DEMYSTIFYING ACCEPTANCE TEST DRIVEN DEVELOPMENT (ATDD)

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SESSION AGENDA

IT PROJECTS – 10 MIN

Why IT Projects Fail?
Traditional Models & Testing
Agile Model & Testing
Brian Marick's Test Categories

USER STORY DISCOVERY - 30 MIN

Simple Bank Application
[Group Activity]

OVERVIEW OF ATDD – 15 MIN

Where to Begin?
ATDD Cycle
Building Software
ATDD Benefits
ATDD Summary
Let's practice

ATDD TOOLS OVERVIEW – 10 MIN

ATDD Tools
FITNESE

SESSION AGENDA

ENVIRONMENT SETUP - 10 MIM

BREAK - 10 MIN

ATDD - HANDS-ON TUTORIAL 75 - 80 MIN
- *Definition of Executable Specification in Fitnesse*
- *Implement Fixtures & Code*

USING FITNESSE FOR DATABASE ACCEPTANCE TESTS - 10 MIN
- *Demo of DBFit*

ATDD—THINGS TO WATCH OUT !!

BEYOND ATDD - 5 MIN

Q&A - 5MIN

Why IT Projects Fail?

(3 min – come up with at least 3 reasons)

WHY IT PROJECTS FAIL?

WHY IT PROJECTS FAIL?

CIO INSIGHT

Why IT Projects Fail

Not all projects simply die. Missed deadlines, blown budgets, and end products with inadequate features and functions count, too.

WHY IT PROJECTS FAIL?

WHY IT PROJECTS FAIL?

CIO INSIGHT

Why IT Projects Fail

KEY CAUSE OF FAILURE
Poor Requirements
Developers struggle when specifications are vague, forcing them to provide what they think is needed.

http://mobile.cioinsight.com/c/a/IT-Management/Why-IT-Projects-Fail-762340/

WHY IT PROJECTS FAIL?

CIO INSIGHT®

Why IT Projects Fail

KEY CAUSE OF FAILURE

Scope creep

When projects take add requirements on the fly, deadlines and resources often are not properly adjusted accordingly.
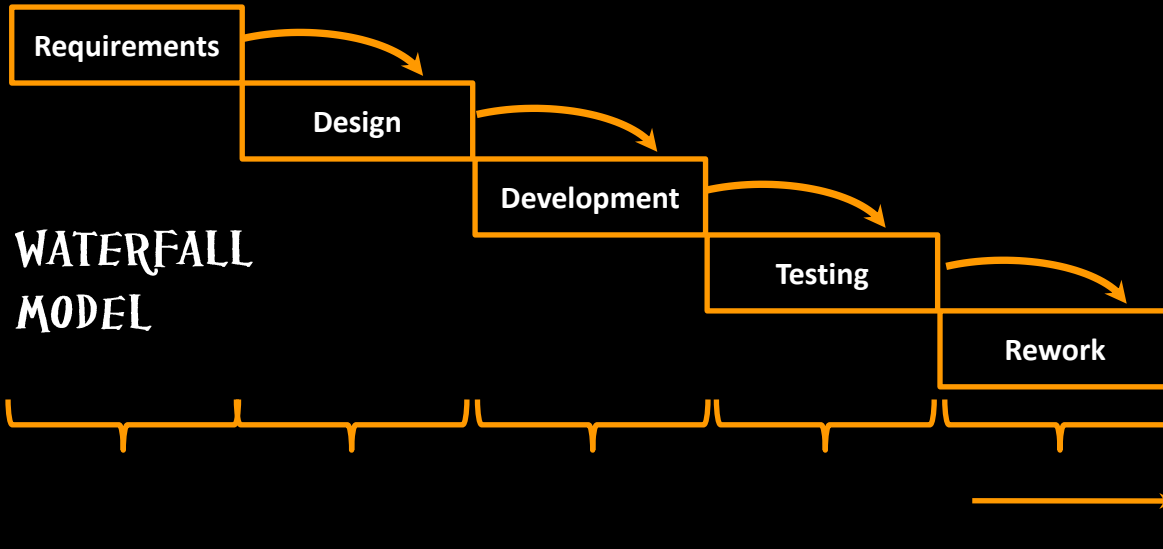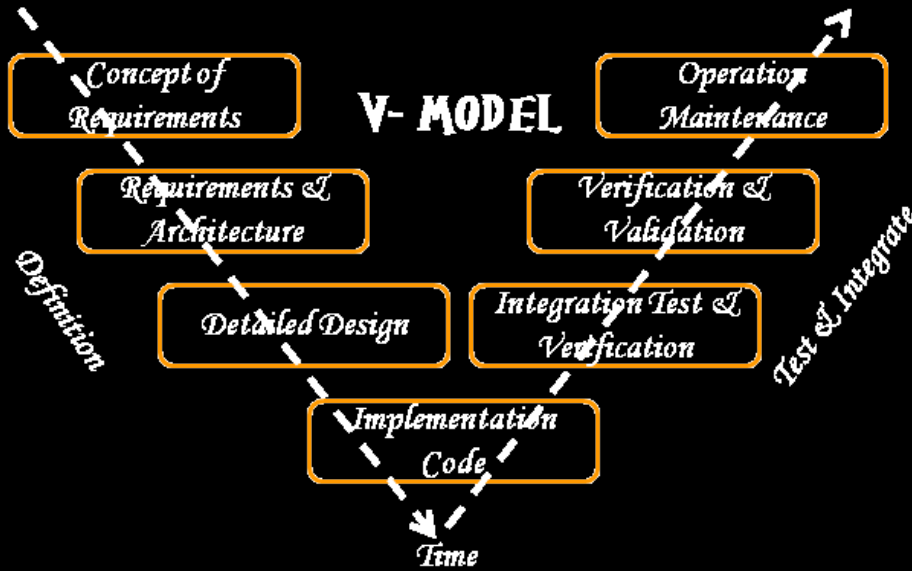
WHY IT PROJECTS FAIL?

TRADITIONAL MODELS & TESTING

V- MODEL

Concept of Requirements

Operation Maintenance

Requirements & Architecture

Verification & Validation

Detailed Design

Integration Test & Verification

Implementation Code

Definition

Test & Integrate

Time

WATERFALL MODEL

Requirements

Design

Development

Testing

Rework

TRADITIONAL TESTING

Manual Testing
UI Testing
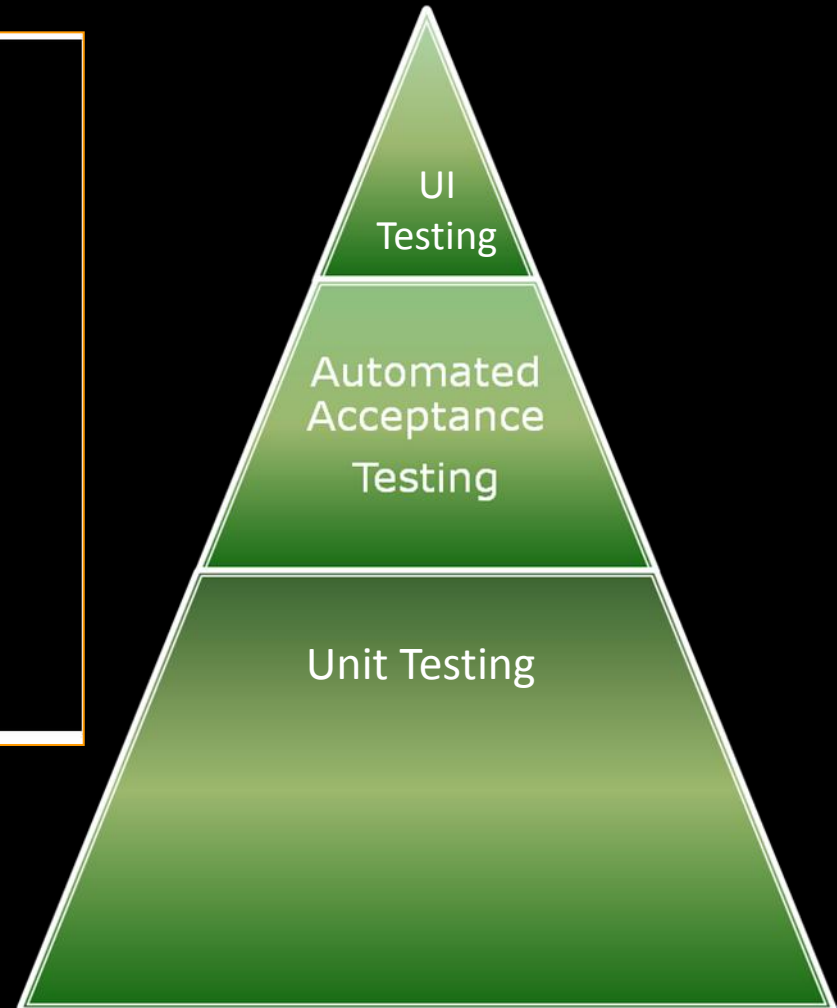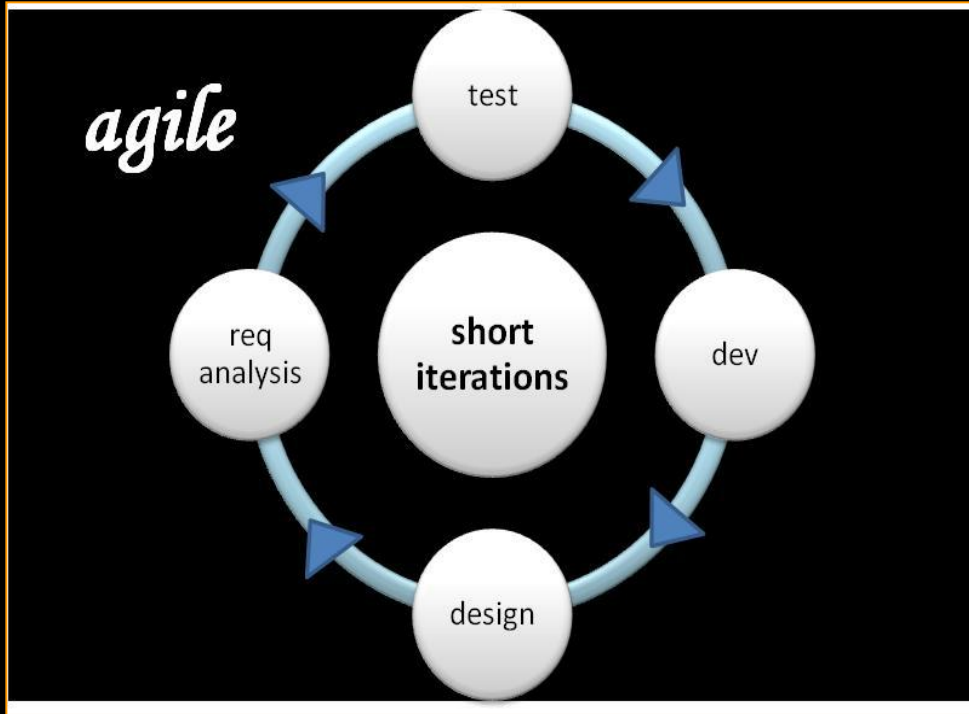Smoke / Performance Testing

Automated UI Testing

Unit Testing
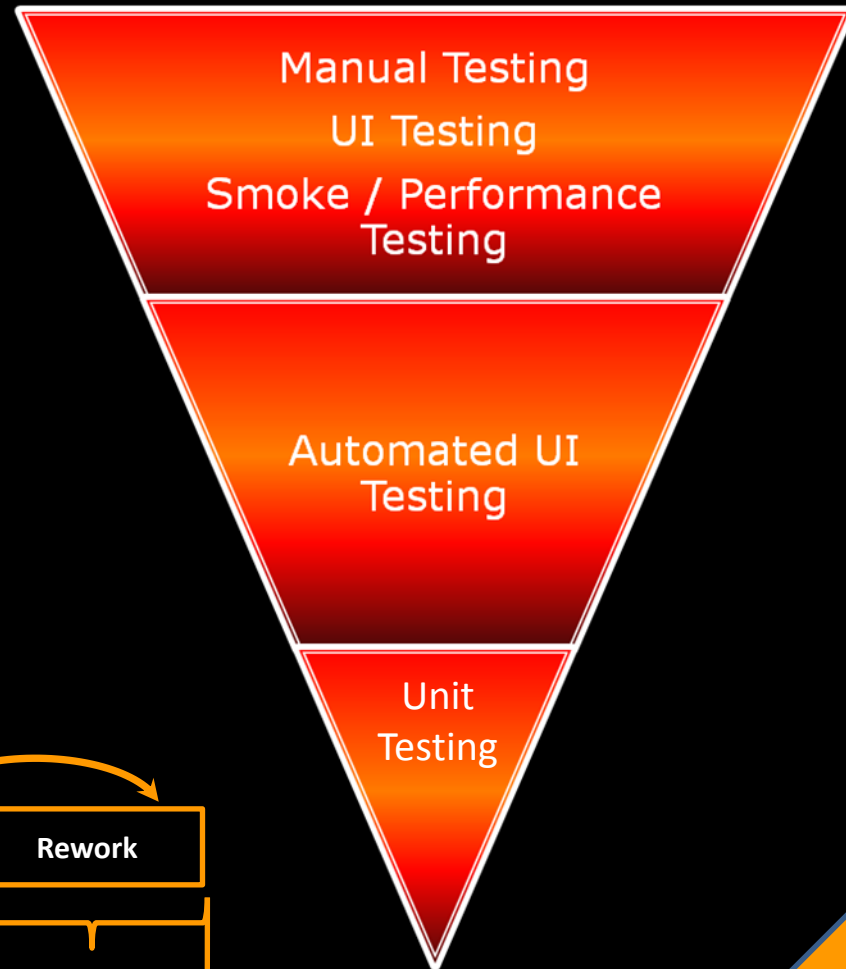
AGILE MODEL & TESTING

AGILE TESTING
MIKE COHN'S TESTING PYRAMID

TEST CATEGORIES

Brian Marick's Test Categorization

Business Facing

Automated & Manual

Manual

Build the Product

QA Testing:
Functional
Examples
Story Testing
Simulations
Prototypes

ACCEPTANCE TESTS PROTOTYPES

QA and User Testing:
Scenarios
Usability
User Acceptance Testing
Alpha / Beta

EXPLORATORY TESTS UI & USABILITY TESTS

Q2 | Q3
Q1 | Q4

Developer Testing:
Unit/Component Testing
Continuous Integration

UNIT TESTS

Infrastructure Testing:
Performance and Load
Security
"ility" Testing

PERFORMANCE TESTS

Critique the Product

Automated

Tools

Technical Facing

OVERVIEW OF ATDD

ACCEPTANCE TEST DRIVEN DEVELOPMENT

Acceptance test driven development(ATDD) is

- *A collaborative practice*

- *Application developers, software users, and business analysts define automated acceptance criteria very early in the application development process.*

- *ATDD helps to ensure that all project members understand precisely what needs to be done, even before the programming starts.*

- *They then use the acceptance criteria to guide subsequent development work.*

WHERE TO BEGIN?

BEGIN WITH USER STORIES…

So, what are they?

- *Brief description of functionality to be implemented.*
- *Token for conversation (3Cs – Card, Conversation & Communications)*
- *Implementable in one sprint/iteration.*
- *Contains 'Acceptance Criteria'*

Example:

Story ID: _____

Priority
1

Story:
As a **[type of user]**
I want to **[perform some task]**
so that I can **[reach some goal]**

Value

Acceptance Criteria:

WHERE TO BEGIN?

DEFINE ACCEPTANCE CRITERIA...

So, what are they?

- *Provided by Business or Customer.*

- *Arrived by conversation (business, dev and testers).*

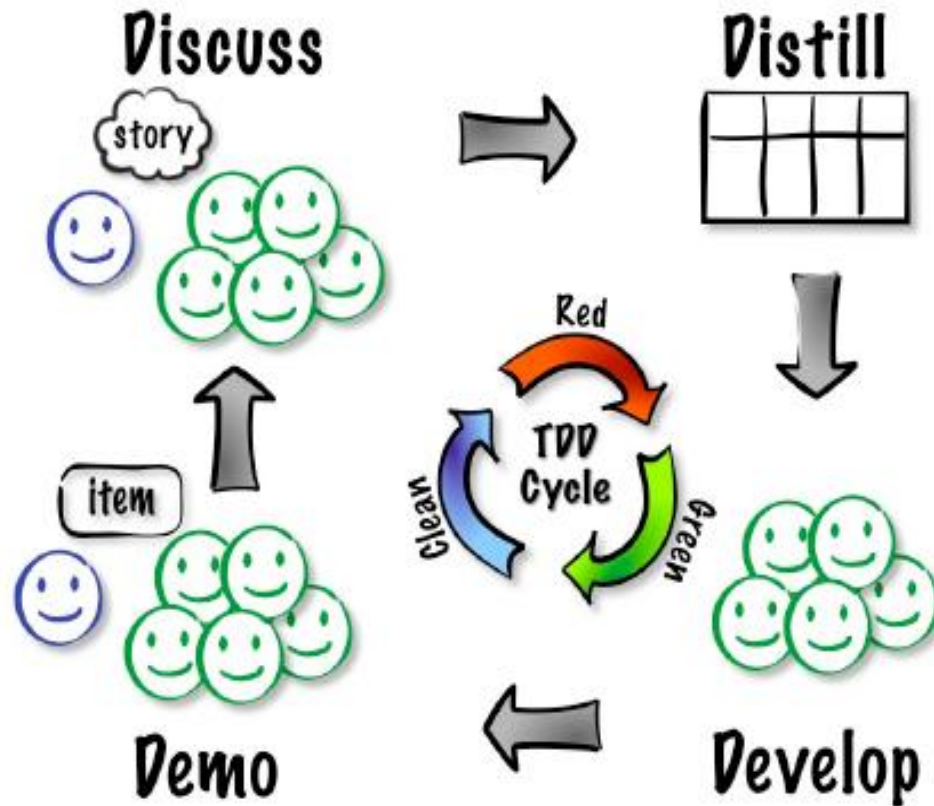- *Ensures there are adequate conditions for a story to be accepted.*

WHERE TO BEGIN?

DEFINE ACCEPTANCE TESTS...

So, what are they?

- *Helps in implementing 'Acceptancee Criteria'*

- *Collaboratively arrive at examples for 'Acceptance Criteria'*

  - *Examples include Data & Test Scenarios' (Inputs and Expected Outputs)*

ATDD CYCLE

Acceptance Test Driven Development (ATDD) Cycle

(ATDD cycle model developed by James Shore with changes suggested by Grigori Melnick, Brian Marick, and Elisabeth Hendrickson.)

BUILDING SOFTWARE – KEY QUESTIONS

ATDD

BUSINESS FACING

Are we building right software

Are we building software right

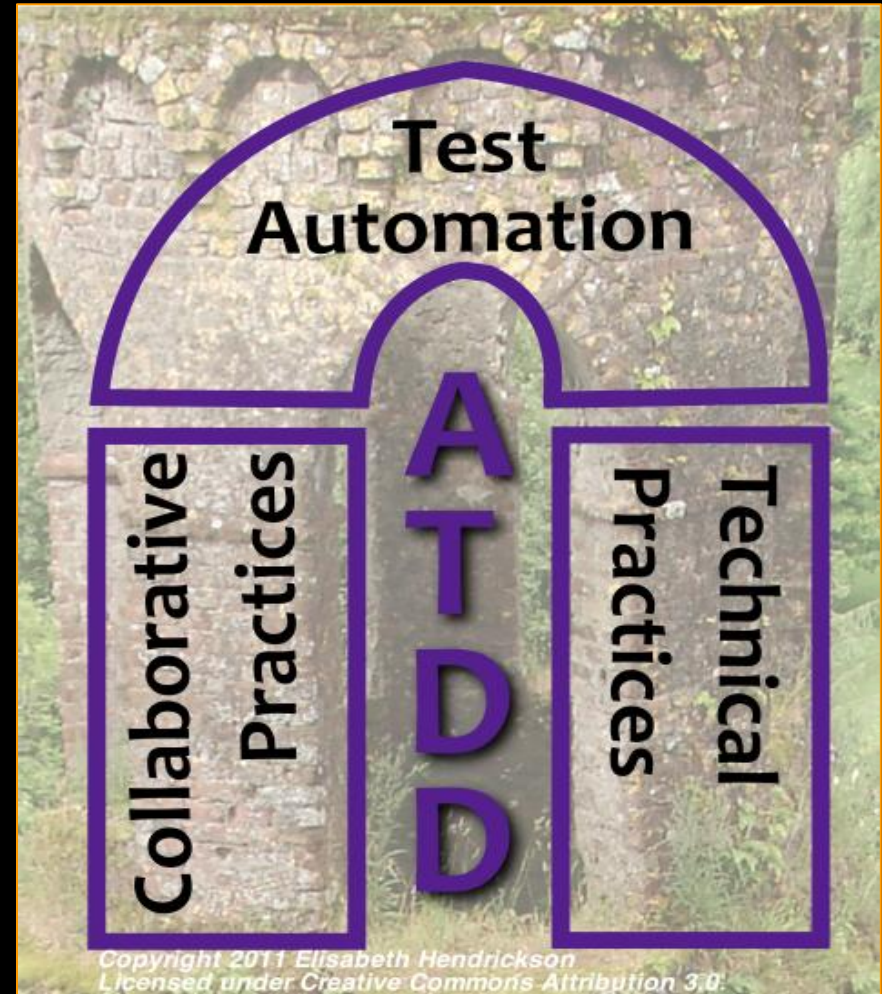TECHNOLOGY FACING

TDD

DOES ATDD REPLACE TDD

NOPE !!!...

IN FACT ATDD is ALL ABOUT ....

Test Automation

ATDD

Collaborative Practices

Technical Practices

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ATDD BENEFITS

- *Implement changes efficiently.*
- *Build consensus amongst developers, testers and business.*
- *Arrive at scope from goals.*
- *Drive better estimation and work alignment.*
- *Maintain executable specs and living documentation.*
- *Better traceability*
- *Reduce rework and build better software.*

ATDD SUMMARY

ACCEPTANCE TESTS ARE VERY IMPORTANT TO AGILE TESTING !!!

- Owned by **Business or Customers.**

- Written together by **Collaboration** (dev, testers and business)

- Determine when feature is **DONE.**

- Focuses on **WHAT** not **HOW**.

- More than anything it's a **COMMUNICATION TOOL** and **NOT** about using a **TOOL.**

LET'S PRACTICE

WRITE A USER STORY FOR A SIMPLE LOGIN SCREEN....

- *Write a User Story (use the story card provided)*
- *Ensure the ROLE, ACTION, CONTEXT is articulated*
- *Define 'Acceptance Criteria'*
- *Define 'Acceptance Tests' (Test Examples/Scenarios)*

Login to MyBank

User Name:

Password:

OK

User Story Discovery

(Simple Bank Application - MyBank)

MYBANK - USER STORIES

SELF ORGANIZE INTO SMALL GROUPS OF 4-5 PEOPLE IN EACH GROUP !!!

Iteration 1: 15 min

- *Identify the requirements for a <u>Simple Bank Application called MyBank</u> - 10 min*
- *Debrief : 5 min*

Iteration 2: 15 min

- *Articulate 'Acceptance Criteria' for the User Stories – 10 min*
- *Debrief – 5 min*

ATDD TOOLS

ATDD TOOLS

TABLE BASED

FITNESSE
(http://fitnesse.org/)

robotframework
(http://code.google.com/p/robotframework/)

Concordion
(http://concordion.org/)

Concordion

NARRATIVE BASED

JBehave
(http://jbehave.org/)

Cucumber
(http://cukes.info/)

ATDD TOOLS

Welcome to FitNesse!

Demo!!

FITNESSE IN BRIEF

- *Wiki based environment for creating and running Fit tables.*

- *Test in Fitnesse is recorded into 'Fit tables'*
  - *basically are HTML tables.*
  - *Owned by Customers/BA/Testers*

- *Fit tables have a reference to the Fixture(s).*
  - *Fxture(s) is the full name of the code that will interpret the table. (In Java, it□sa class.)*

- *Fitnesse supports the running of multiple tests at once, with test suites.*
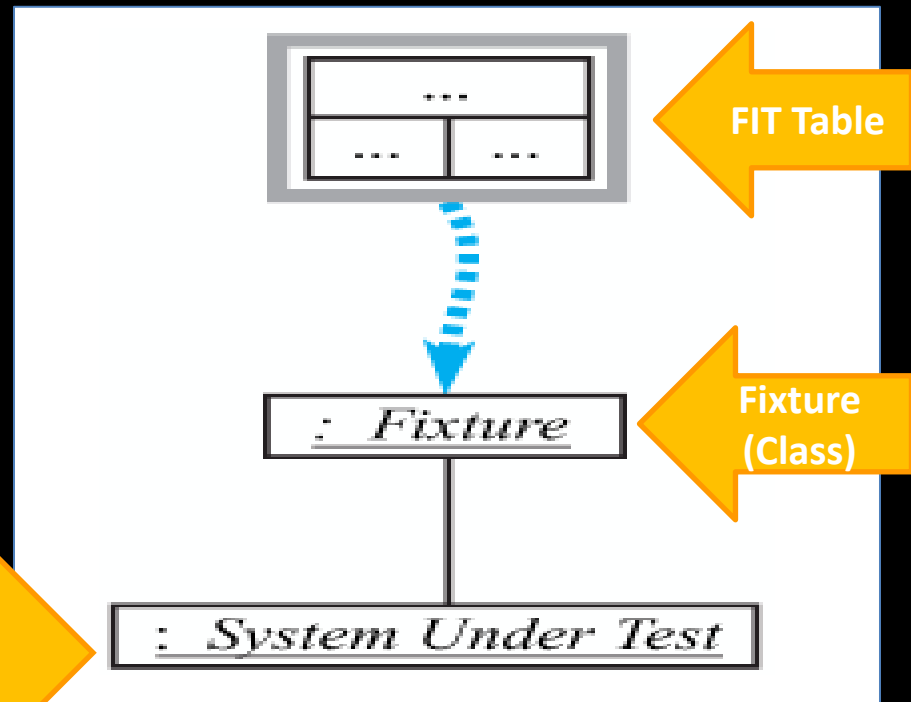
FiTNESSE FiXTURES

Basic FIT fixtures

- *ColumnFixture*
- *ActionFixture*
- *RowFixture*
- .
- .

FitLibrary Fixtures

- *SetUpFixture*
- *CalculateFixture*
- *DoFixture*
- .
- .

A fixture acts as an intermediary between a Fit table and a system under test

FIT Table

Fixture (Class)

Core functionality of the App

: Fixture

: System Under Test

ENVIRONMENT SETUP

ENVIRONMENT SETUP

LET'S VERIFY THE ENVIRONMENT !!!
(10 MIN)

Part 1:

- *Set JAVA_HOME [Environment Variable]*
- *Start Eclipse*
- *Start Fitnesse*

Part 2:

- *Create MyBank page in Fitnesse*
- *Create a test table in Fitnesse*
- *Implement test fixture in Eclipse*

BREAK !!!
(10 min...)

LET'S GO HANDS ON NOW!!!

(IMPLEMENT EXECUTABLE SPECIFICATIONS)

ATDD – HANDS ON (75-80 MIN)

LET'S IMPLEMENT EXECUTABLE SPECIFICATIONS IN SHORT ITERATIONS !!
(PART 1 - 40 MIN)

Iteration 1: (Lead and Follow) – 20 min

- User Story 1
- User Story 2

Iteration 2: (You do we watch) - 20 min

- User Story 3
- User Story 4

ATDD – HANDS ON (75-80 MIN)

LET'S IMPLEMENT EXECUTABLE SPECIFICATIONS IN SHORT ITERATIONS !!

(PART 2 – 40 MIN)

Iteration 3 *(Lead and Follow) - 20 min*

- *User Story 1*

- *User Story 2*

Iteration 4: (You do we watch) - 20 min

- *User Story 3*

- *User Story 4*

ATDD AND DATABASE

DATABASE ACCEPTANCE TESTS USING DBFIT !!! (10 MIN)

- *What is Dbfit?*

- *Where does it fit in ATDD?*

- *How to implement ?*

- *Demo (10 min)*

ATDD – THINGS TO WATCH OUT !!

- *ATDD is for collaborating on understanding the behaviour of the system that*
  - *helps drive development but NOT*
  - *Using ATDD as QA test automation tool*
- *Organize tests by creating test suites for functional areas*
- *Avoid duplication by having include pages than recreating the tests.*
- *Avoid building dependencies between tests. Try hard to make tests independent.*
- *Avoid writing fixtures first prior to deriving acceptance test tables will defeat the purpose of ATDD*
- *Version Control and part of Daily Builds*

ATDD – THiNGS TO WATCH OUT !!

- *What's **good** about FITNESSE*
  - *Acceptance Tests can be written before the iteration starts*
  - *Anyone, including Non-technical members on the team can contribute to testing*
  - *Tables are easy to understand and expand.*
  - *It is easy to hook up FitNesse with existing testing fixtures, thus greatly reduces the code duplication and cost of the fixtures*

ATDD – THINGS TO WATCH OUT !!

- *What's **difficult** about FITNESSE*
  - *Error messages can be very confusing and difficult to debug*
  - *Refactor – not an issue with FitNesse but an issue with those writing fixtures and tests. Fixtures are code and*
  - *should be kept clean like production code.*

BEYOND ATDD

WHERE TO FROM ATDD (5 MIN)

- *Selenium on top of ATDD*
- *Fitnium*

REFERENCES

1. *Waterfall Model:* http://en.wikipedia.org/wiki/Waterfall_model

2. *V-Model:* http://en.wikipedia.org/wiki/V-Model_(software_development)

3. *Fitnesse:* http://fitnesse.org/

4. *Automated Acceptance Test and Requirements Traceability:* http://www.methodsandtools.com/mt/download.php?spring11

5. *Driving Development with Tests: ATDD and TDD:*

6. http://testobsessed.com/wp-content/uploads/2011/04/atddexample.pdf

7. *Acceptance Test Driven Development:* http://www.slideshare.net/nashjain/acceptance-test-driven-development-350264

8. *CIO Insight:* http://mobile.cioinsight.com/c/a/IT-Management/Why-IT-Projects-Fail-762340/

THANK YOU !!

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