

Being Test-Driven

It's not really about testing...or tools!



Thursday, October 14,
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About me...



George Lively

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I am...

An Agile Process & Technical Coach, Practitioner,
Speaker, Trainer

With...

20+ years in the industry; 15+ years of Agile

And I am passionate about...

Transitioning teams to Agile & deepening Agile
adoption with XP-inspired engineering, testing and
DevOps practices



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What does Test Driven mean to you?

Go to menti.com and use the code **3232 1730**



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What are we trying to solve?

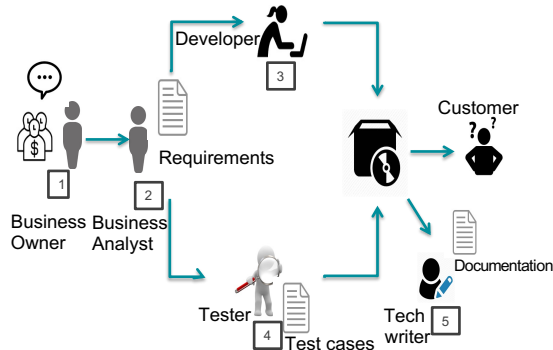
- Lack of shared understanding
- Building the wrong things
- Always thinking someone else will catch defects
- Inability to easily and quickly find root causes of code defects



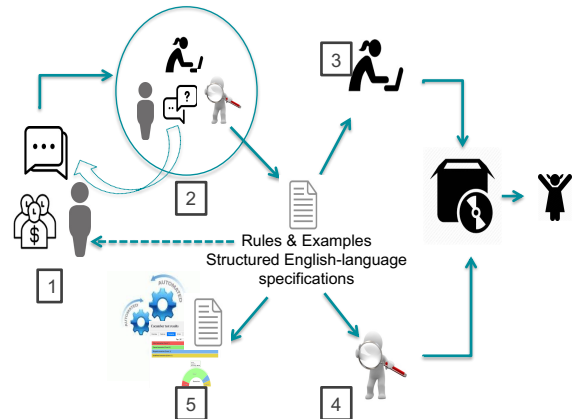
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Every Picture Tells a Story!

Look at this picture for a minute. What do you observe? What do you think is going on?



Now, look at this picture for a minute. What might you infer from it?



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Building the Right Thing

Behavior-Driven Development (BDD)

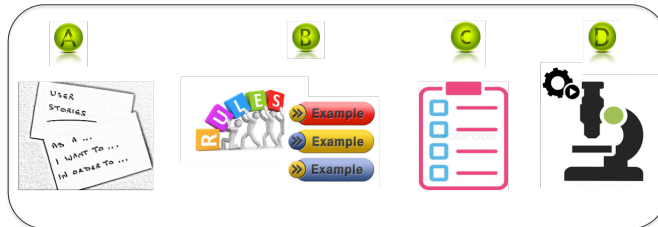


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Behavior-Driven Development (BDD)

Collaboration and **conversation** to discover essential requirements and identify uncertainty

Using **rules & examples** expressed in a **common language** to build a shared understanding to deliver software that matters



- A** Align stories with business goals
- B** Clarify stories with rules and examples
- C** Document the rules and examples in a manner that can be read and easily understood by all team members & stakeholders
- D** Create tests that satisfy the documented specifications. Automate if possible

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1. Discover

HAVE
{ } CONVERSATIONS
BEFORE WRITING
CODE



Three Amigos

Multiple perspectives - Business, Developer, Tester, UX

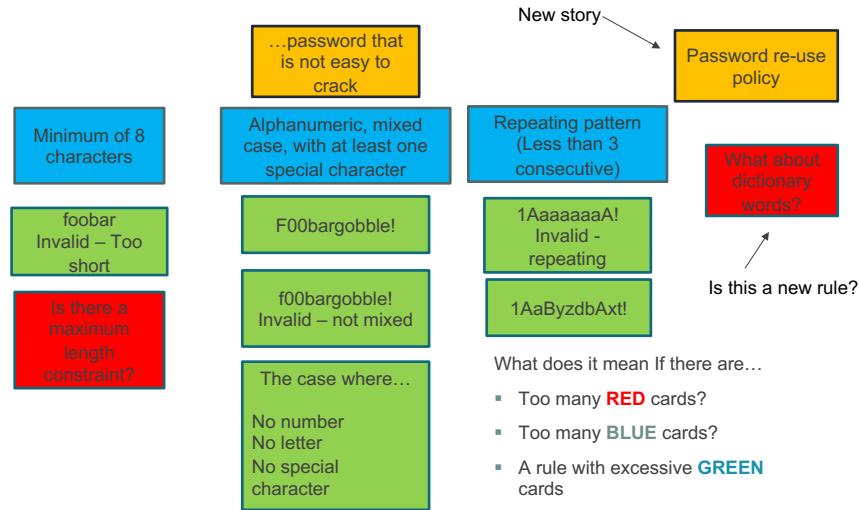
Shared understanding

All agree it is ready to be implemented

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Is this story ... Valuable, Feasible, Testable?



Example Mapping, Matt Wynne

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2. Formulate

CAPTURE THE CONVERSATIONS TO DRIVE DEVELOPMENT

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Gherkin

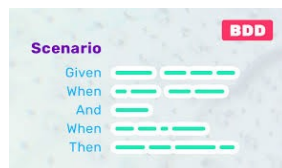
```
Feature: ATM withdrawals
Our ATM allows depositors to withdraw their funds in cash
Rules:
Withdrawals are limited by amount on deposit
Withdrawals are subject to daily and transaction withdrawal limits
Cash is dispensed in $10 increments with $20 bills favored

Scenario: Sufficient funds allows successful withdrawal
Given a depositor has $2000 on deposit
When the depositor requests $200
Then the ATM dispenses $200
And the depositor's balance is reduced to $1800
...
```

Human readable



Structured and keyword-based



Documentation



Allows automation



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3. Automate

AUTOMATE
 { } SPECIFICATIONS, UNIT
 TESTS, ETC. AS NEEDED

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Building the Thing Right

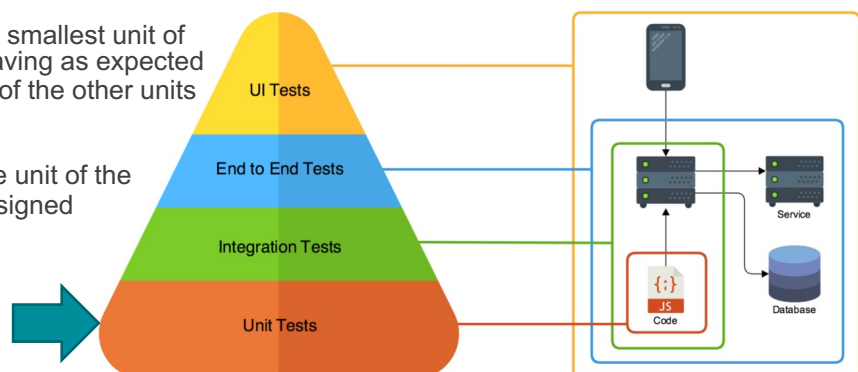
Test-Driven Development (TDD)



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What is Unit Testing?

- Determining whether the smallest unit of testable software is behaving as expected on its own, independent of the other units
- Validate that every single unit of the software performs as designed
- White-box testing



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Reimagine our thinking...

How we typically write tests...

- Think about implementation
- Write code (fields & methods)
- Write some test cases to **verify** behavior

Instead, what if we...

1. Write a test to capture **expected** behavior?
2. Think about implementation to meet expectation?
3. Write code to make the failing test pass?

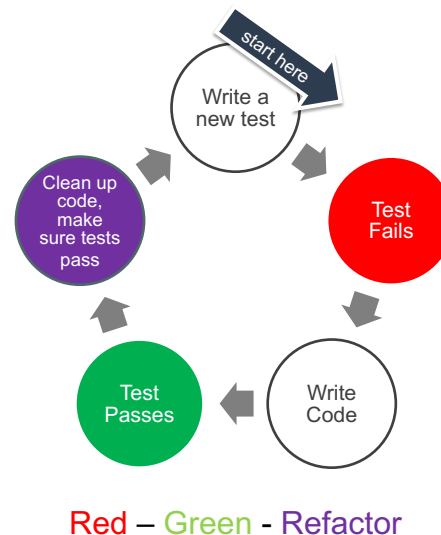
Build functionality incrementally one test at a time...

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Test-Driven Development (TDD)

Style of programming in which three activities are tightly interwoven: **coding**, **testing** (in the form of writing unit tests) and **design** (in the form of refactoring)



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FIRST Principles of Unit Tests



FAST



ISOLATED



REPEATABLE



SELF-VALIDATING



TIMELY

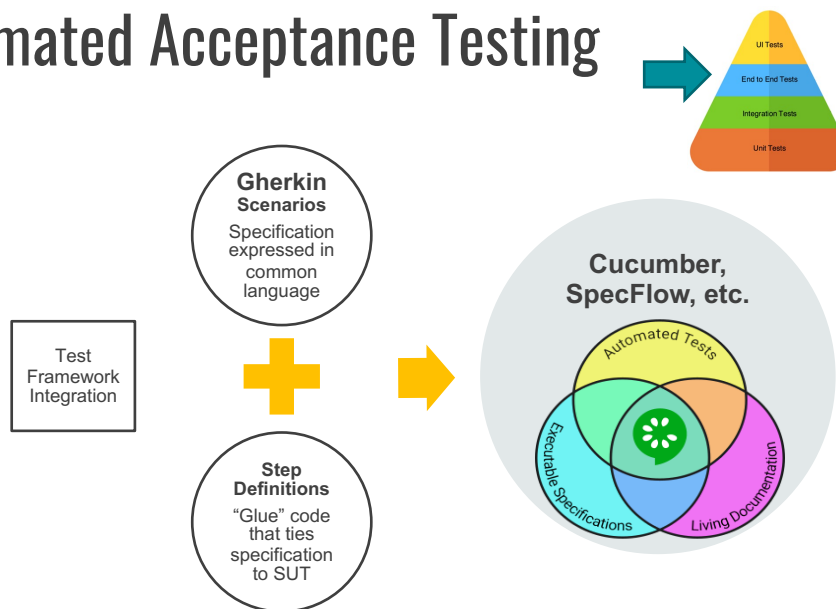
<https://howtodoinjava.com/best-practices/first-principles-for-good-tests/>

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Automated Acceptance Testing



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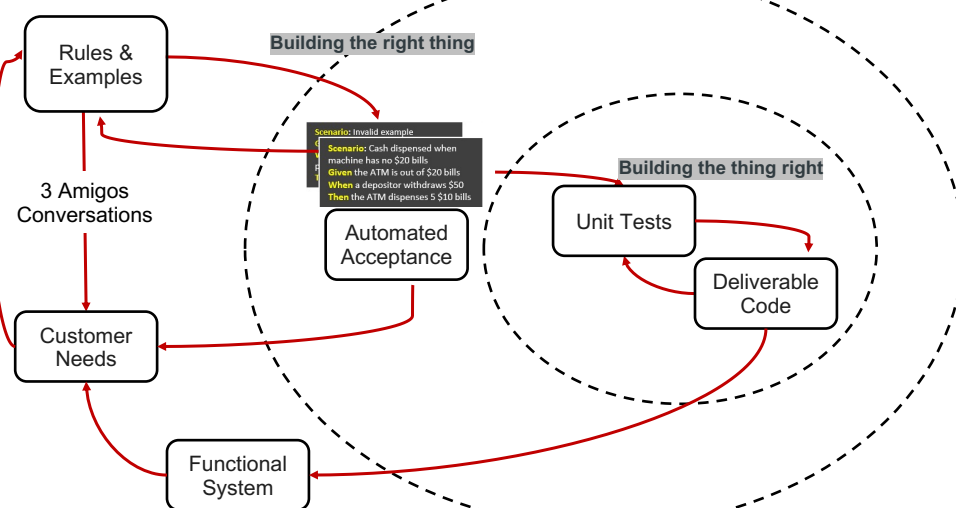


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Tying it all together...

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From Test-last to Test-driven



Source Adaptation: Raj Indugula & George Dinwiddie

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Benefits

- Shared understanding
- Better quality
- Better design
- Building only what's needed
- Whole team responsibility for quality
- Faster delivery that supports change (with automated tests)

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Being test-driven isn't really
about testing. It's about
specification and **design** driven
through **tests**.



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