



Example Mapping

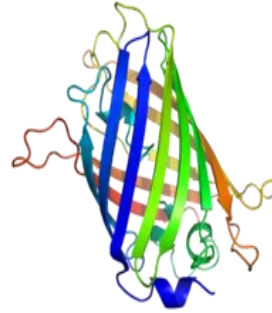
Thomas Haver

Pittsburgh TechFest
2018-06-02

About Me



- **THOMAS HAVER**
- Senior Application Architect, HNB
- Scientist



- Fluorescence Microscopy & Spectroscopy

- Baker



- Panera Bread

- Board gamer



- World Traveler for Diplomacy

- Evangelist for Automation

- Ruby-Cucumber



User Stories | Convention

- Rachel Davies is credited with inventing:

As a [type of user]

I want [some particular feature]

so that [some benefit is received]

- Example:

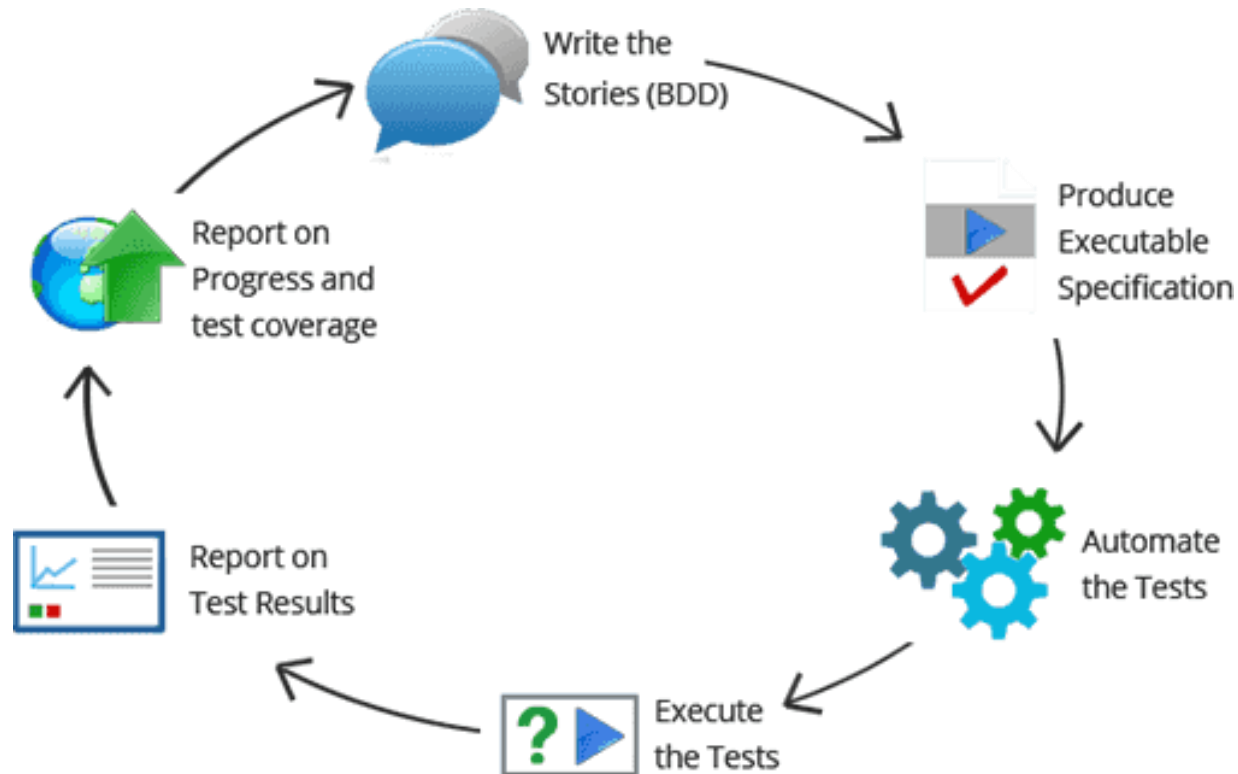
As a bank customer

I want to view my current account balance

so that I know my recent deposit went through.

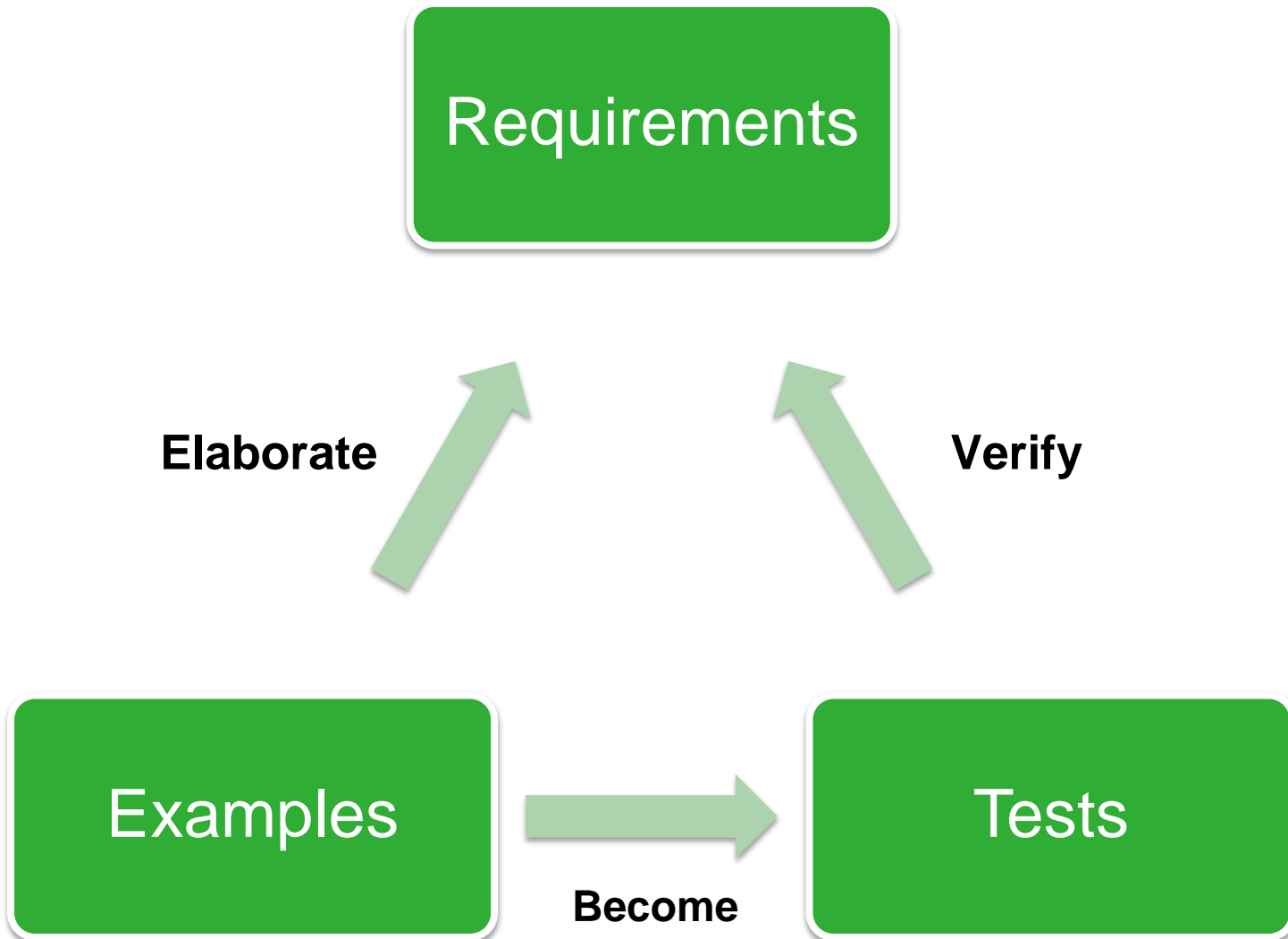
- Sometimes features that describe technology updates or UI changes don't really work with the model.

Behavior Driven Development



- **BDD promotes requirements by example, collaboration, lower cost in resolving defects, and automation in the form of business value.**

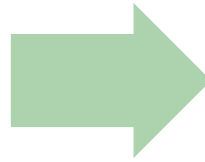
Gherkin is a business readable, Domain Specific Language created specifically for behavior descriptions (BDD/ATDD).



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User Story

- **As a** [type of user]
- **I want** [some particular feature]
- **so that** [some benefit is received]



Gherkin Scenario

- **Given** some initial context
- **When** an event occurs
- **Then** ensure some outcome(s)

Encourages Collaboration

- BDD requires people to work together to create the requirements / tests. All roles balance each other.





Rules vs Examples: Password Activity

Group Activity | Passwords

- Form teams of 2-4

As a member of information security

I want to force bank users to create strong passwords

In order to prevent passwords from being guessed

- In your team, invent **THREE** rules for what makes a strong password. Write them on **BLUE** cards.
- Keep your rules secret from other teams
- Examples: “It must have # in the password” or “It must not have your name in it”

Group Activity | Passwords

- Create THREE examples that illustrate your rules
- Write each example on a **GREEN** card.
- Examples:

**“Secure#Password”
is valid**

**“ThomasPW”
is invalid**

Group Activity | Passwords

- Pass your **EXAMPLES** to another team.
- Attempt to guess the other team's rules.
- The guessing team may create new examples and ask the **RULES** team to confirm the examples meet the requirements, without showing the **RULES**.
- **How many examples did it take to guess the rules correctly? (time box: 10 minutes)**



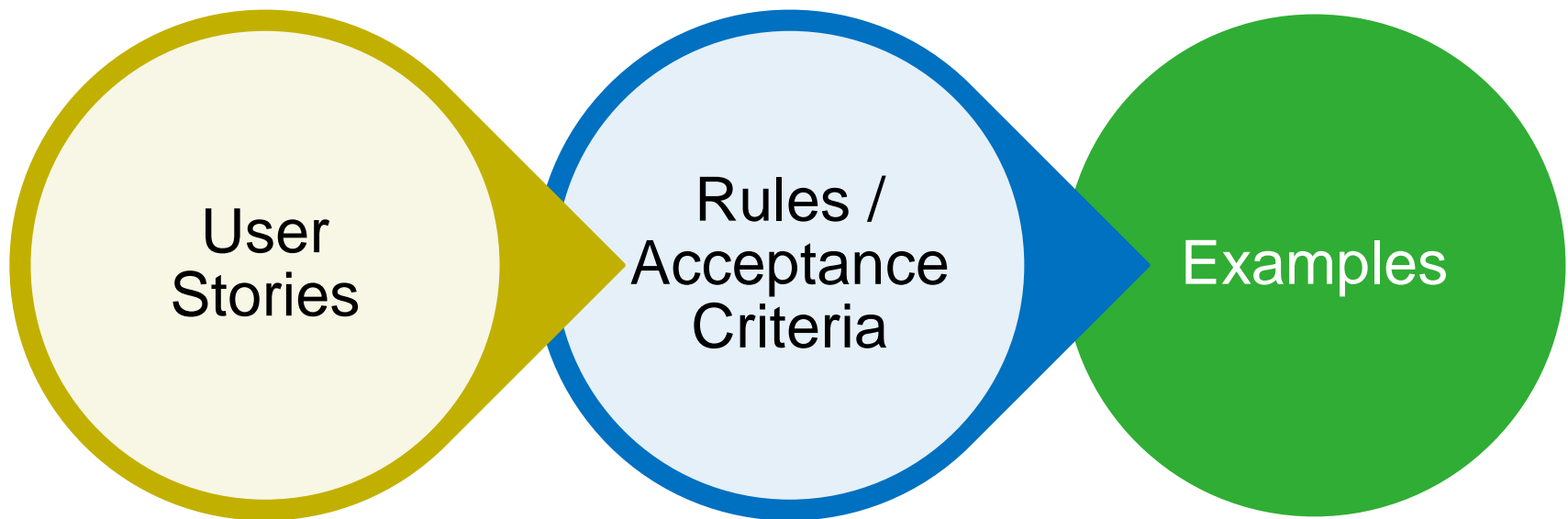
Group Activity | Passwords

- Examples are better than rules because. . .
- Rules are better than examples because. . .
- Examples without rules are like. . .
- Rules without examples are like. . .



Group Activity | Passwords

- We need both **RULES** and **EXAMPLES**. Use the **EXAMPLES** to illustrate the **RULES** of **USER STORIES**.





Example Mapping

From a User Story to Specifications

- Before development starts, have a conversation to **Clarify** and **Confirm**
- The Three C's
 - **Card**
 - **Conversation**
 - **Confirmation**



Card

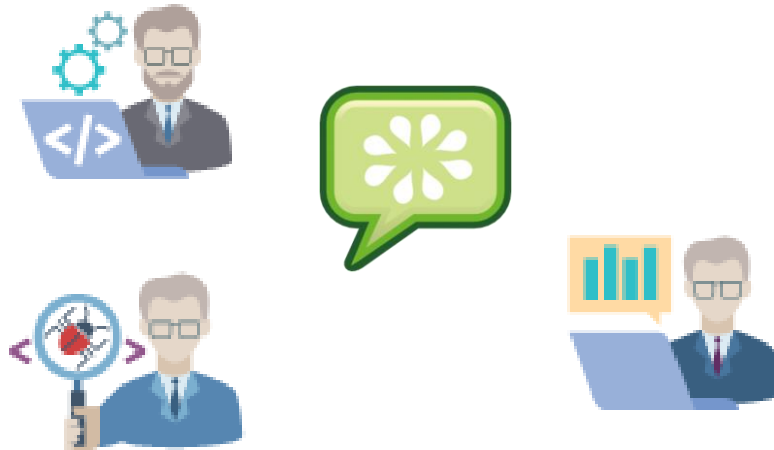
- User stories are written on cards.
- The card does not contain all the information in the requirement.
- The card has just enough content to identify the requirement.
- The card is a **token** that represents the requirement.

As a customer, I want to be able to search for flights between two cities to see which ones have the best price and route.
Estimate: 1.0 points
Priority: 2 - High

Example Story Card

Conversation

- The conversation is an **exchange of ideas** and opinions.
- This conversation takes place **over time**: during estimation and planning before implementation.
- The conversation is **verbal** and often supported by documentation. The best supplements are examples – specifically executable examples.



Confirmation

- An acceptance test.
- For complex stories, confirmation using examples (and automation) is preferred.
- The confirmation provided by the **executable specification** steers the approach of card and conversation.



Other Common Refinement Activities

- Three Amigos
- Specification Workshop
- Discovery Workshop



- Whichever method is used, these activities must be done regularly!

Workshop Background Materials:

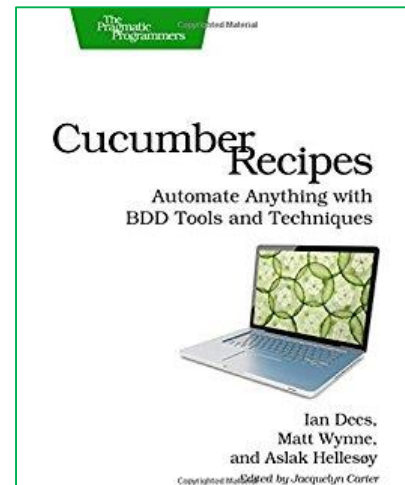
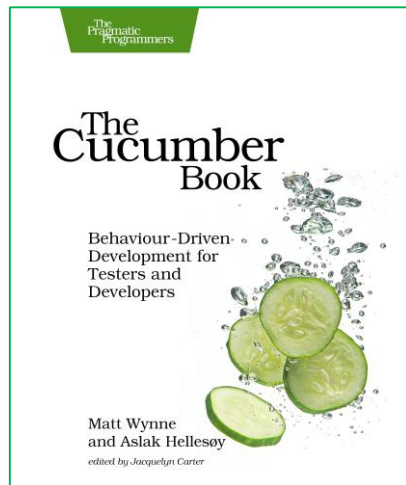
<http://www.velocitypartners.net/blog/2014/02/11/the-3-amigos-in-agile-teams/>

<https://gojko.net/2008/11/12/specification-workshops-an-agile-way-to-get-better-requirements/>

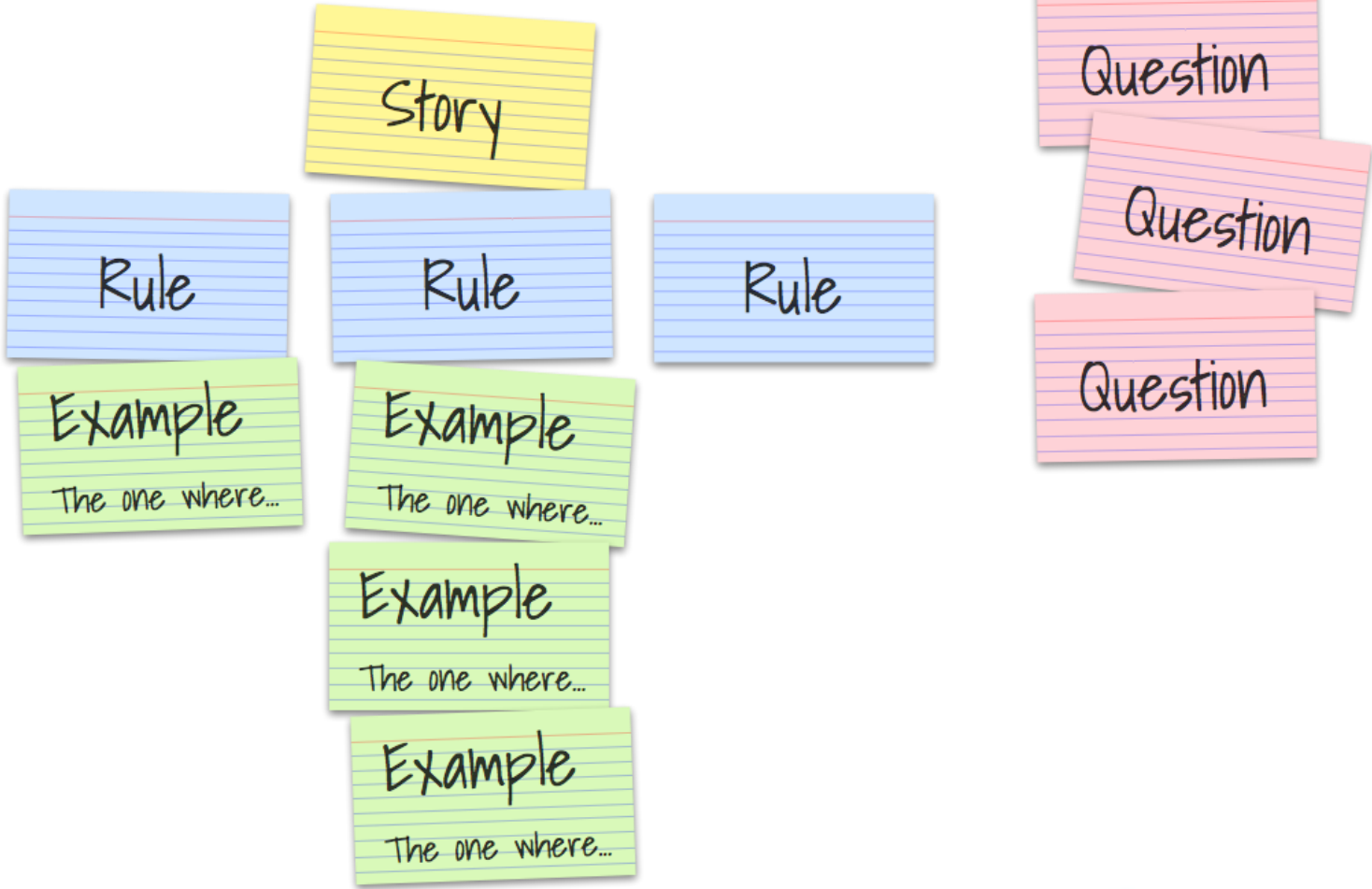
<https://dannorth.net/2010/08/30/introducing-deliberate-discovery/>

Example Mapping by Matt Wynne of Cucumber Ltd.

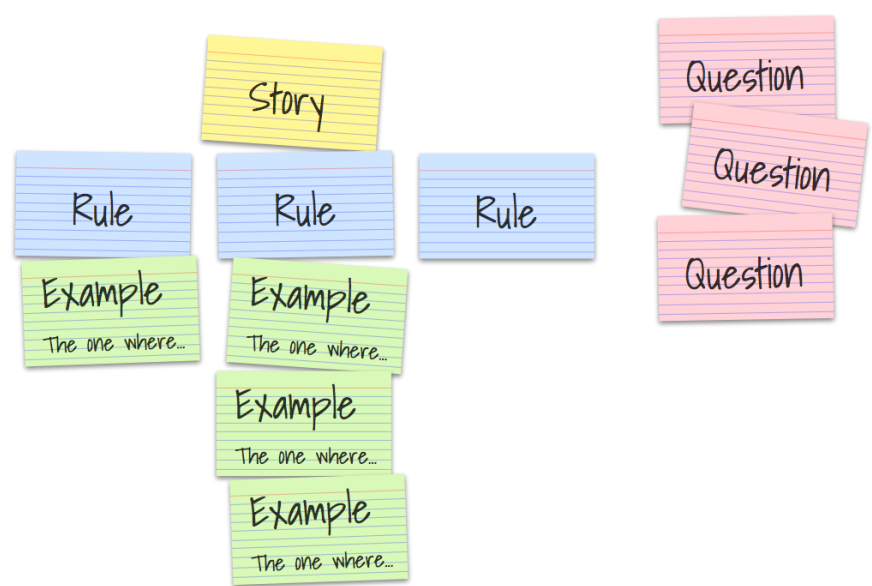
- Specification by Example help us refine requirements.
- **Rules** that summarize examples or express constraints about the story.
- **Questions** about scenarios concerning the outcomes or dependencies of the story that no one in the workshop can answer.
- **New User Stories** either sliced or deferred as out of scope.



The Example Map

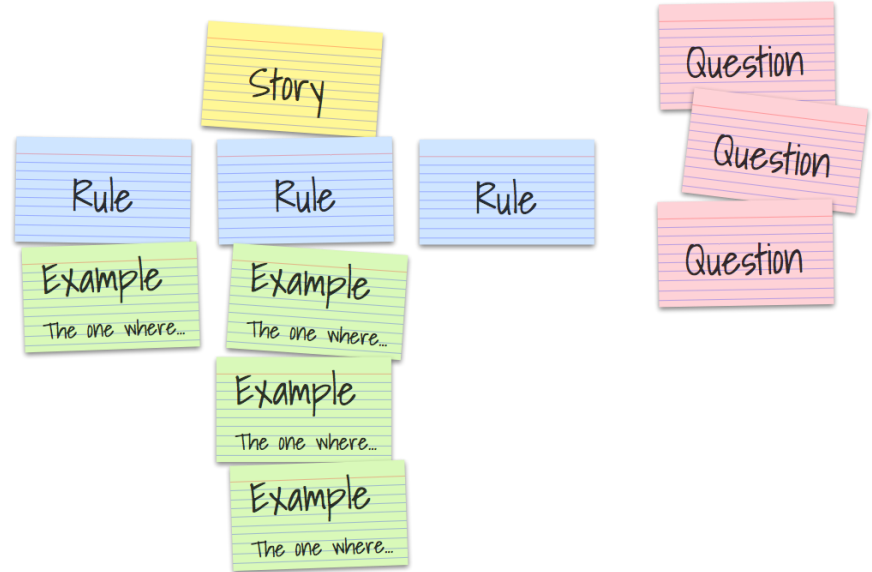


Process



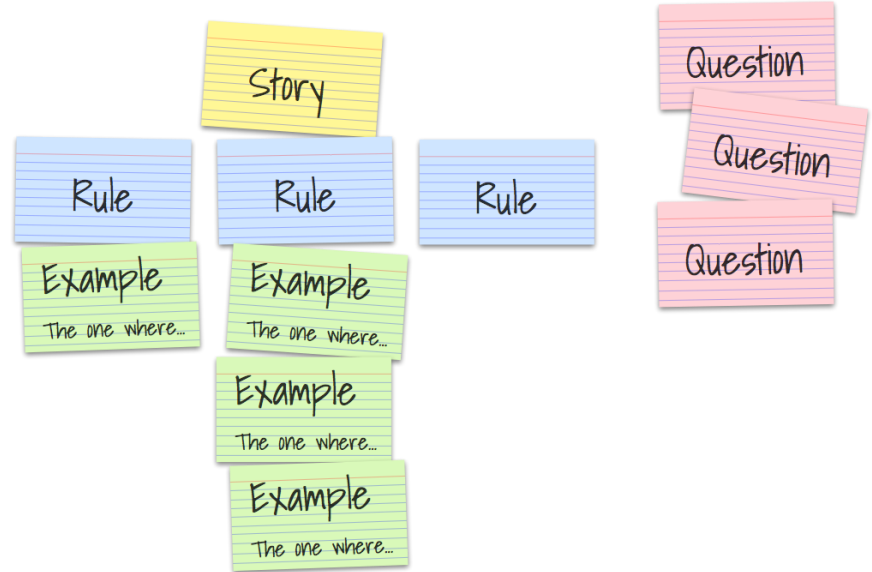
- The single **USER STORY** is written on **YELLOW** card and placed at the top of the map.
- The acceptance criteria as a **RULE** is written on a **BLUE** card placed below the User Story.
- Create one or more **EXAMPLES** written on **GREEN** cards placed below each rule.
- Any **QUESTION** that no one in the workshop can answer is written on a **RED** card.
- Continue the session until a **Time-box** is met or everyone believes the story is elaborated sufficiently.

Feedback



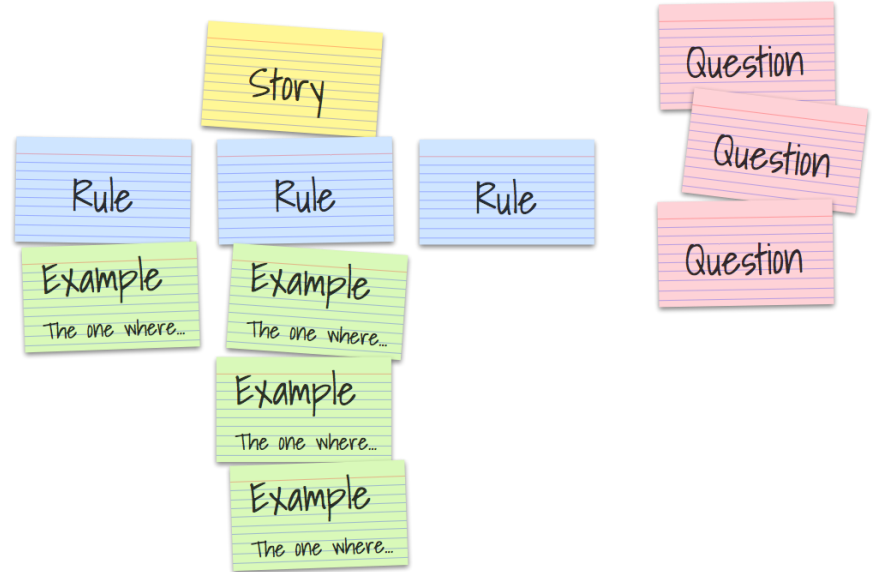
- The Example Map represents the teams understanding of the story:
 - A map with many **RED** cards mean development work is not ready to begin. Seek out answers outside the workshop.
 - A map with many **BLUE** cards means the User Story is perhaps too large. Try to slice the User Story into two or more.
 - A single rule with too many **GREEN** cards might be too dense. Try to slice the Rule into two or more.

Time-Box



- An Example Mapping session should take **30 minutes** max.
- If the time-box is not met, perhaps:
 - The attendees must practice more
 - The **USER STORY** has too many **RULES**
 - The **USER STORY** has too many **QUESTIONS**
- All Example Map attendees must agree the story is ready for development.

Benefits



- Creates a shared understanding among all roles on the team.
- Example Mapping promotes requirements written as user behavior.
- Each rule determines the application's core behavior.
- Large or unclear stories are stopped from entering active development.

A Word of Caution

- One person writing test scenarios based on the examples during the session while others sit idly by is not advised.



- If the team uses test writing standards, then individuals can quickly write the examples and split the work amongst the team.

An *Example* Example Mapping

Schedule a Workshop

Room must be available

Workshop within normal working hours

At least 75% of all participants available

A workshop with 4 people or fewer can be held in the Lobby

Core business hours between 9am and 3pm EST

Workshop scheduled on day when colleagues on-site

A workshop with 5 people or more must be reserved in meeting room

Scheduled during timeframe when colleagues don't have meeting conflicts

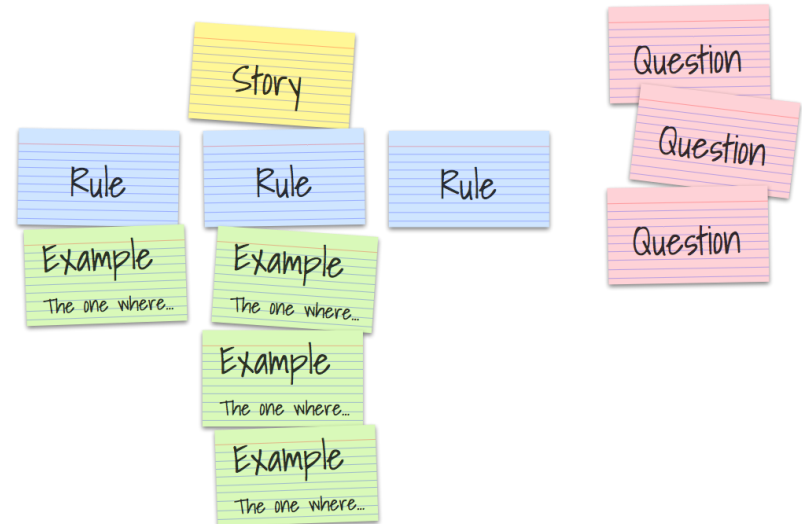
What if one or more Trainers are unavailable?

Is catering required?

Does the meeting room require a projector?

Example Mapping Group Activity

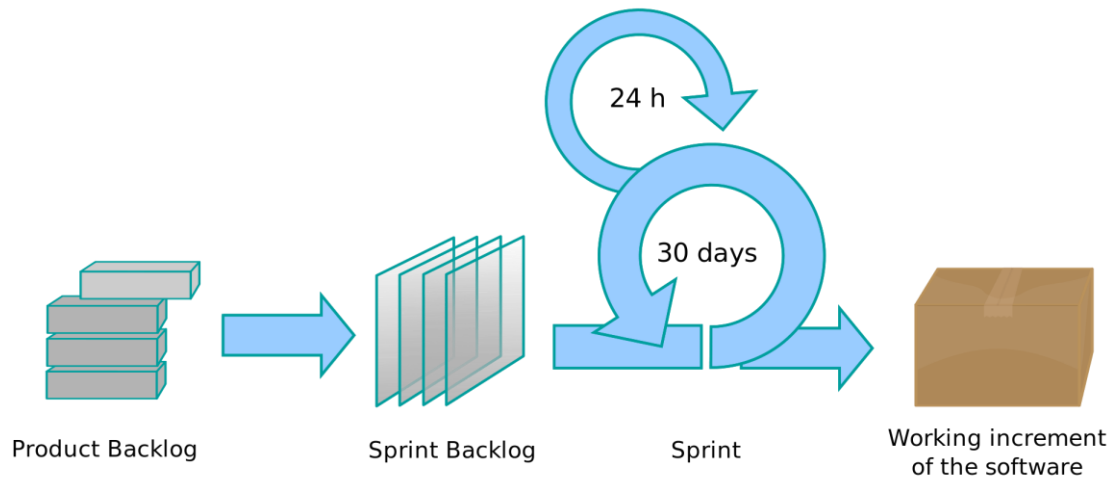
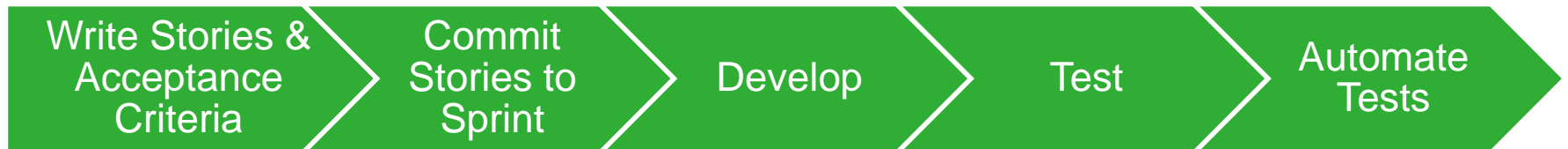
- **Group Activity (time box: 15 minutes)**
 - In your group, conduct an **Example Mapping session** for one of the **User Stories** available.
 - We'll review each groups work together.



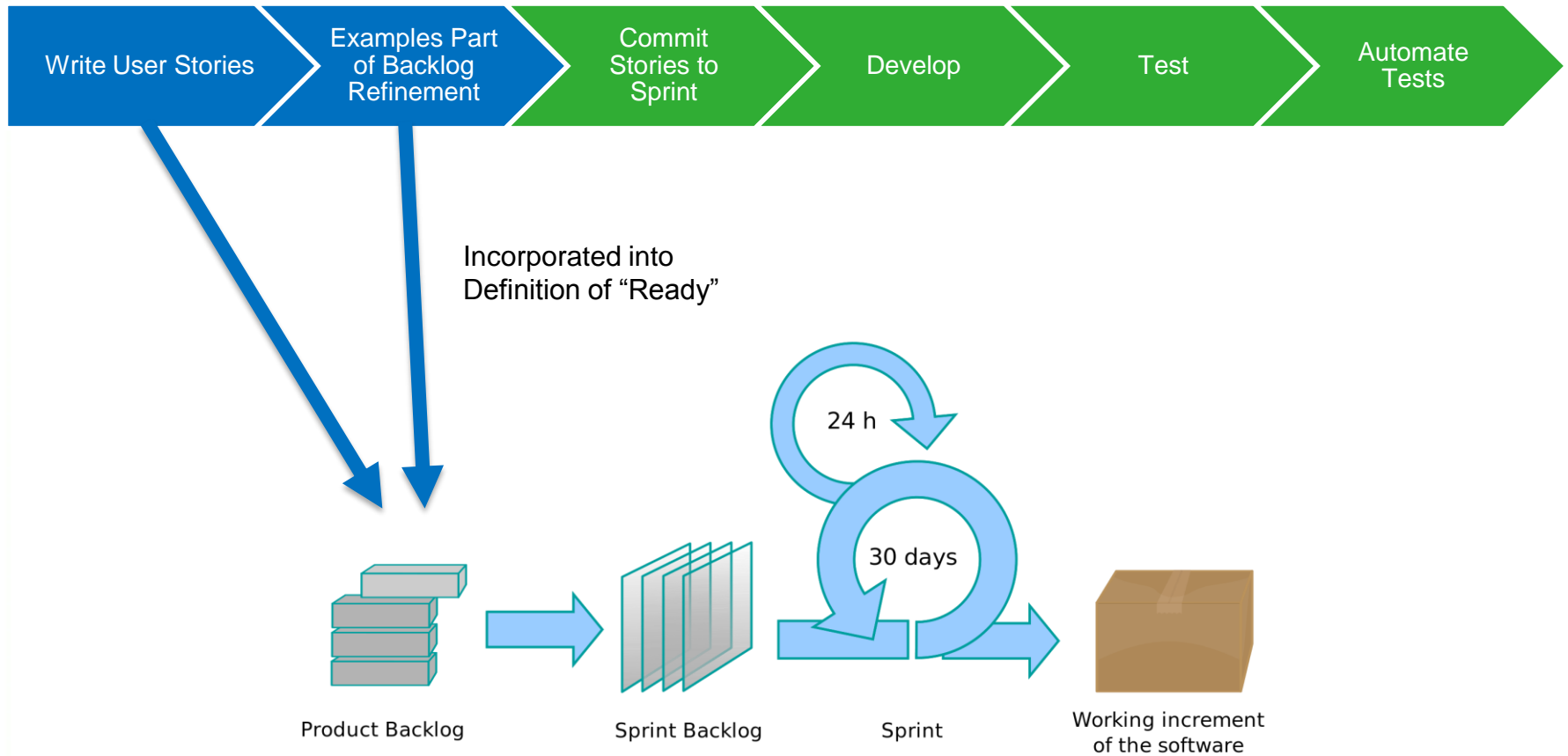


SDLC Integration

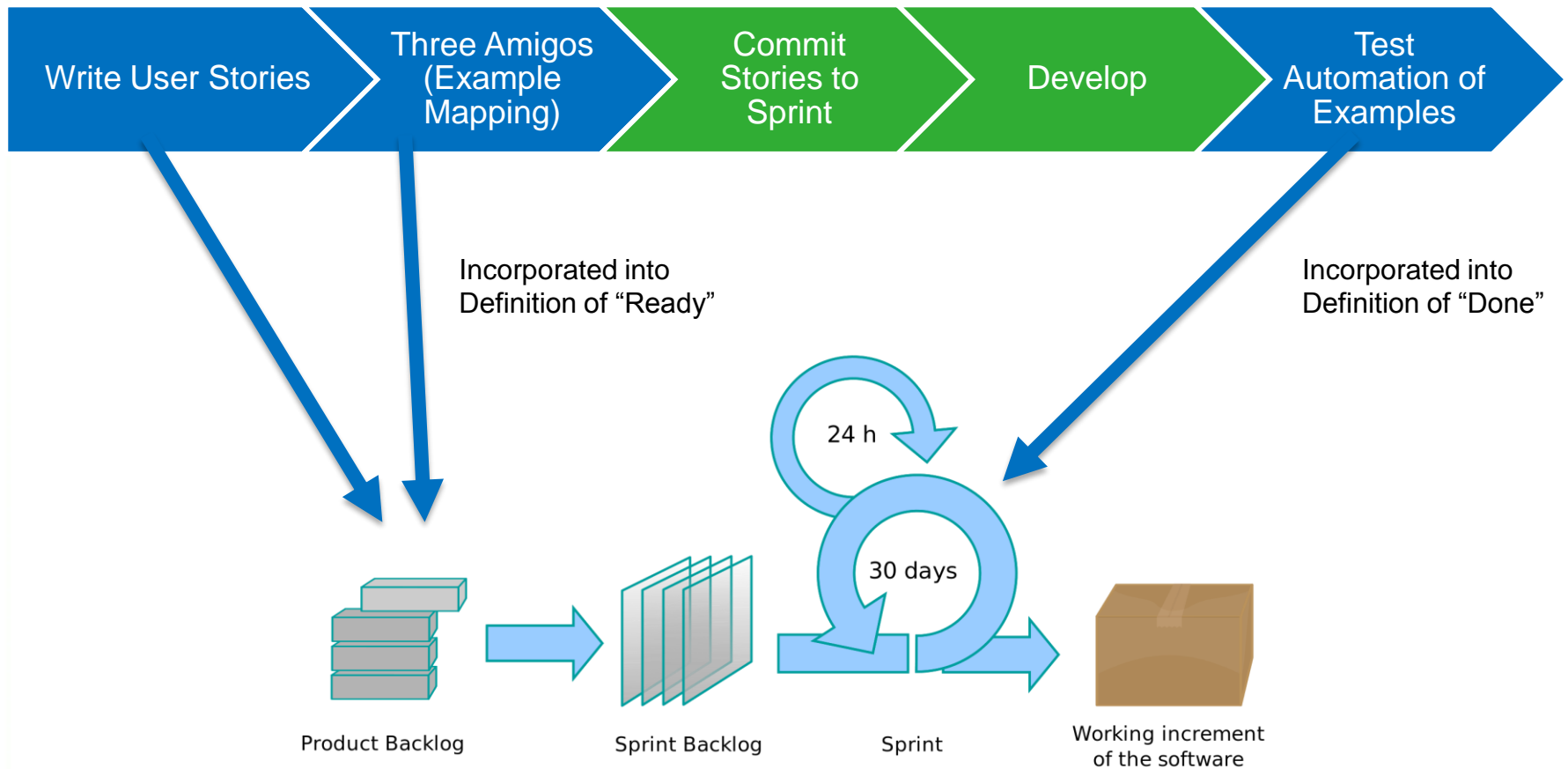
SDLC Integration | Standard “Sprint”



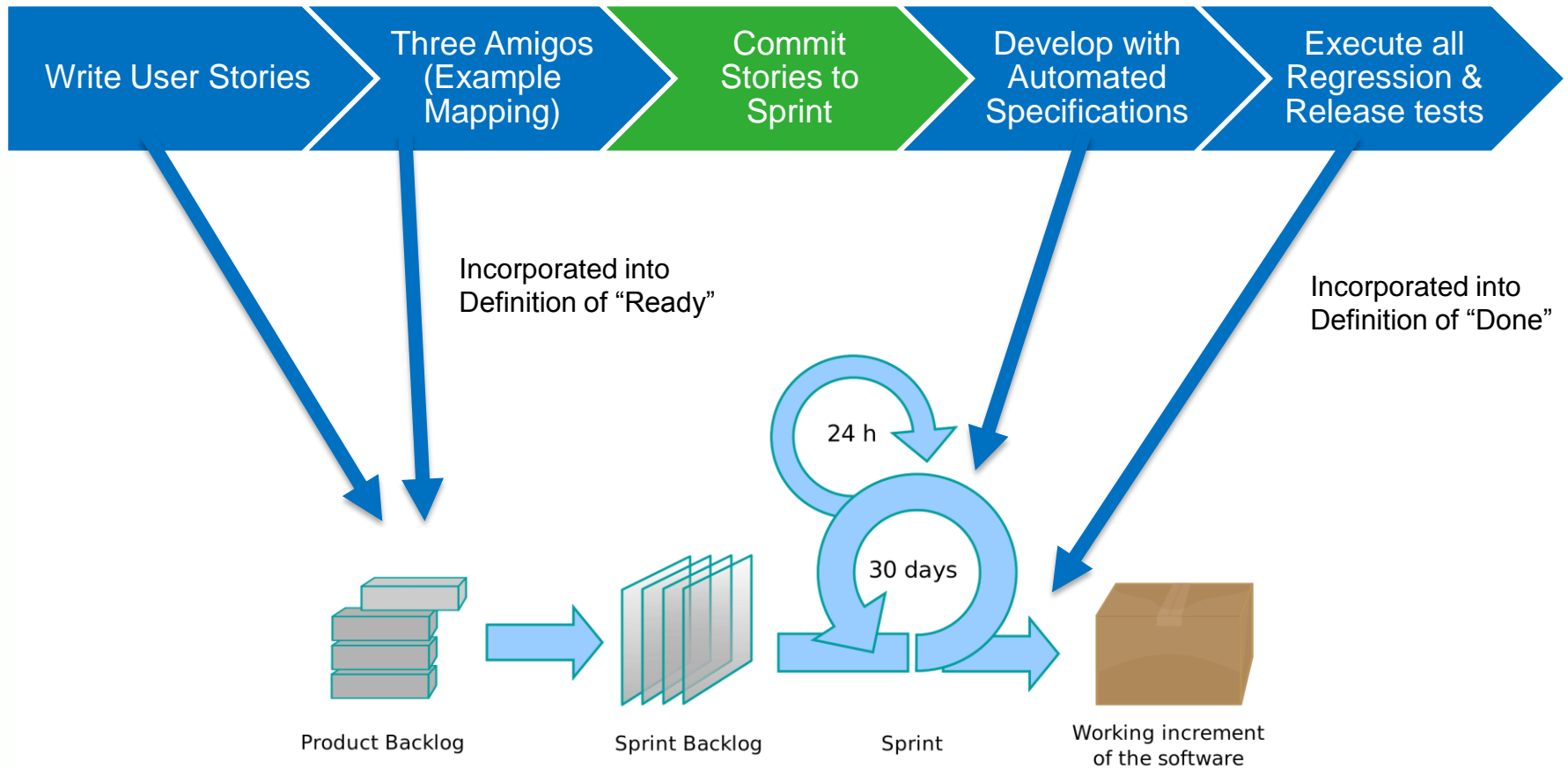
SDLC Integration | Analyst Writes Specifications



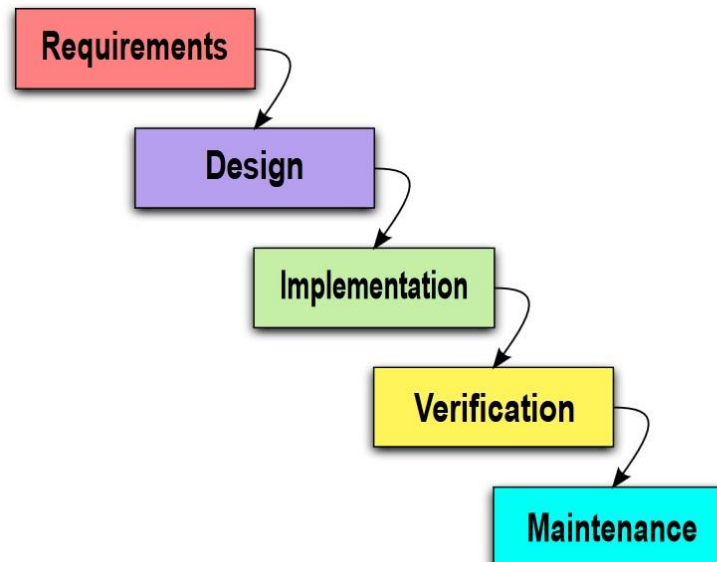
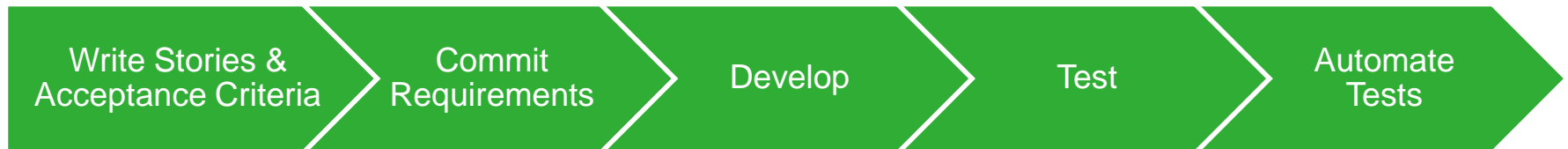
SDLC Integration | Three Amigos Introduced



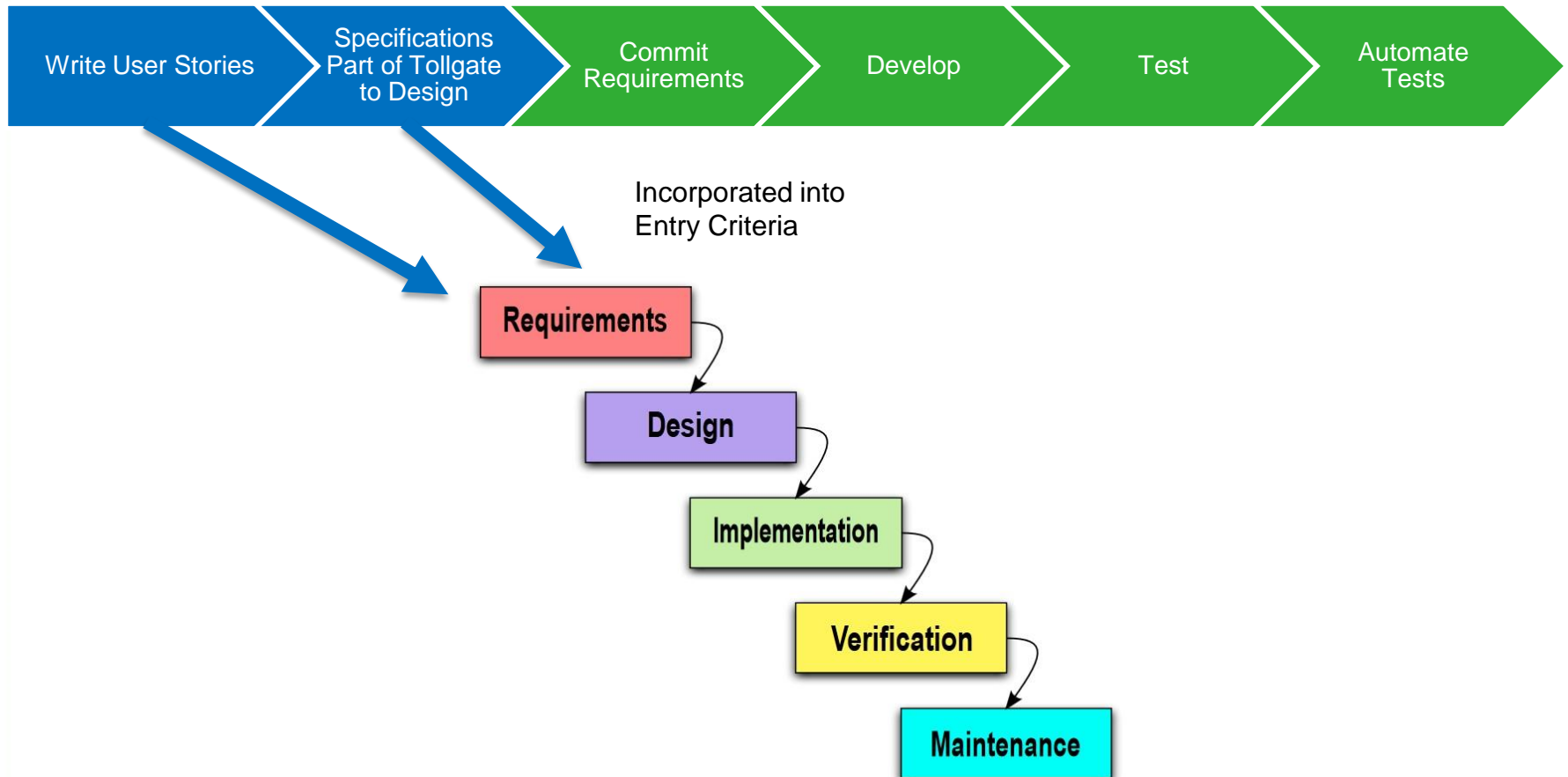
SDLC Integration | Full BDD



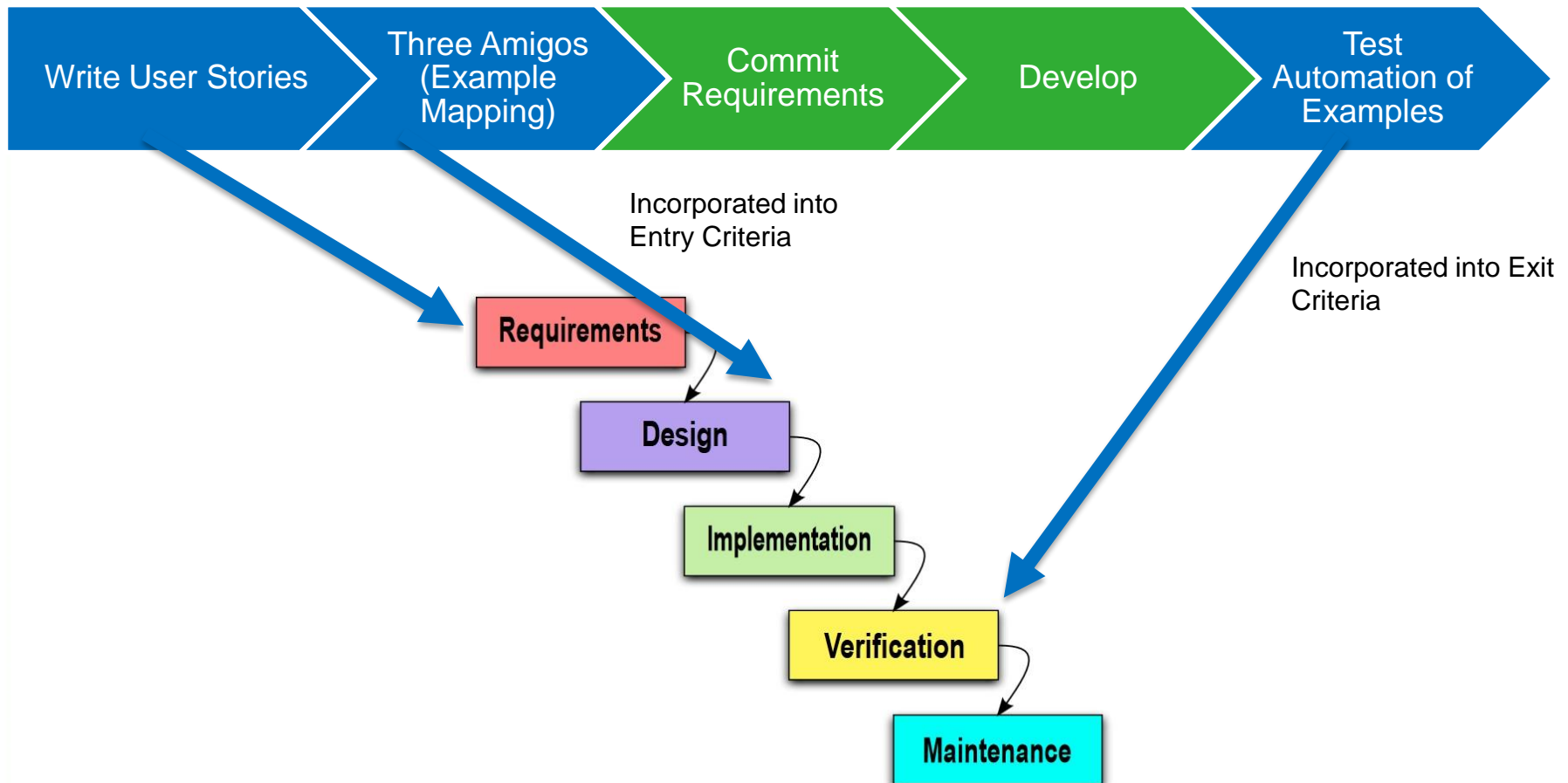
SDLC Integration | Waterfall



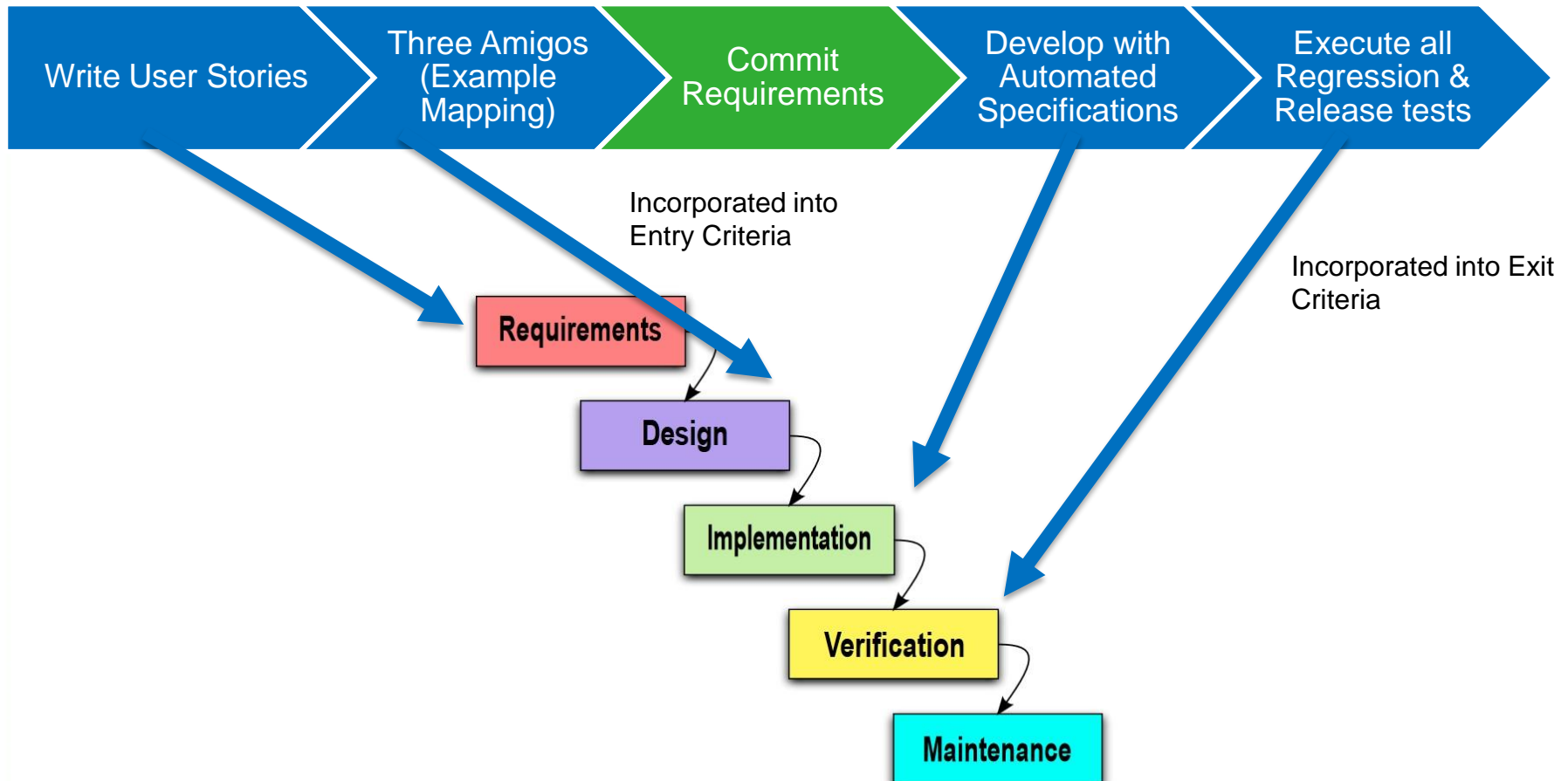
SDLC Integration | Analyst Writes Gherkin



SDLC Integration | Example Mapping Introduced



SDLC Integration | Full BDD



Questions?

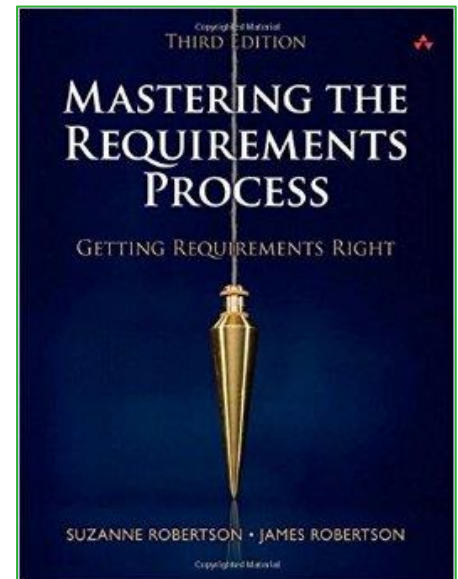
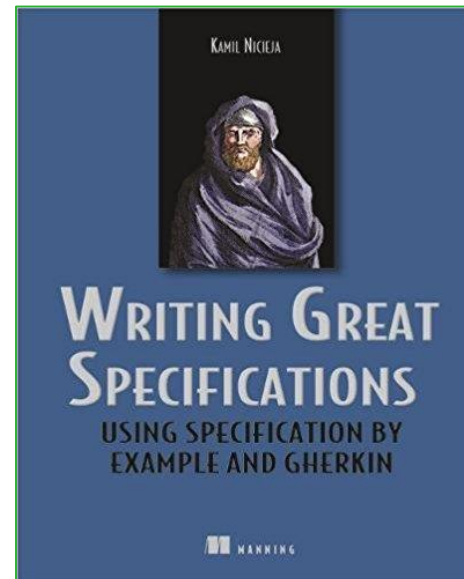
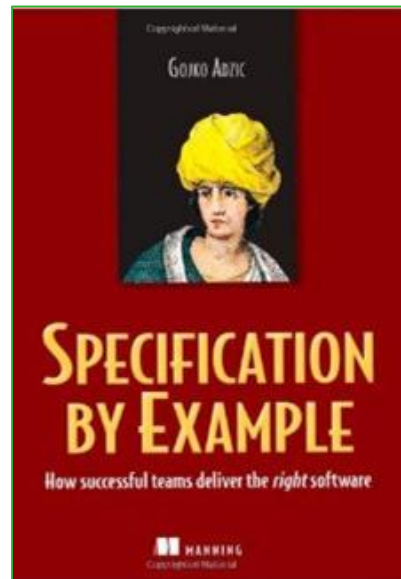
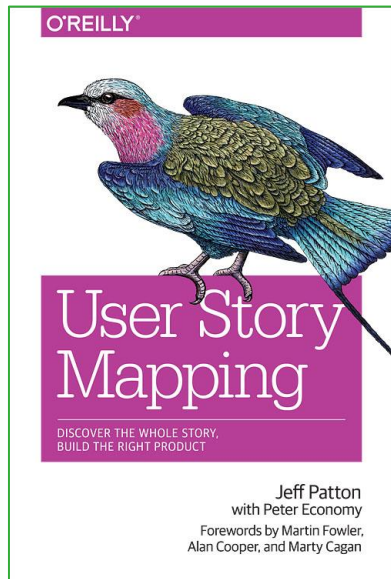
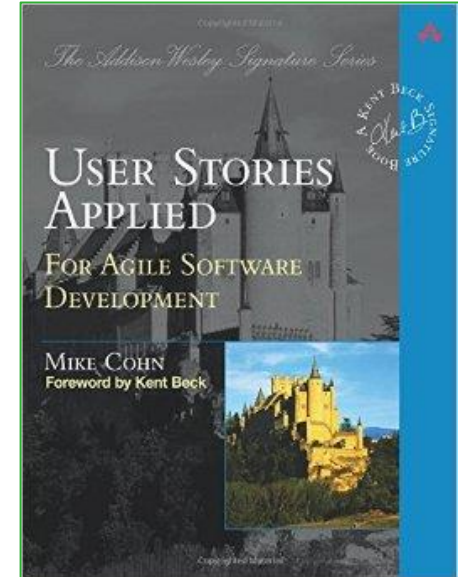
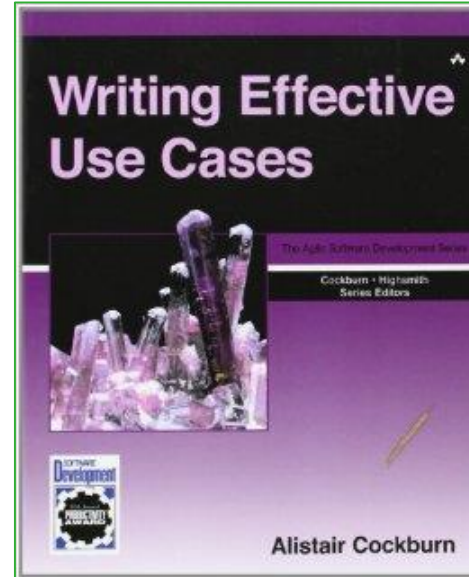
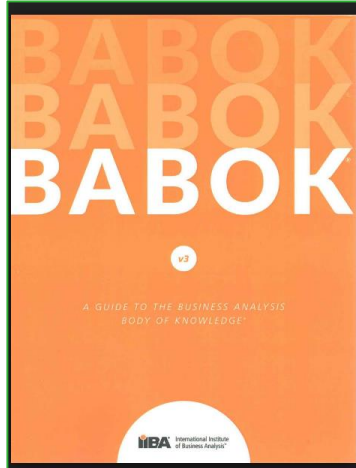




Resources

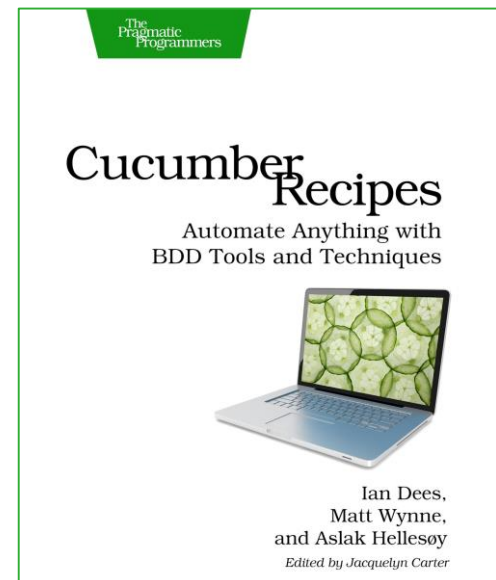
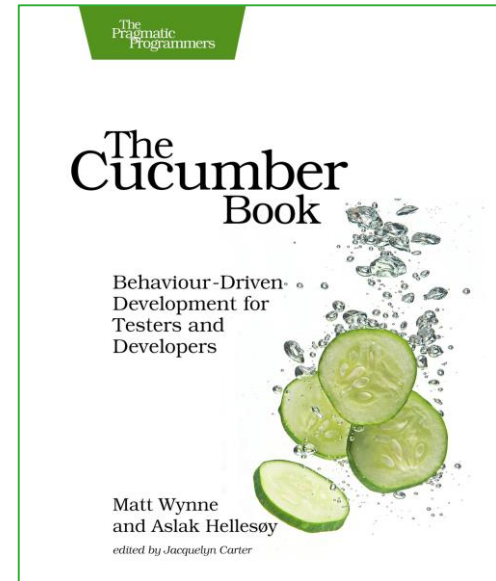
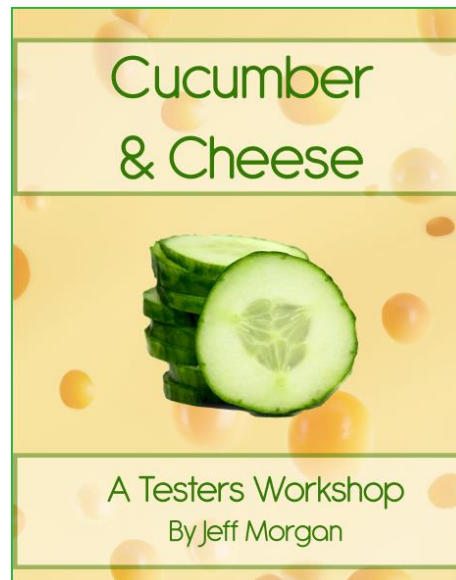
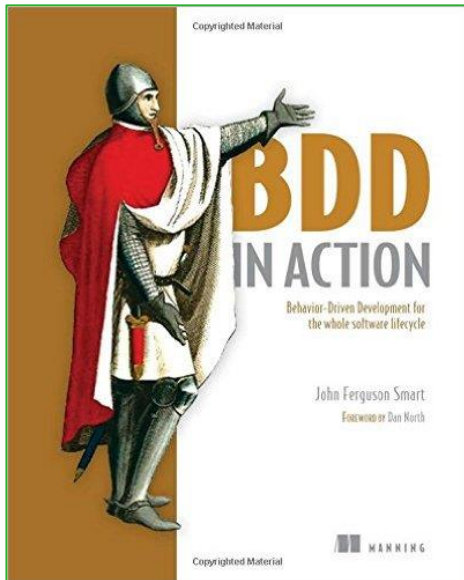
Resources

The Requirements



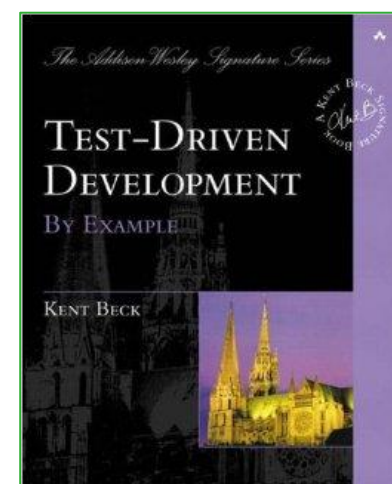
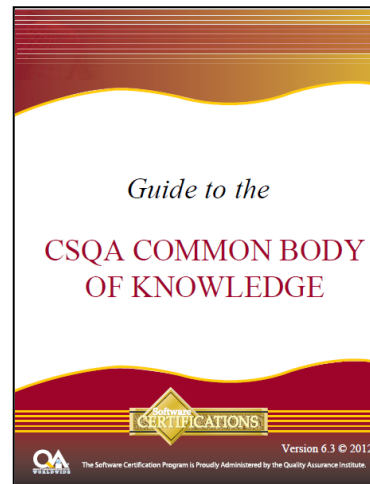
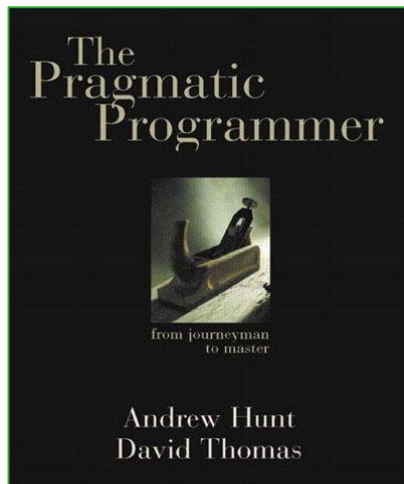
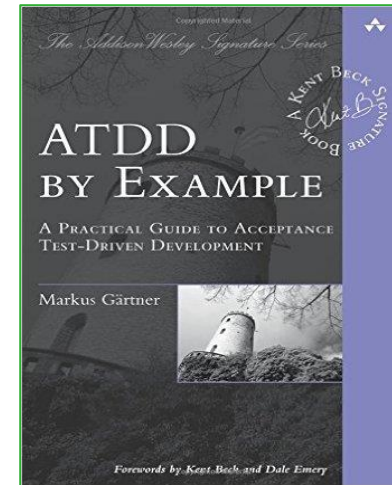
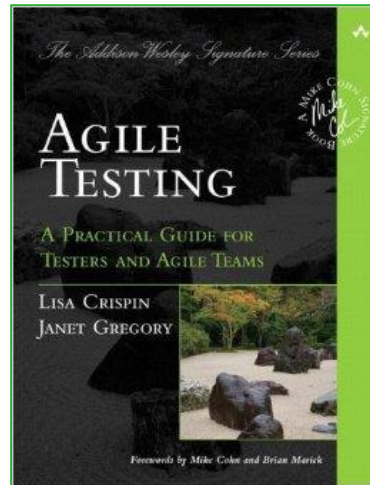
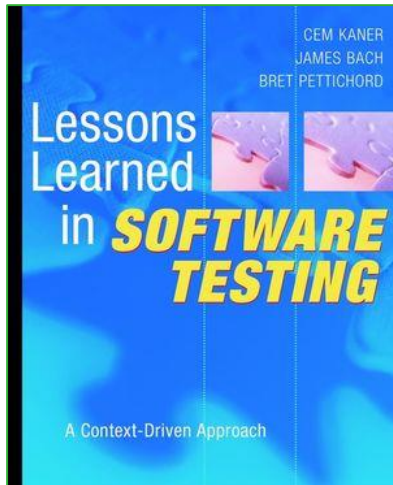
Resources

The Automation



Resources

The Quality



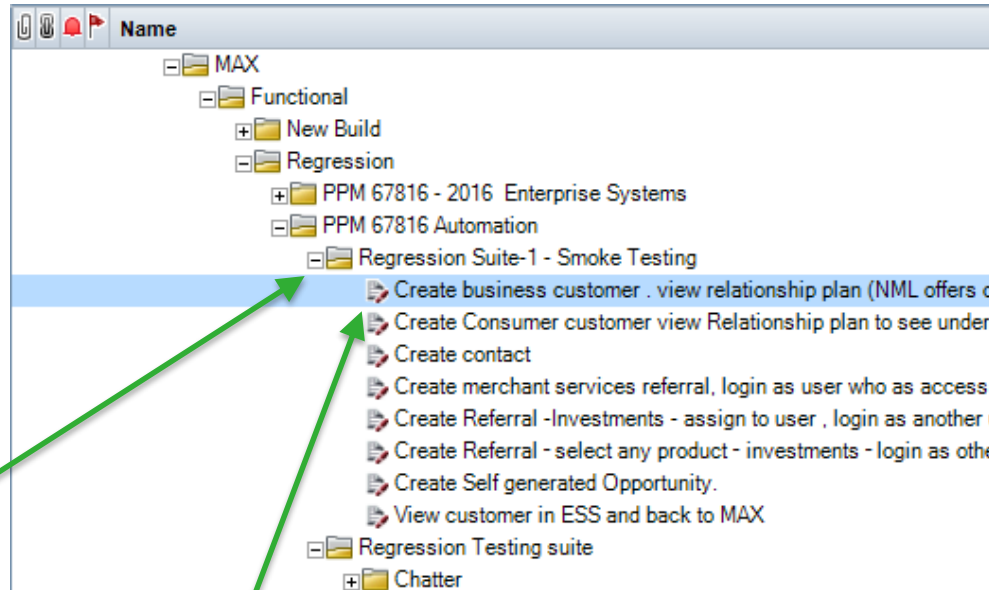


Appendix

Requirement Traceability

Feature Name in Automation suite =
Folder/Subfolder Name in QC / TFS /
JIRA

Scenario Name in Automation suite =
Test Name in QC / TFS / JIRA



```
@smoke test @regression
Feature: Regression Suite - Smoke Testing

@testcaseid20052 @testcaseid20053 @testcaseid16681 @ppm67816
Scenario: Creating a business customer along with Contact and Customer Page Address Standardization
  Given the user is logged into MAX as a test user
  And the user clicks the customer tab
  And the application navigates to the customer home page
  And the user clicks new
  And the application navigates to the customer record type page
  And the user selects "New Business" for Business Customer Record
  And the user clicks the Continue button
  And the application navigates to the Business Edit page
  And the user fills the Business Edit page with Business customer information
  And the user clicks SAVE
```

Each scenario is also tagged
with the matching QC / TFS /
JIRA Test Case ID

Requirement Tracking and Results

Cucumber Features

28 scenarios (4 failed, 24 passed)
136 steps (4 failed, 132 passed)
Finished in 6m58.458s seconds
Collapse All Expand All

@ppm59803 @15app1p1 @pbi57057 @login @regression

Feature: Verify business login functionality for Home Welcome page

Scenario: Verify valid login for Business tab

Scenario Outline: Verify the error messages for blank form submission on the Business Tab

@ppm59803 @15app1p1 @pbi57056 @login

Feature: Confirm Login Widget BUSINESS tab functionality on Huntington Welcome page

Scenario: The Business tab of the

Scenario: Confirm the Business

Scenario: A Business user select

Scenario: A Business user select

@ppm59803 @15app1p1 @pbi57057

Feature: Confirm Login

Scenario: The Business tab of the

Scenario Outline: A user select

@ppm59803 @15app1p1 @pbi57057

Feature: Confirm Login

Scenario: The Personal tab of the

Scenario: Confirm the Personal

Scenario: A Personal user select

Scenario: A Personal user select

Scenario: A Personal user select

Scenario: A Personal user select

Features Statistics

The following graphs show passing and failing statistics for features

Features

Passed: 71.43%

Feature Report

Feature	Scenarios			Steps			
	Total	Passed	Failed	Total	Passed	Failed	Skipped
Verify personal login functionality for the Home Welcome page	2	1	1	12	11	1	0

@ppm59803 @15app1p1 @pbi57054 @pbi40490 @login @regression

Feature: Verify personal login functionality for the Home Welcome page

@ppm59803 @15app1p1 @pbi57054 @pbi40490 @login @regression @testcaseid57575 @smoke_test @defect71836

Scenario: Verify valid login for Personal tab

Given the user visits the Huntington website
And the user clicks the personal login widget
And the user fills the Home Welcome page with valid personal login
When the user clicks personal log in
And the user answers the challenge question
And the user clicks next card activation

Then the application navigates to the My Accounts Overview page

+ expected: true value

After features support hooks in 31

Attachment 1 (image)

Feature
Verify business login functionality for Home Welcome page
Confirm Login Widget BUSINESS tab functionality on Huntington Welcome page
Confirm Login Widget OTHER tab functionality on Huntington Welcome page
Confirm Login Widget PERSONAL tab functionality on Huntington Welcome page
Verify personal login functionality for the Home Welcome page
Verify Huntington logo functionality for Home Welcome page
Confirm the Search functionality for the Home Welcome page

Huntington
Welcome.

Security | Contact Us | Help

Online Banking - Important Notice

Huntington Online Banking is currently unavailable due to regularly scheduled system maintenance.

In the meantime, if you need to check on a transaction, verify a balance or pay a bill, please call our Customer Service Line at 1-800-480-BANK (2265), 24 hours a day, 7 days a week.

Huntington is committed to constantly improving the online banking experience for its customers. Your patience is very much appreciated, as we continue to make this ongoing investment to provide you with one of the top rated online banking sites in the industry.

Thank you for banking with Huntington.



Behavior Driven Development with Gherkin

Gherkin



Business

- Strictly end-user behavior.

Project

- Technical & Non-Technical on the Scope/Design level.

Development

- Execution-level behavior of technical details.

Non-Functional

- performance, accuracy, portability, reusability, maintainability, interoperability, availability, usability, security, capacity.

Gherkin



```
Given the user visits the Huntington website
And the user clicks the business login widget
And the user fills the Home Welcome page with valid business login
When the user clicks business log in
Then the application navigates to the Business Online Home page
```

Business

- Strictly end-user behavior such as the above

Project

- Technical & Non-Technical on the Scope/Design level.

Development

- Execution-level behavior of technical details.

Non-Functional

- performance, accuracy, portability, reusability, maintainability, interoperability, availability, usability, security, capacity.

Gherkin



```
Scenario: Personal Navigation menu is highlighted in green
  Given the user visits the Huntington website
  When the user clicks Personal navigation
  Then the personal navigation color style should be highlighted in green
```

Business

- Strictly end-user behavior such as the above

Project

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Development

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Non-Functional

- performance, accuracy, portability, reusability, maintainability, interoperability, availability, usability, security, capacity.

Gherkin



```
Scenario: Asterisk Free Checking applications are being logged to the CIS database
  Given the user applies for the Asterisk free product in OAO responsive
  When the user clicks disclosure submit
  Then the user verifies the following details are stored in cis
    | product type           |
    | interest rate         |
    | client account number |
    | initial deposit       |
```

Business

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Gherkin



```
Scenario: Render the Manager Alerts page within 15 seconds for online banking customers
  Given the user is logged into ROL as a dashboard user
  When the user navigates to the Alerts Manage Alerts page
  And the user waits for 15 seconds
  Then the page displays the following fields:
    | manage alerts text |
```

Business

- Strictly end-user behavior such as the above

Project

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Development

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