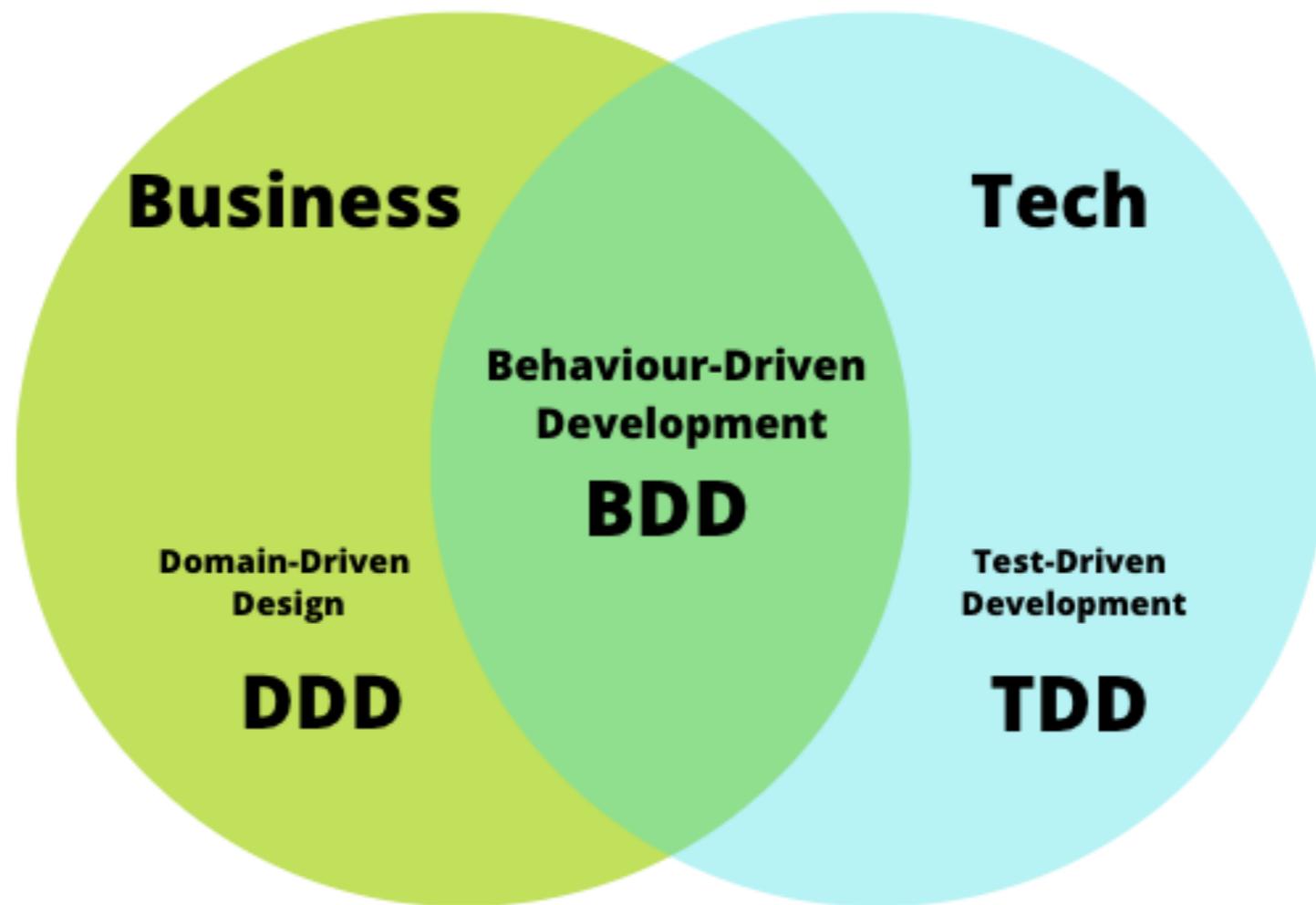


Developer and Tester/QA



Analyst, Developer and Tester/QA



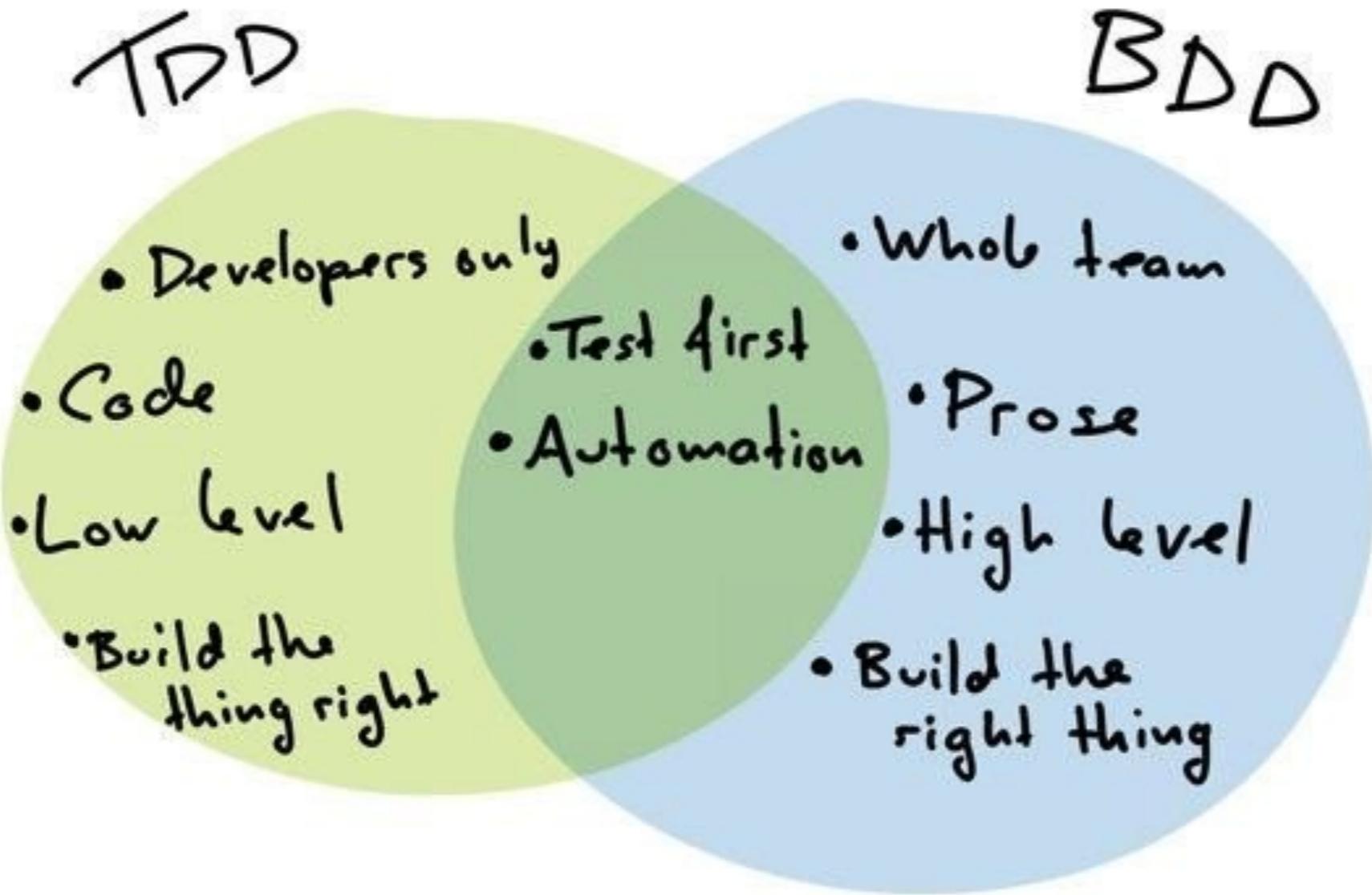


https://en.wikipedia.org/wiki/Behavior-driven_development



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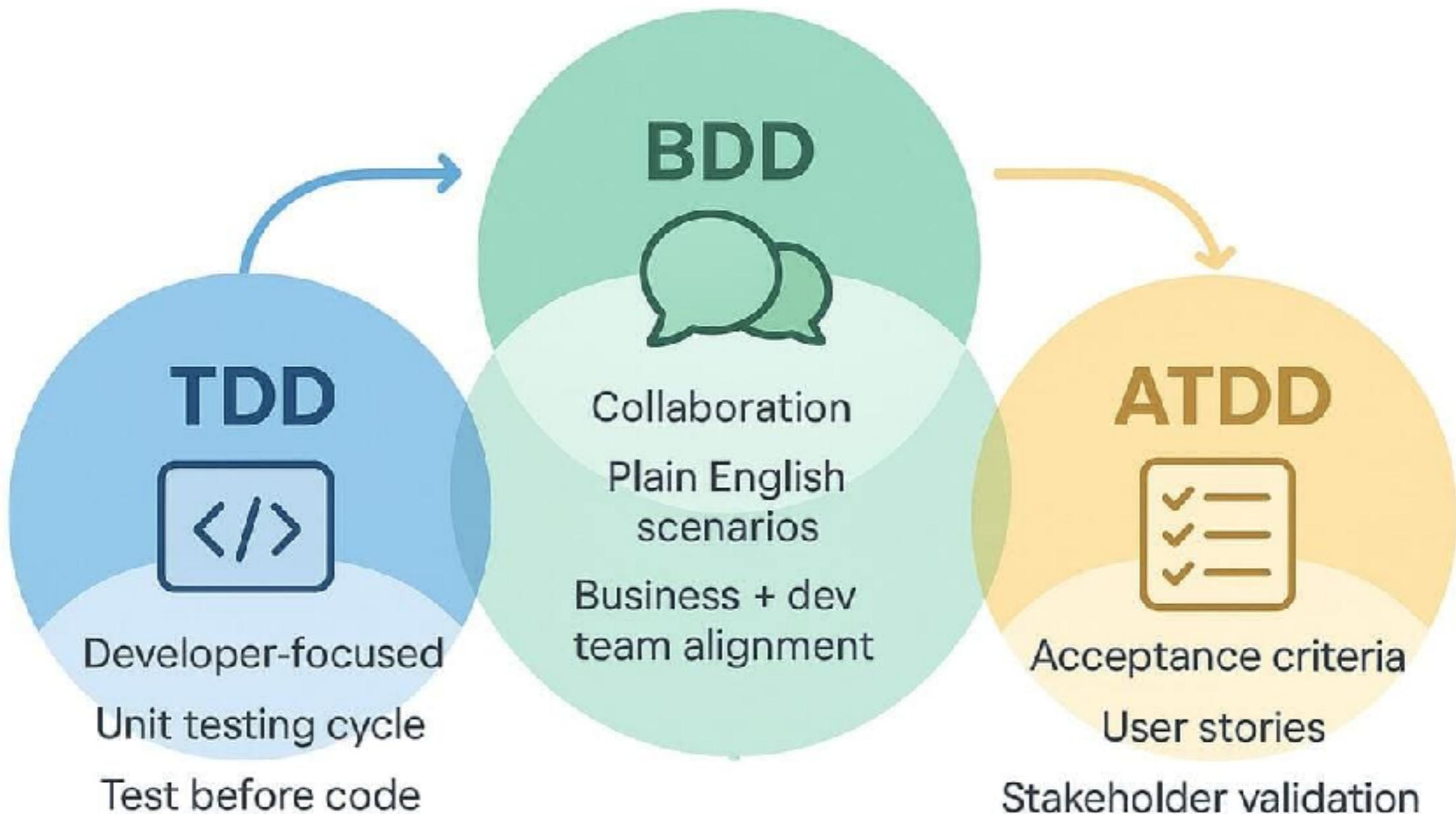


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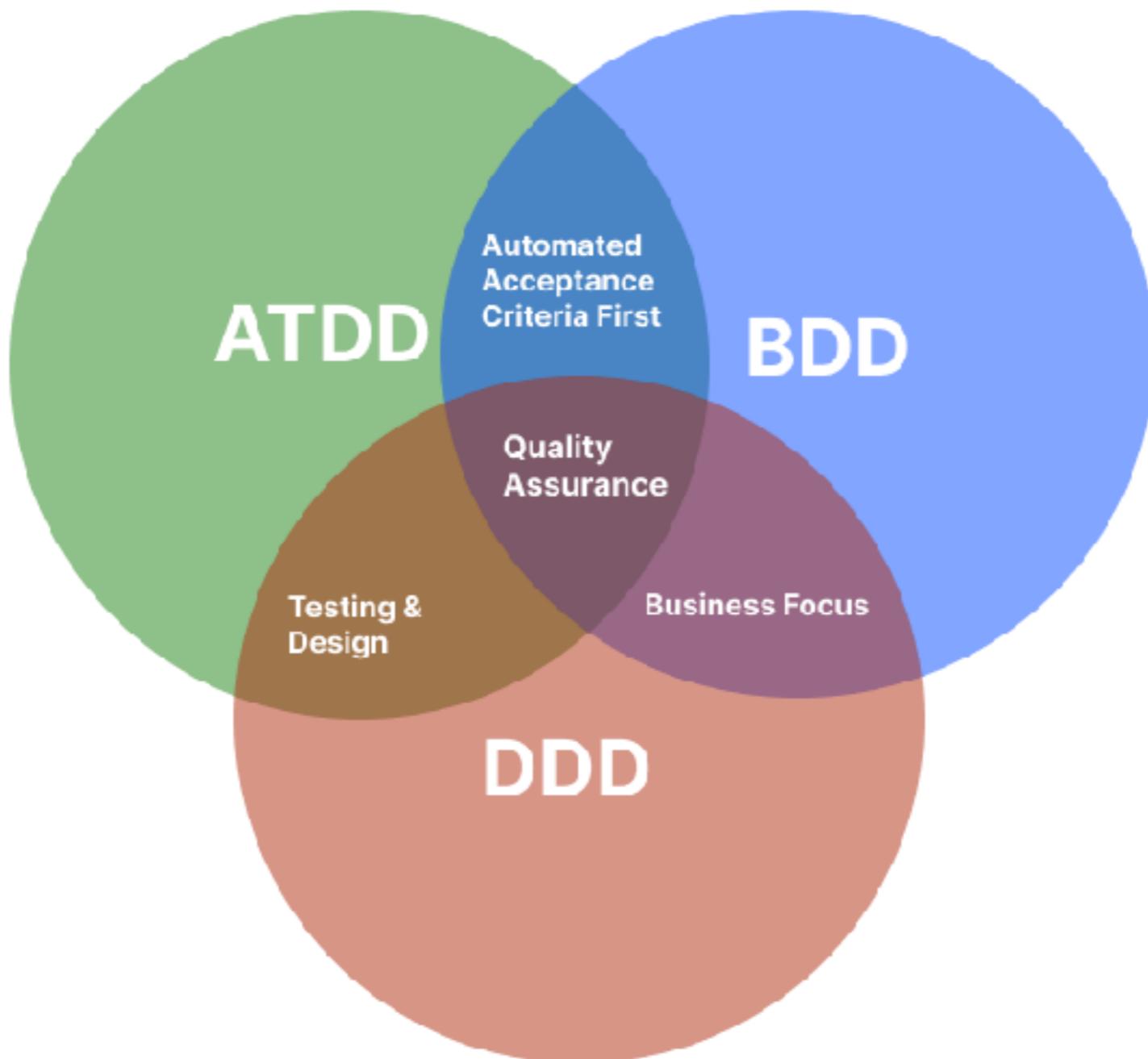
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https://en.wikipedia.org/wiki/Behavior-driven_development





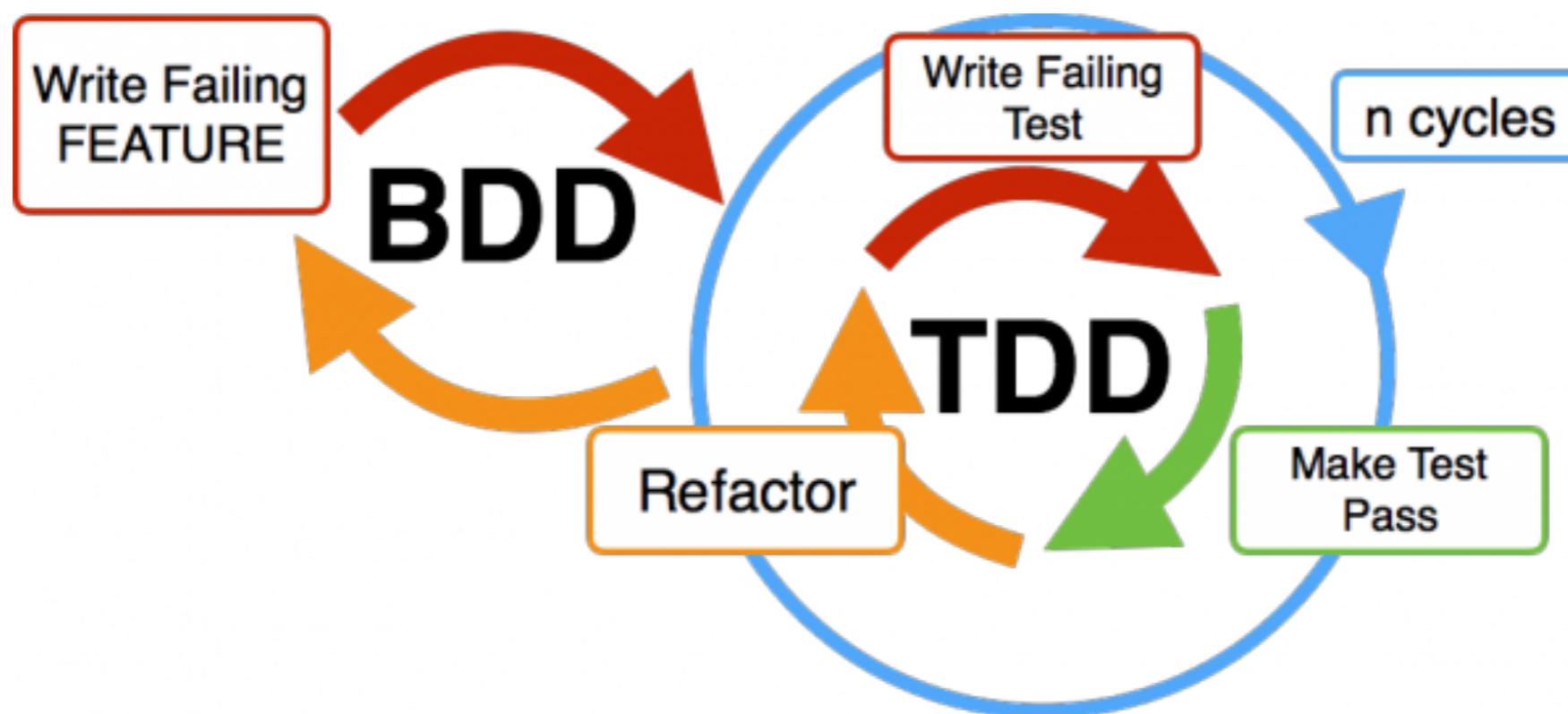
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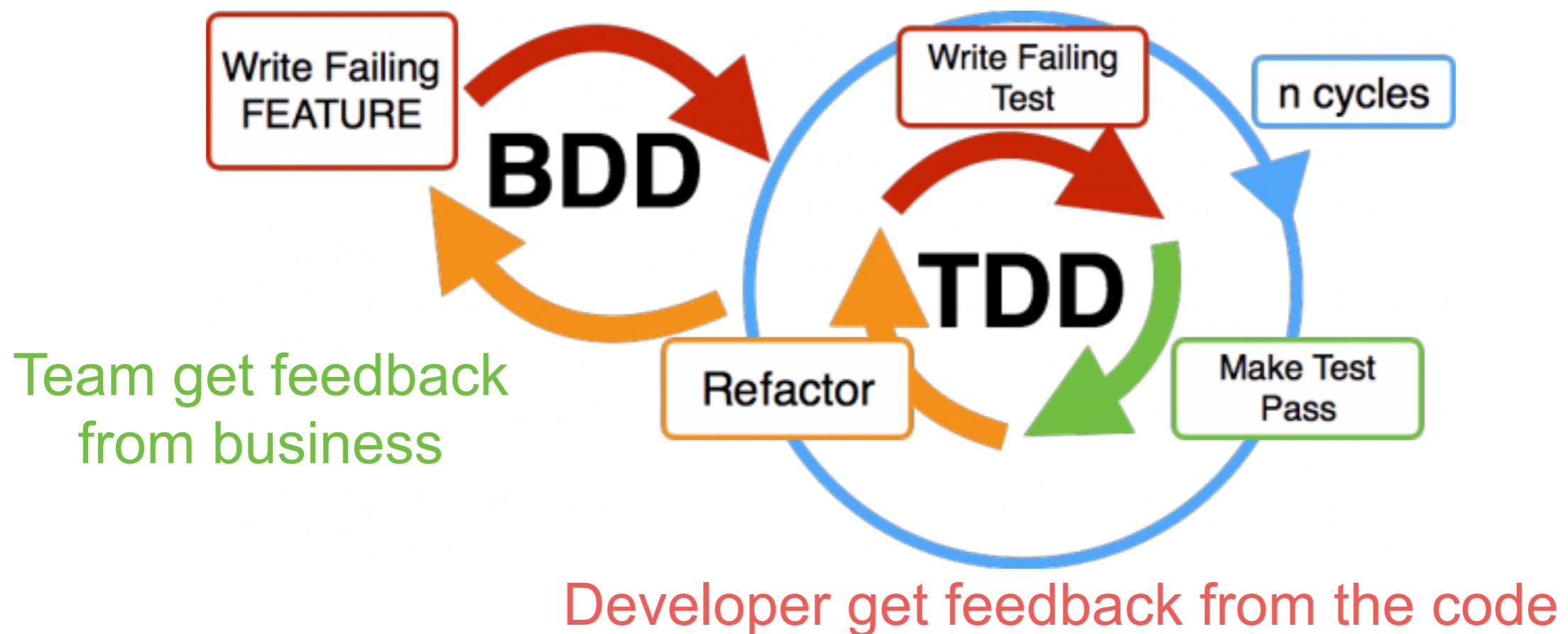
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BDD vs. TDD

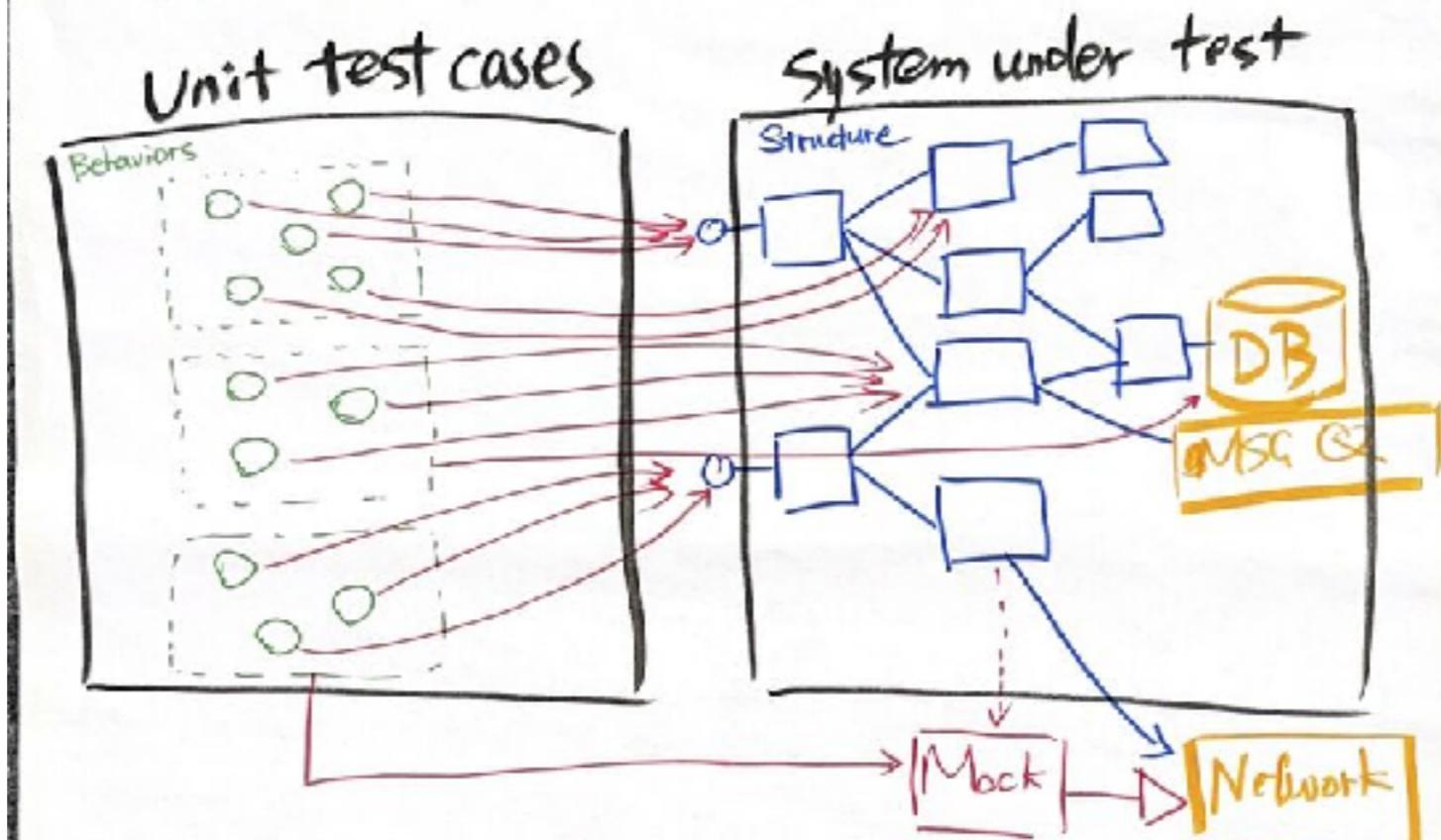


BDD vs. TDD

Start with business value
List of feature sets



"Real" Unit Test



A "unit" test is a small unit of test, that is independent to the other tests.

(It's not about a "unit" of system under test.)

https://www.linkedin.com/posts/terryyin_unittest-unittesting-tdd-activity-7249975063473487872-NqGb/



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**BDD is way for software teams
to work that closes the gap
between business people and
technical people**

<https://cucumber.io/docs/bdd/>



**Collaboration across roles to
build shared understanding of
the problem to be solved**



**Working in rapid, small
iterations to increase feedback
and the flow of value**

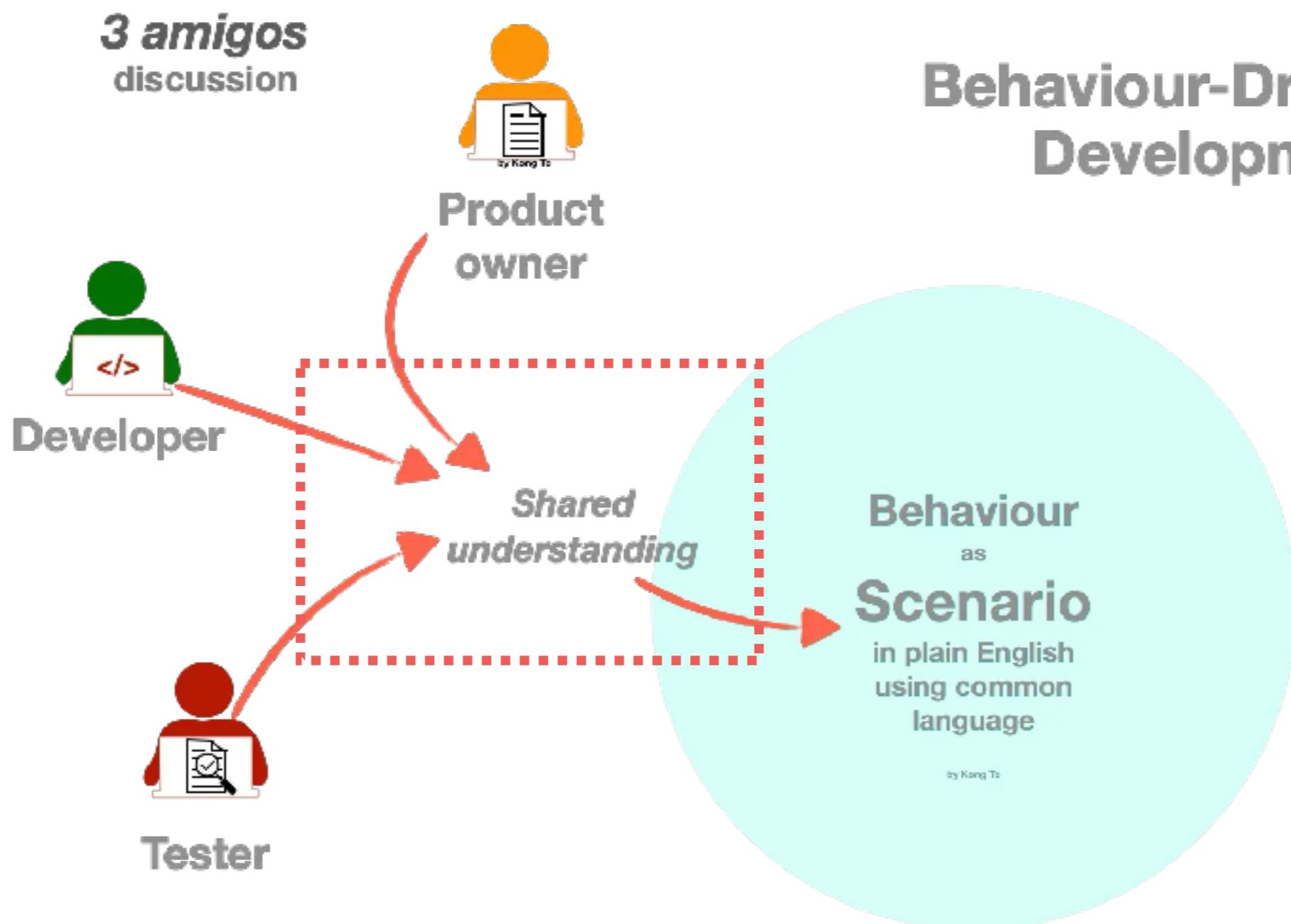


Producing system documentation
that is **automatically checked**
against the system's behavior

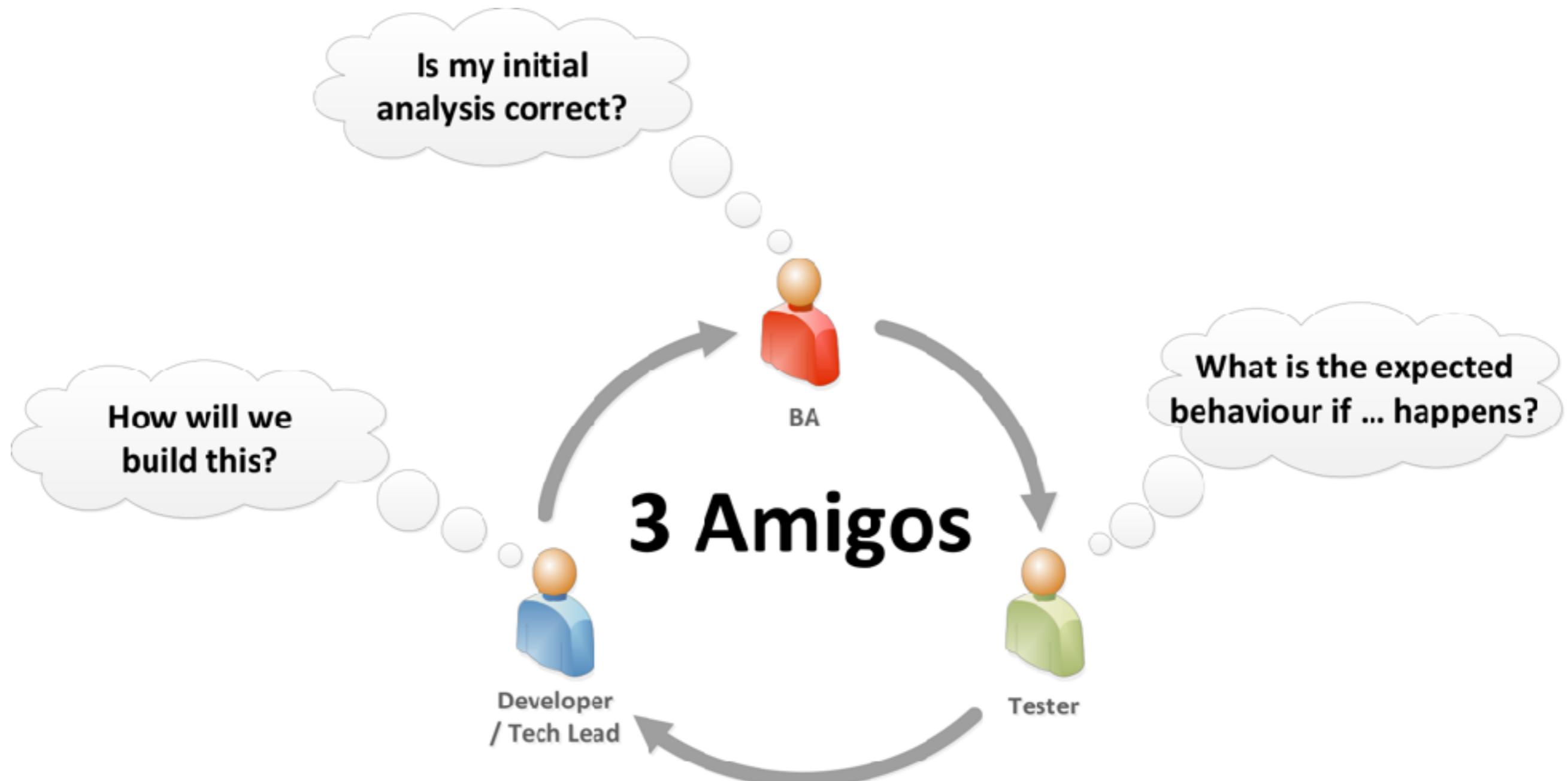


BDD

Behaviour-Driven Development



Power of Three !!



<https://bad.tools/library/toolkits/delivery/toolkit/three-amigos/>



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A scenic landscape at sunset or sunrise. The sky is filled with warm, orange and yellow hues. In the foreground, there's a dirt road that curves through a field of tall, dry grass. To the right, there are dense forests of birch trees with white bark and dark leaves. The overall atmosphere is peaceful and contemplative.

The hardest single part of
building a software system is
deciding precisely what to build.

Fred Brooks

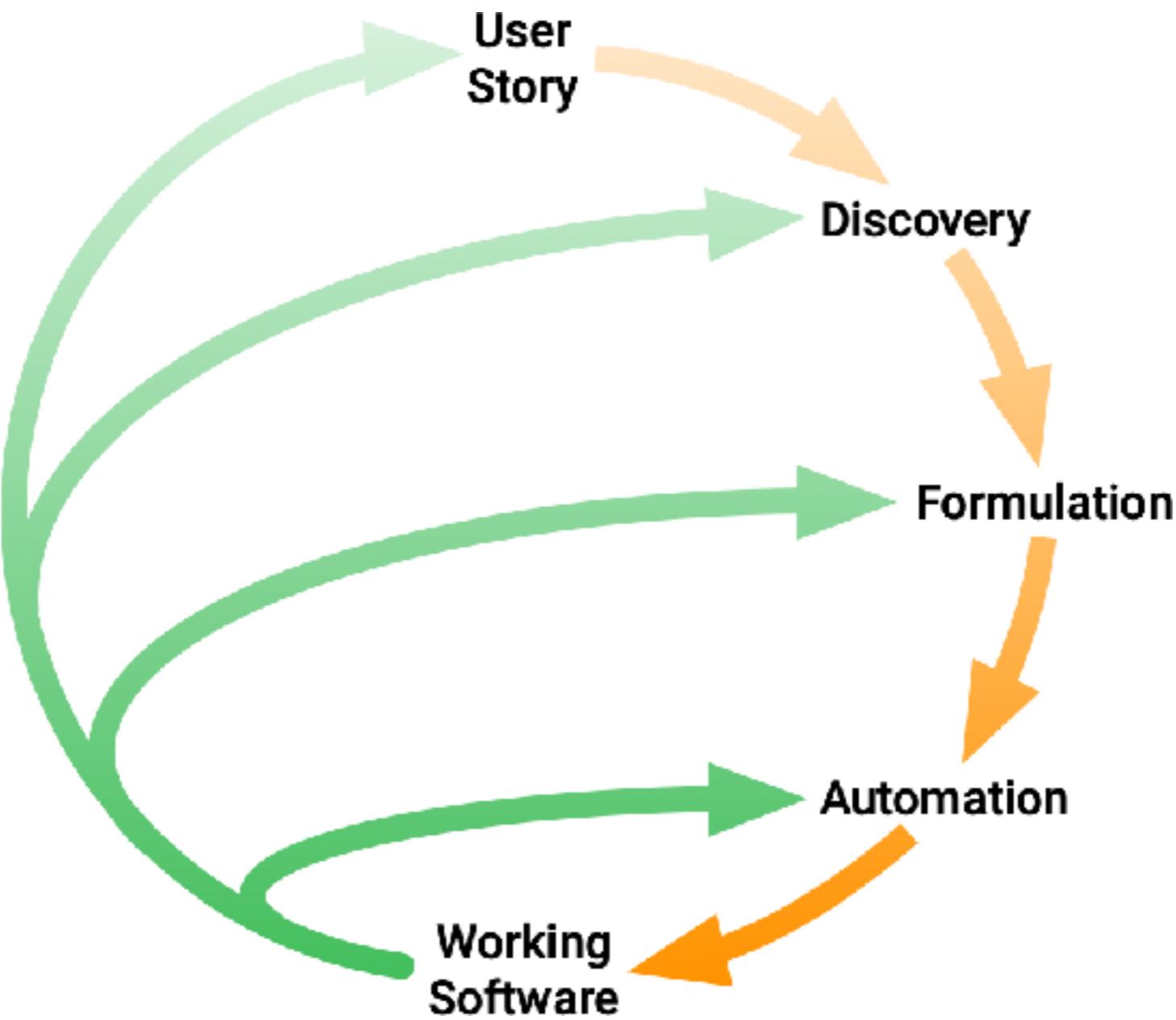
guptafancy



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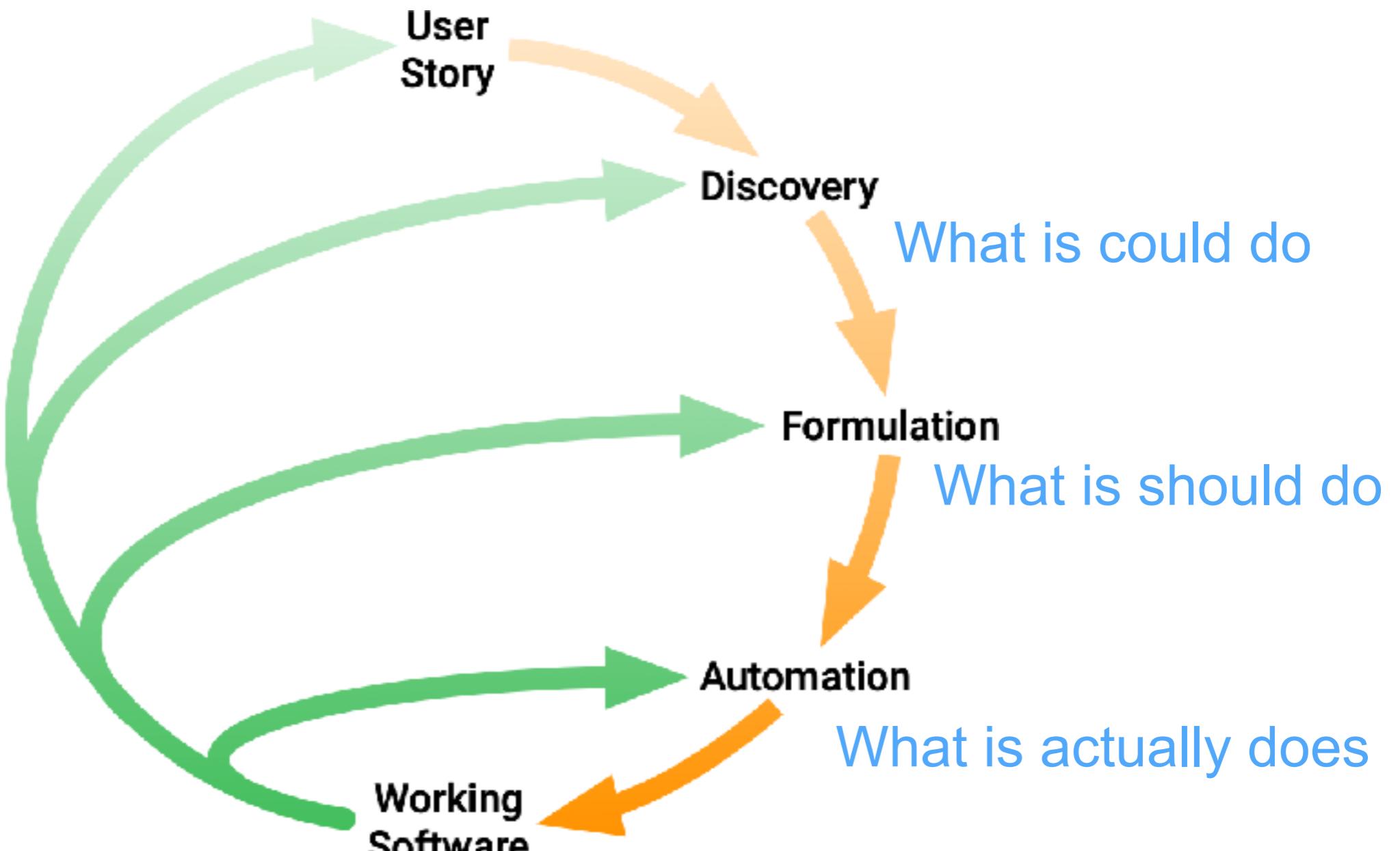
BDD's practices



<https://cucumber.io/docs/bdd/>



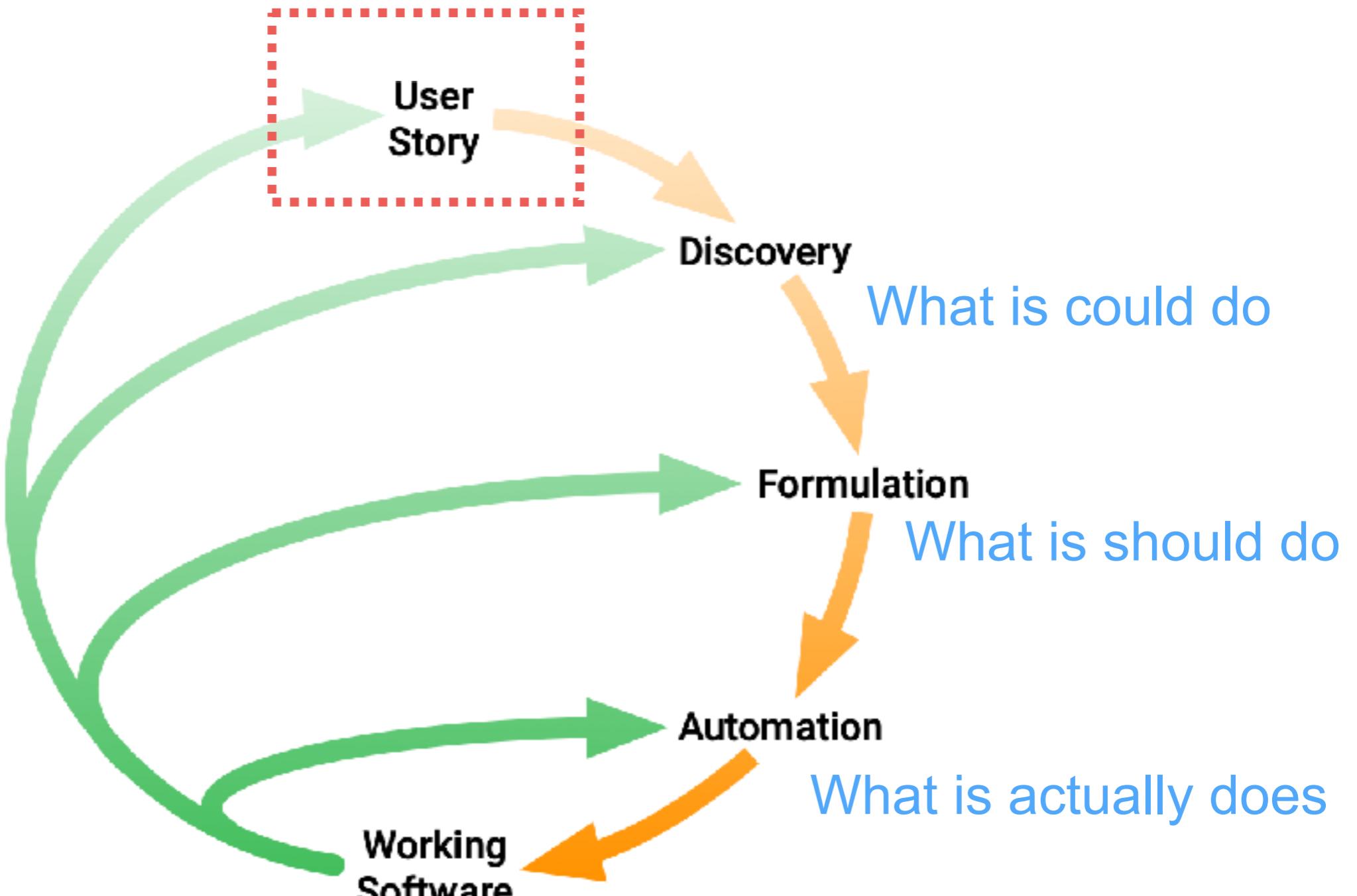
BDD's practices



<https://cucumber.io/docs/bdd/>



BDD's practices



<https://cucumber.io/docs/bdd/>



User Story ?

Small piece of valuable functionality used for planning and prioritizing work on team

Write stories from the user's point of view

Don't write stories that require the development of other features

A story may not be bad, but it's not useful if it's not well expressed



User Stories Cheat Sheet

Why?

Focus on the perspective of a user who wants to get value from the product.

I.N.V.E.S.T.



Independent Negotiable



Valuable Estimable



Small Testable

How?

WHO: As a [user type]
WHAT: I want [action to perform]
WHY: So that [desired outcome]

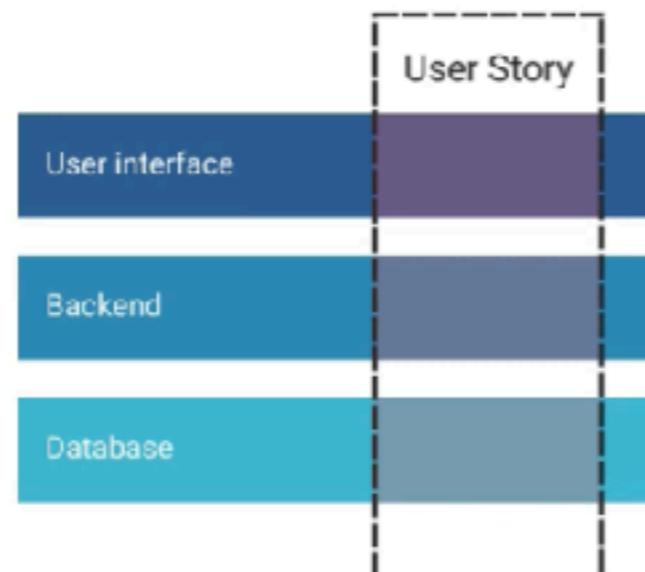
3 C's Method

- Card:** WHO, WHAT, WHY
- Conversation:** Discuss the reasoning and the context. It's not about extensive documentation.
- Confirmation:** Concise acceptance criteria. Those are not detailed test cases.

Tips:

- How is it aligned with the Product Outcome?
- Business goals?
- Your strategy?

Valuable for the User

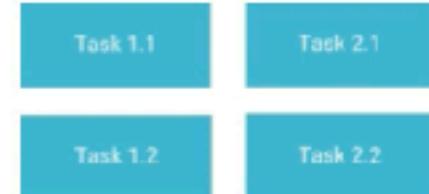
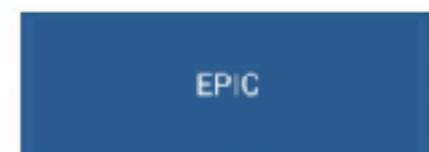


As a User,
I want to drag and drop tasks within a list
So that I can reorder them quickly and easily

As an Online Shopper,
I want to read reviews of a product before making the decision
So that I can reduce the uncertainty

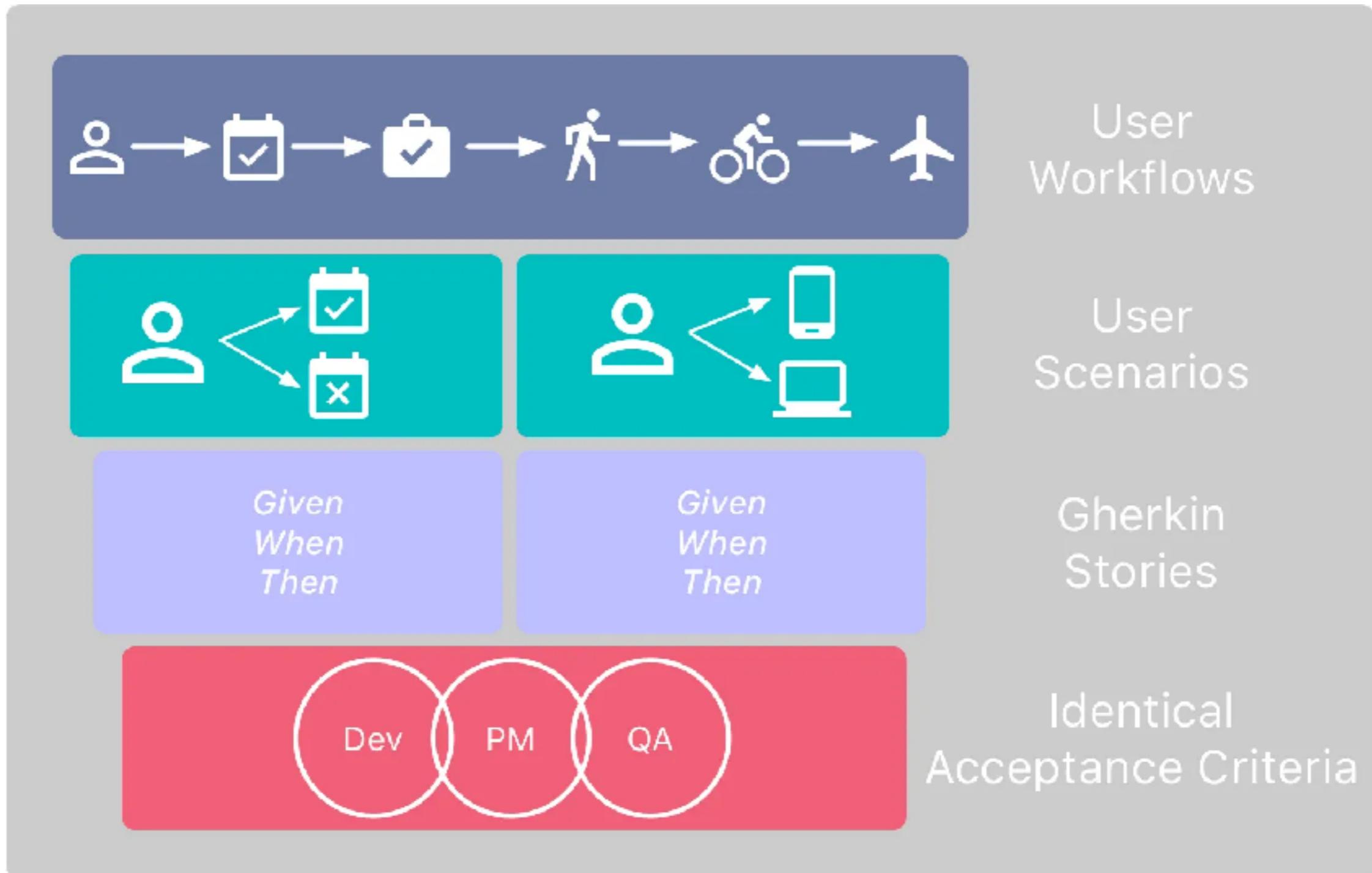
As a Freelancer,
I want to track my time spent on each project
So that I can simplify my billing process

As an Administrator,
I want to invite users by importing their emails
To minimize time required to share a workspace



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User story mapping and persona

Activity - The steps or set of tasks that work together to achieve a goal



Format of User Story

Title:	Priority:	Estimate:
User Story: As a [description of user], I want [functionality] so that [benefit].		
Acceptance Criteria: Given [how things begin] When [action taken] Then [outcome of taking action]		



Example of common language

Scenario: Withdrawal money from an ATM that contains enough money
Given a client having a valid account
And the account balance is 100 euros
And the card is valid
And the ATM contains enough money
When the account holder requests 20 euros
Then the ATM should dispense 20 euros
And the account balance should be 80 euros
And the card should be returned

Gherkin format

<https://cucumber.io/docs/gherkin/>

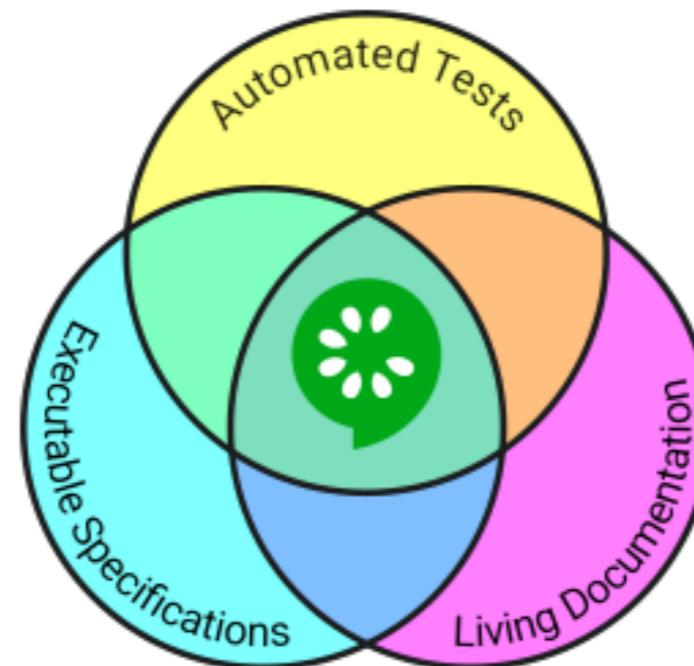


Goals of Gherkin

Unambiguous executable specification

Automated testing

Document how the system actually behaves



<https://cucumber.io/docs/>

<https://cucumber.io/docs/gherkin/languages/>



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User story != User manual



User story != User manual

To log in, a user must navigate to the login page, enter their email in the 'email' field, enter their password in the 'password' field, and click the 'submit' button.

The system will validate the credentials and redirect the user to their dashboard.



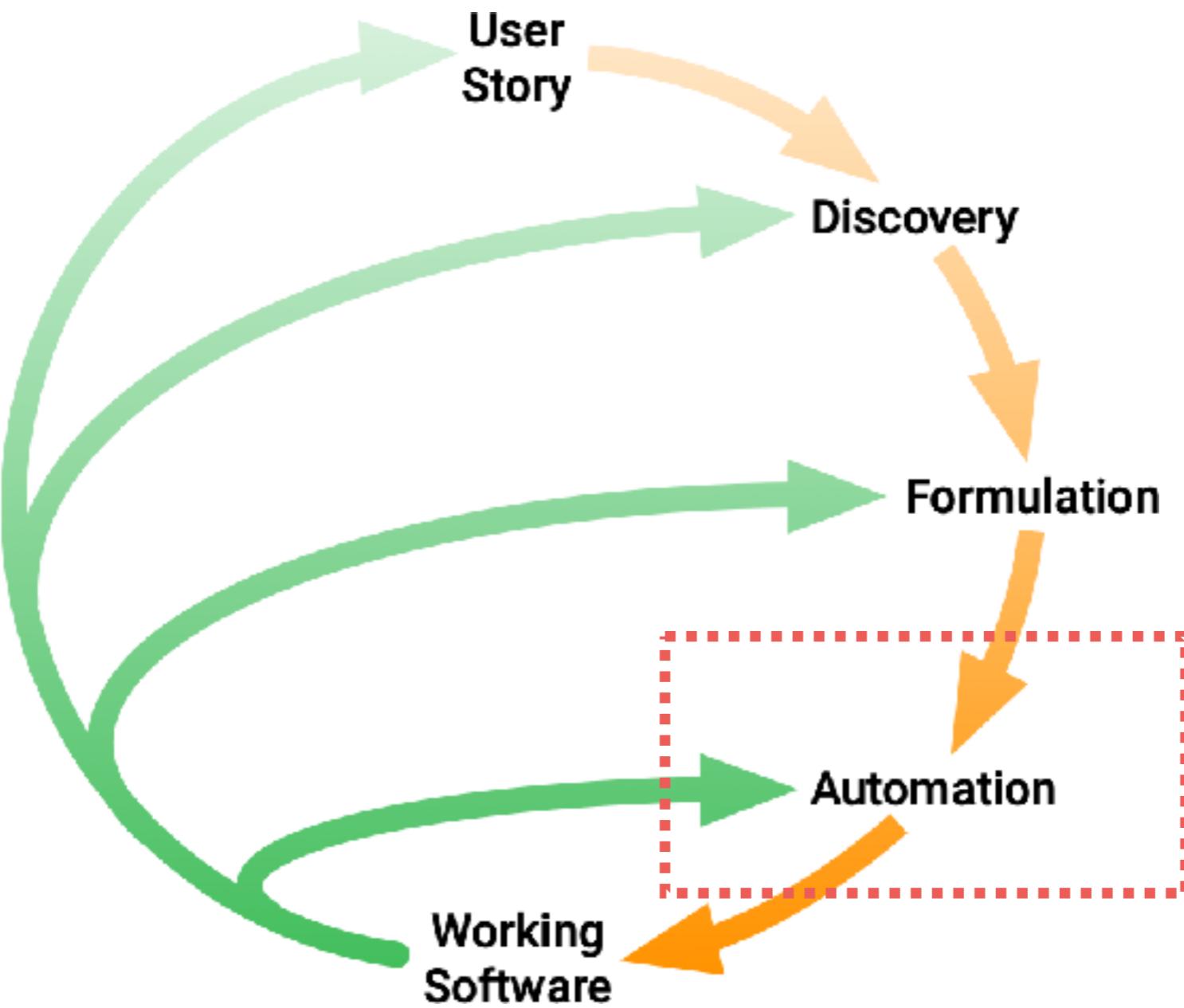
User story != User manual

For registered user, I want to log in to the application so I can access my personalized dashboard.

The team would then have a conversation to define the specifics, such as password requirements, error handling, and what happens on success



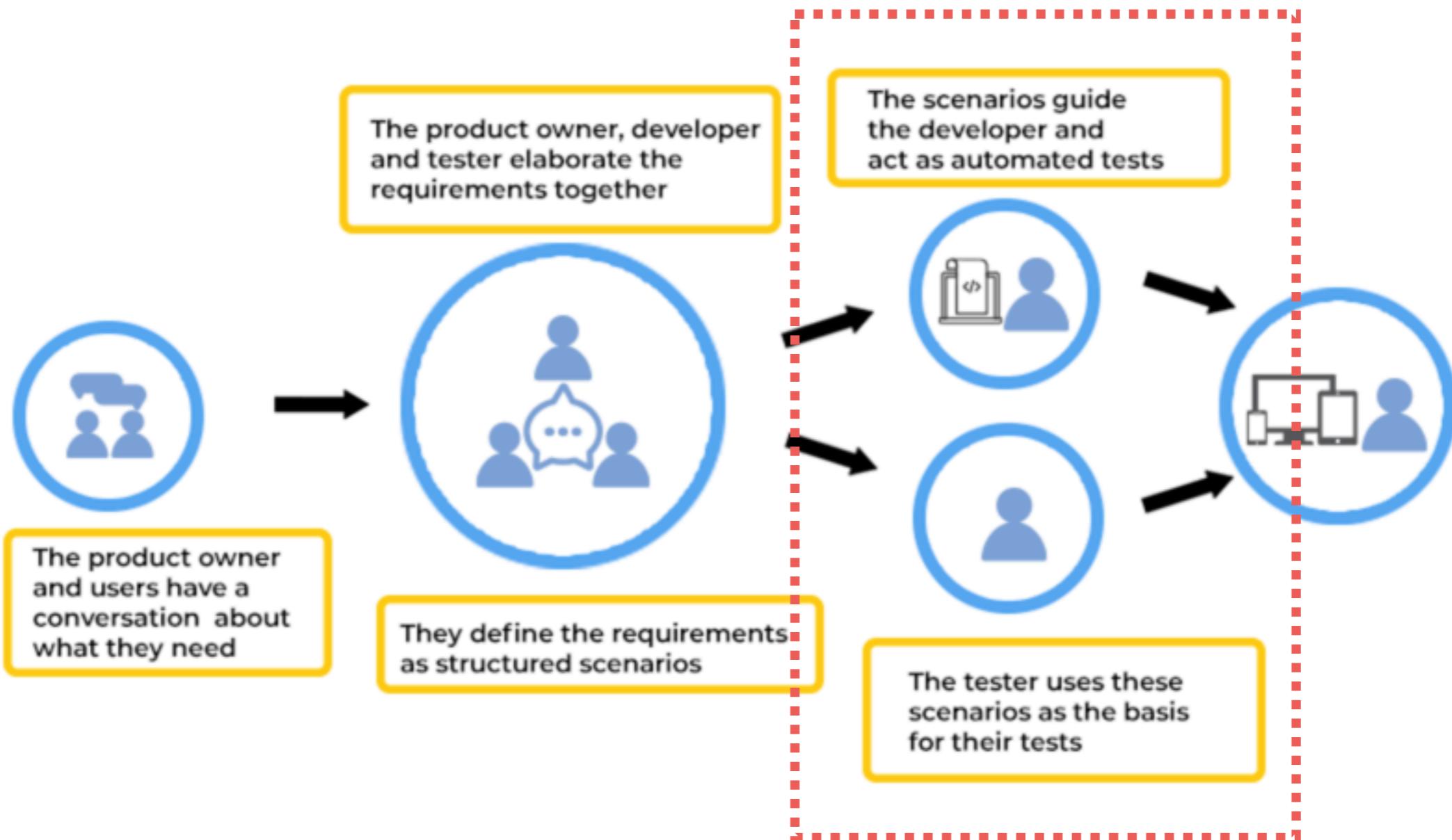
BDD's practices



<https://cucumber.io/docs/bdd/>



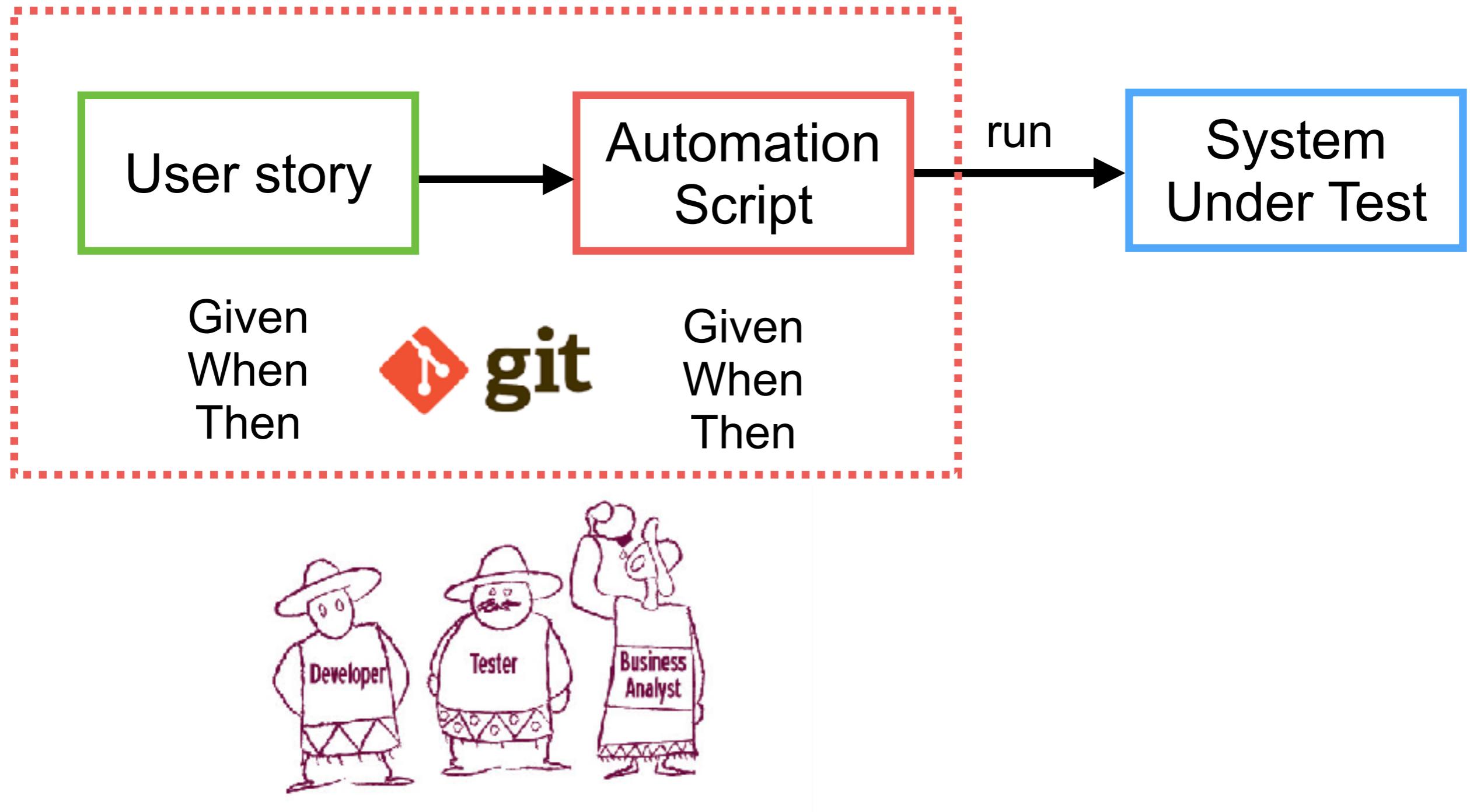
BDD processes



Automation need Tools



BDD Steps to automated !!





ROBOT
FRAME
WORK/

Tools and Frameworks



Step from cucumber



Feature file

Ruby, Java, C#, Python

Web
API

Database

Code (function, class)

<https://cucumber.io/docs/#what-are-step-definitions>



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Step from jbehave (1)

1. Write story

Scenario: A trader is alerted of status

Given a stock and a threshold of 15.0

When stock is traded at 5.0

Then the alert status should be OFF

When stock is traded at 16.0

Then the alert status should be ON

Plain
text

2. Map steps to Java

```
public class TraderSteps {  
    private TradingService service; // Injected  
    private Stock stock; // Created  
  
    @Given("a stock and a threshold of $threshold")  
    public void aStock(double threshold) {  
        stock = service.newStock("STK", threshold);  
    }  
    @When("the stock is traded at price $price")  
    public void theStockIsTraded(double price) {  
        stock.tradeAt(price);  
    }  
    @Then("the alert status is $status")  
    public void theAlertStatusIs(String status) {  
        assertThat(stock.getStatus().name(), equalTo(status));  
    }  
}
```

POJO

<https://jbehave.org/>



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Step from jbehave (2)

3. Configure Stories

```
public class TraderStories extends JUnitStories {  
  
    public Configuration configuration() {  
        return new MostUsefulConfiguration()  
            .useStoryLoader(new LoadFromClasspath(this.getClass()))  
            .useStoryReporterBuilder(new StoryReporterBuilder()  
                .withCodeLocation(codeLocationFromClass(this.getClass()))  
                .withFormats(CONSOLE, TXT, HTML, XML));  
    }  
  
    public List<CandidateSteps> candidateSteps() {  
        return new InstanceStepsFactory(configuration(),  
            new TraderSteps(new TradingService())).createCandidateSteps();  
    }  
  
    protected List<String> storyPaths() {  
        return new StoryFinder().findPaths(codeLocationFromClass(this.getClass()),  
            "**/*.story");  
    }  
}
```

Only once

4. Run Stories



With any of

5. View Reports

HTML

Scenario: A trader is alerted of status

```
Given a stock and a threshold of 15.0  
When stock is traded at 5.0  
Then the alert status is OFF  
When stock is traded at 16.0  
Then the alert status is ON
```

<https://jbehave.org/>



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BDD with Robotframework

```
Given a user is on the login page  
When the user enters their username and password and clicks the login button  
Then the user should be directed to the home page.
```

**** Test Cases ****

`Login With Admin`

```
Given I am on the login page  
When I login with username "admin" and password "admin"  
Then I should see the welcome page
```

`Login With Invalid User`

```
Given I am on the login page  
When I login with username "invalid" and password "invalid"  
Then I should see the error message  
And I should be able to login again
```

https://docs.robotframework.org/docs/testcase_styles/bdd



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Demo

