

ATDD, BDD, Story Testing, & Specification By Example

Adding Examples to Acceptance Criteria



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Why do we have defects?

- Misunderstanding
 - Code
 - Other technical
 - Requirements



How can we reduce defects due to misunderstanding code & technology?

- Pair program
- Use SOLID design principles
- TDD



Does misunderstanding cause problems other than defects?

- Tension
- Mistrust

People assume the worst in others

- Lazy
- Dumb
- Bad intentions



How can we prevent misunderstanding?

Or, how can we gain shared understanding?

- Through Examples!



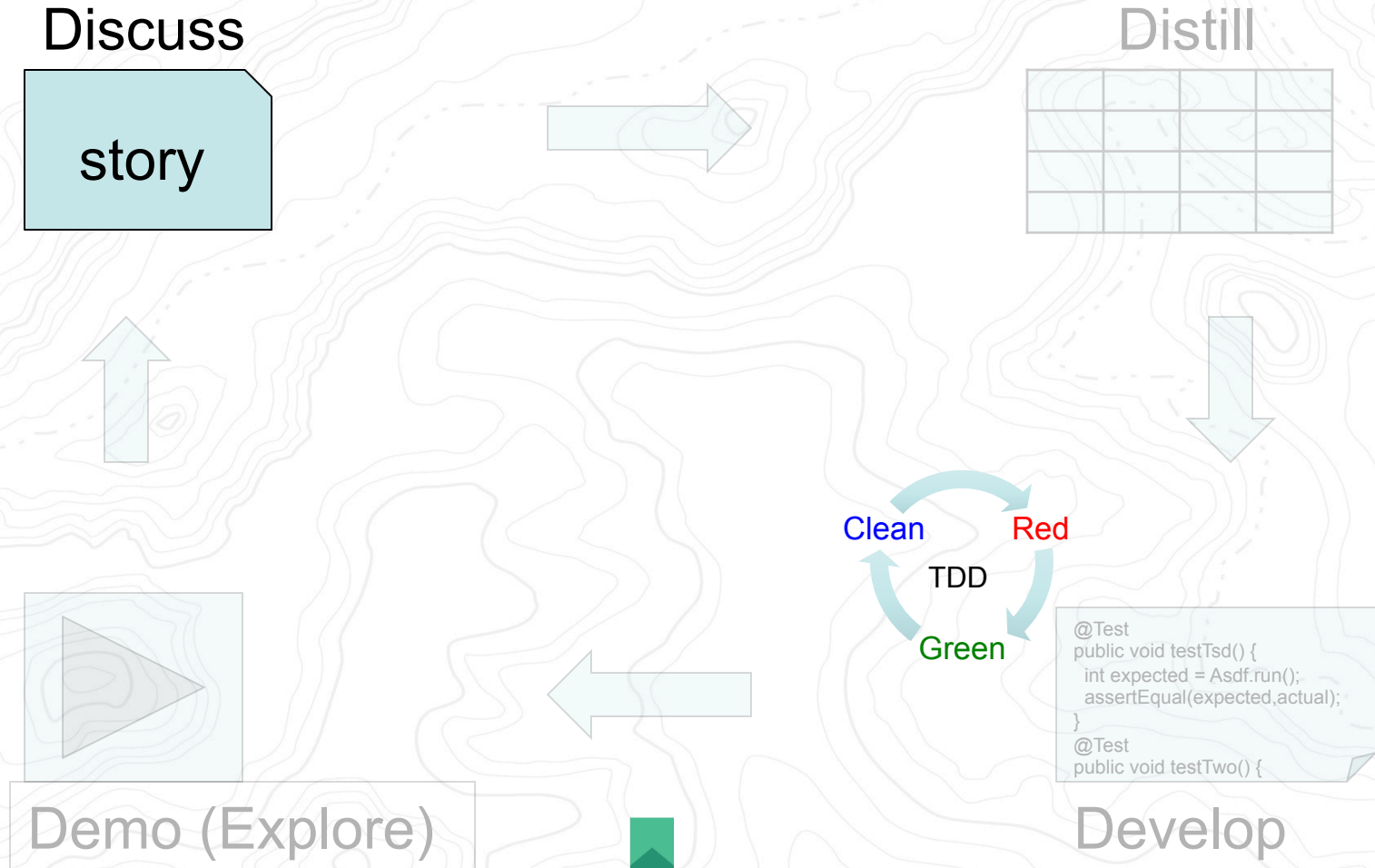
We Already Use Examples:

- Customer and BA
- QA
- Dev

The problem is, we use different examples!



Acceptance Test Driven Development (ATDD) Cycle



Discuss

Users are required to use secure passwords



Discuss

Users are required to use secure passwords

- Verify length > 7
- Verify at least 1 lower case, 1 upper case, & 1 number
- Verify at least 1 symbol
- Verify no special characters
- Verify no forbidden (easy) passwords

Could I go
code this
now?



Test Scripts for Acceptance Criteria?

- Scripts are about ‘how’
 - The ‘why’ is forgotten or hidden
 - ‘how’ changes more often than the biz rules



Discuss

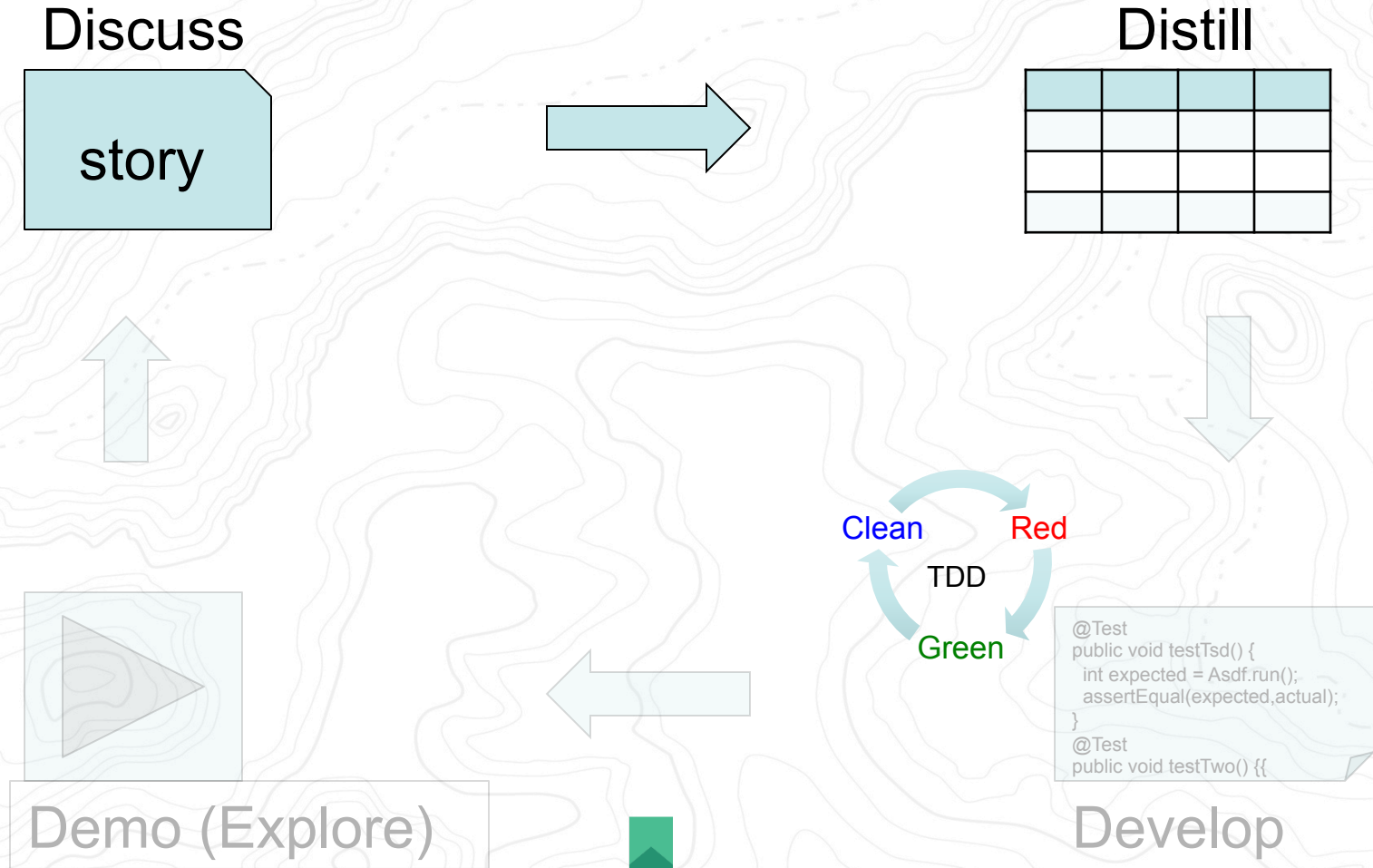
Examples:

- Abcd3fg! Too easy, sequence, starts with uppercase and ends in punctuation
- G7A9*&GK no lower case
- a7a9*&gk no upper case
- A&A%*&gk no number
- pA55w0rd. easy to guess
- d9G*ga(r only certain symbols allowed
- d9G*ga, too short
- d9G*ga,r good
- G9d*ga,r good
- G9~`!@#\$%^&*a good

Do I have an example for each part of the biz rule?



Acceptance Test Driven Development (ATDD) Cycle



Acceptance Test Driven Development (ATDD) Cycle

- Reduce to bare minimum
 - 1 per equivalence class
 - Boundary conditions (edge cases)
 - Normal use
 - Abnormal but reasonable use
 - Abnormal and unreasonable use

Distill



Acceptance Test Driven Development (ATDD) Cycle

Distill

- Ubiquitous language
 - The language of the business
 - Tables
 - Domain Specific Language (DSL)
 - Avoid programmer jargon
 - Use Domain Driven Design
 - (Eric Evans)



Examples with Gherkin

Scenario: Free Popcorn Tuesday

Given it is Tuesday

When I buy at least 1 movie ticket

Then I should get a coupon for a free small popcorn.

Given I have ordered a small popcorn

When I hand over a Free Popcorn coupon

Then the price of the popcorn should be \$0.



Sample Feature in Gherkin

Feature : As Fred (the bookseller) I want to login to the Bookseller pages for my profile so that I can add books to my books for sale list.

Scenario: correct credentials

Given the Bookseller login is activated,

When Fred supplies the correct credentials
and selects the login option

Then he is authenticated on the system
and the Bookseller page is presented

Scenario: incorrect credentials

Given the Bookseller login is activated,

When Fred supplies the incorrect credentials
and selects the login option

Then he is not authenticated on the system
and the Login Error is presented



What is Gherkin?

- A business readable domain specific language that lets you describe software's behavior without detailing how that behavior is implemented
- Serves two purposes:
 - documentation
 - automated tests
- The language that Cucumber understands
 - Cucumber is a BDD testing tool



Examples with Tables

eg.Division		
numerator	denominator	quotient?
10	2	5
12.6	3	4.2
100	4	33

Query: Users in the System		
user name	role	user state
Tim Tester	Tester	active
Paul Programmer	Programmer	active
Petra PjM	Project Manager	active



Gherkin Tables

Scenario Outline: Withdraw fixed amount

Given I have <Balance> in my account

When I choose to withdraw <Withdrawal>

Then I should <Outcome>

And the balance of my account should be <Remaining>

Examples:

Balance	Withdrawal	Remaining	Outcome
\$500	\$50	\$450	\$50 cash
\$500	\$100	\$400	\$100 cash
\$500	\$200	\$300	\$200 cash
\$100	\$200	\$100	an error message



Usability Examples

- Ask a UI Designer to show you a page he likes



Who and When?

- Product Owner Team members write examples (tables or Gherkin)
 - Including PO, BA, QA, Dev
 - Cognitive Diversity
 - Everyone can read them
 - Don't let QA or Dev own this by themselves
- Written during backlog grooming
 - Updated at sprint planning and beyond



Activity

- Write some Gherkin
 - Positive case
 - Negative case
- Write some table-based examples



Automation?

- Yes:
 - Executable specifications rock!
- Or no:
 - Value in collaboration & understanding
 - Living Specification
 - Self explanatory

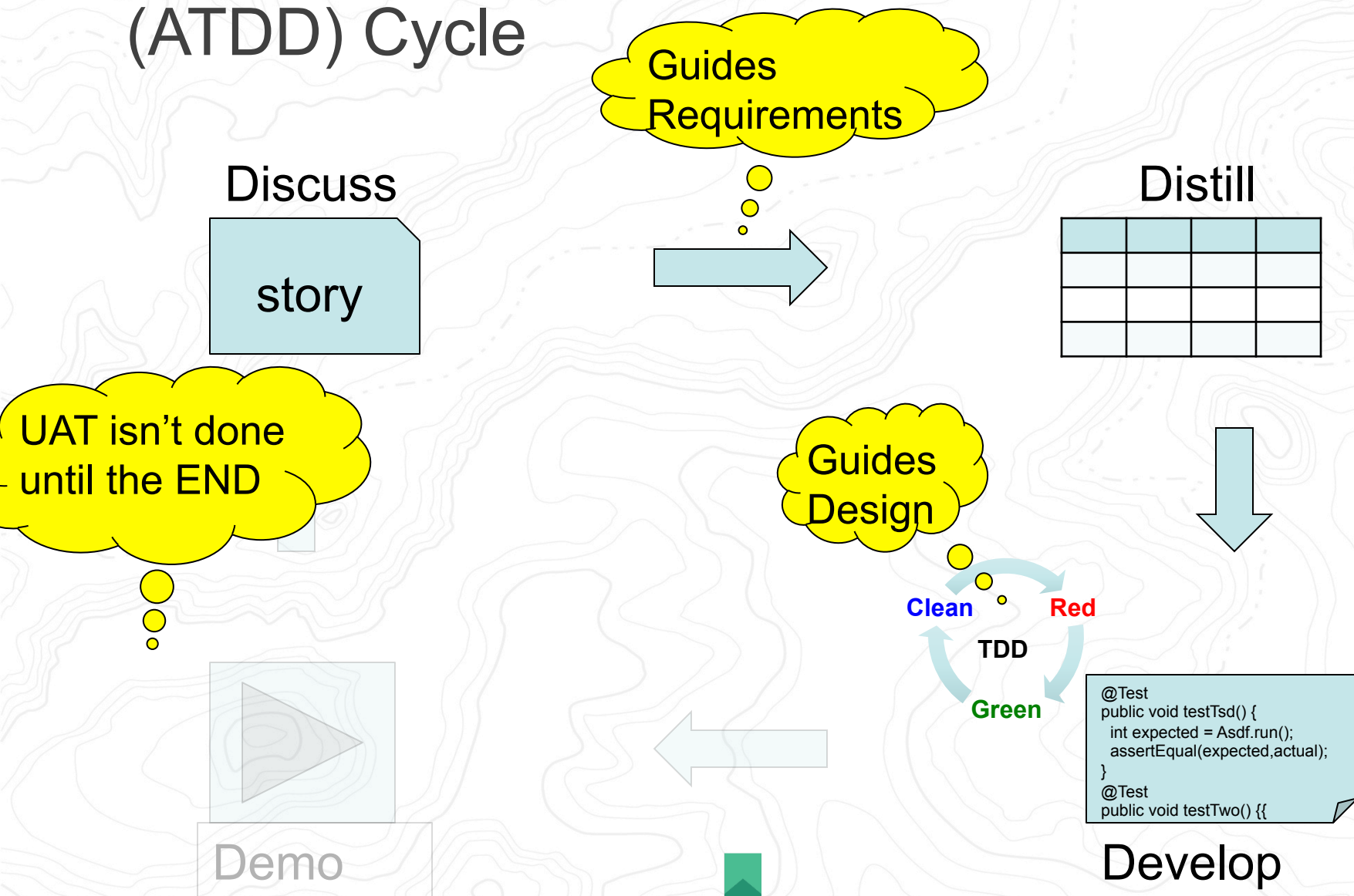


It's not about testing

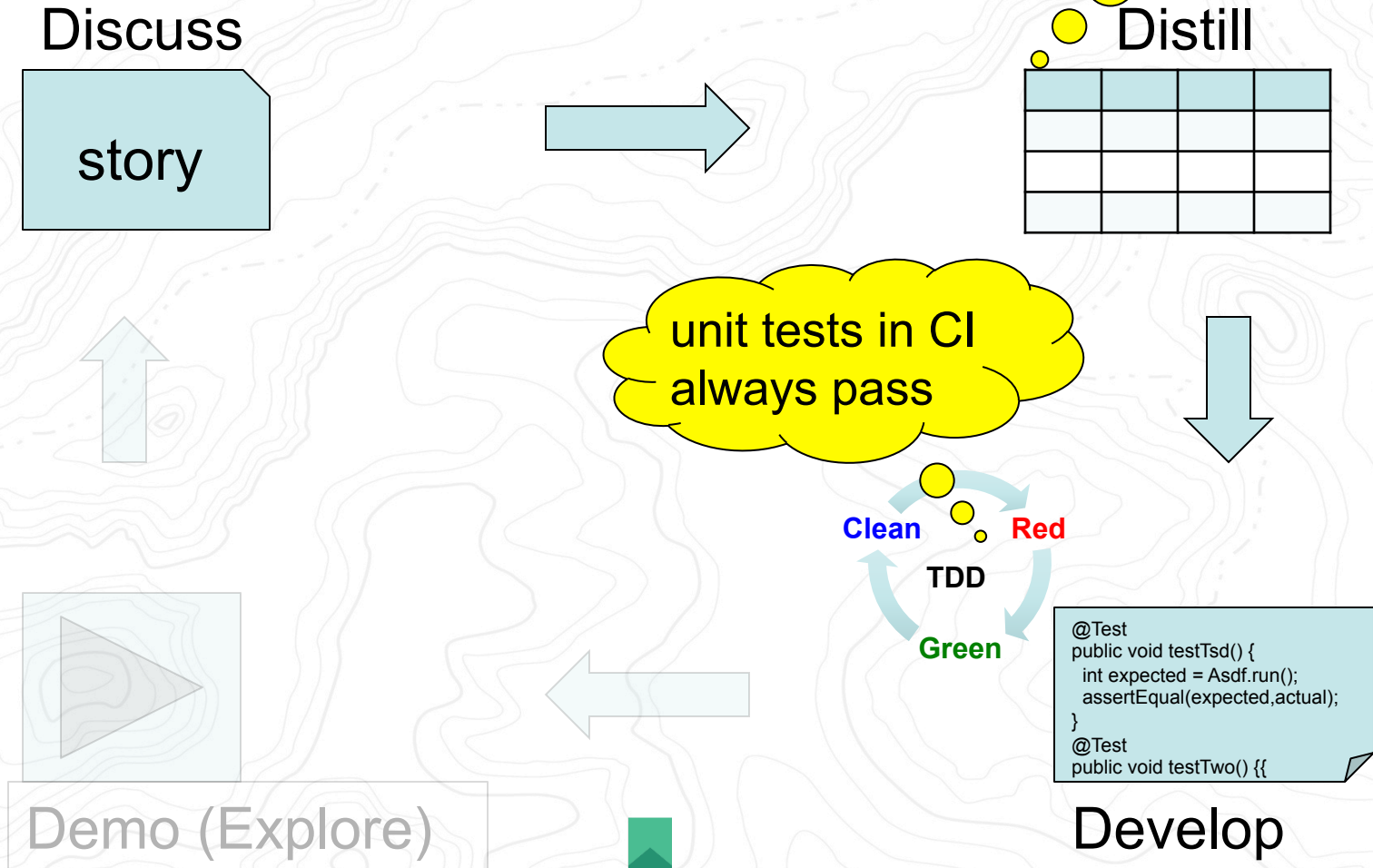


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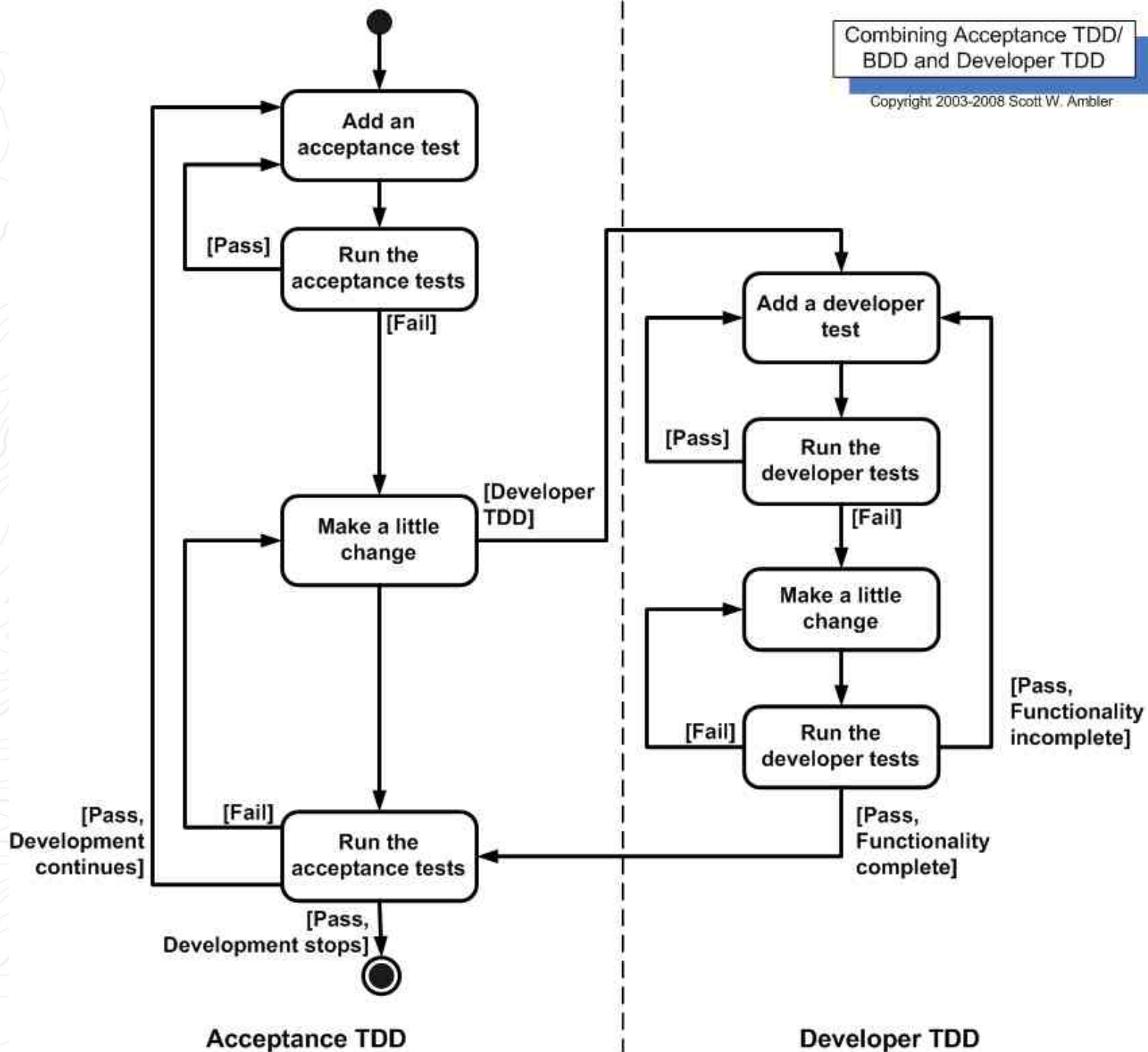
Acceptance Test Driven Development (ATDD) Cycle



Acceptance Test Driven Development (ATDD) Cycle



ATDD with TDD

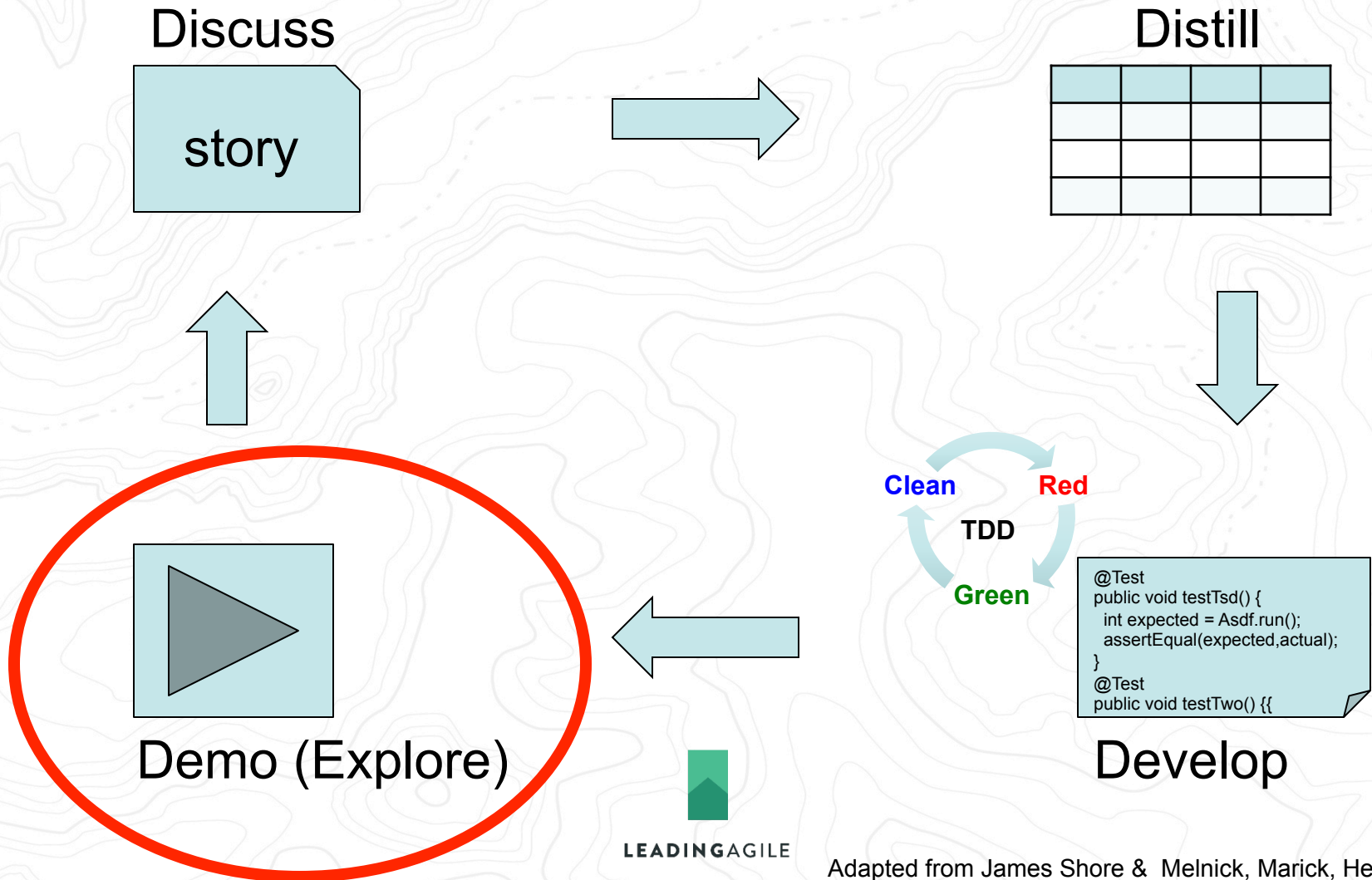


Is ATDD just Regression Testing?

- Regression testing is full & slow
- ATDD is small, focused & fast



Acceptance Test Driven Development (ATDD) Cycle



What's this technique called?

- ~~Story Testing~~
- ~~Agile Acceptance Testing~~
- ~~Acceptance Test Driven Development~~
- ~~Behavior Driven Development~~
- ~~Example Driven Development~~
- Specification By Example
- Executable Specifications
- Living Specifications
- Specification Workshop

I'm just gathering examples to improve communication, reduce misunderstanding, clarify requirements...



Test Automation - misc

- Automation IS software development
- Wishful Thinking



Test Automation - UI

- Test UNDER the UI
 - Only test through the UI things that really are only in the UI (ex: layout, session, workflow?)
- Page Object Pattern
 - An object to represent a page
 - Hides UI details
 - code.google.com/p/selenium/wiki/PageObjects



References

- @testobsessed : Elisabeth Hendrickson:
 - <http://testobsessed.com/2011/02/the-atdd-arch/>
 - <http://testobsessed.com/wp-content/uploads/2011/04/atddexample.pdf>
- Bridging the Communication Gap, Gojko Adzic
- Specification by Example, Gojko Adzic
 - If you buy the second, you can get a pdf of the 1st for free
- The Cucumber Book, Wynne & Hellesøy
- ATDD by Example, Gärtner



Tools

- Cucumber <http://cukes.info>
- FitNesse <http://www.fitnesse.org>
- SpecFlow <http://www.specflow.org>
- JBehave <http://jbehave.org>
- selenium.openqa.org
- pyusecase / jusecase.sourceforge.net
- Robot Framework <http://www.robotframework.org>
- Concordion <http://www.concordion.org>
- TextTest <http://www.texttest.org>
- cubictest.com
- Green Pepper greenpeppersoftware.com



Advanced Topics

- Group specs by stability, risk
 - More likely to fail vs less
 - Run in a pipeline
- The User Stories should not be visible in the specs



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