

# To Data Independence and Beyond!

James Dobson, Accenture  
Technology Solutions

## Who Am I?

- Graduate in Computer Science class of 2000.
- European Science Scholar (2002).
- Created *Conservative Extreme Programming* (2004).
- Early Adopter of Test-Driven-Development and XP (2000).
- Pioneer of Agile in the Enterprise.
- Joined Accenture in 2005 (Am Leaving Next Week).
- Who I am really:
  - A nice bloke from Hull, North England.
  - A person who loves to teach and have fun.
  - My ambition, to own Hull FC Rugby Club.

# Learning Objectives

- Some Questions I want to answer:
  - What Is Acceptance Test Driven Development?
  - Why Do Projects Fail?
  - How Can We Succeed?
  - What is Declarative Testing?
  - What Tools Are Available?
- And examples you will see:
  - Data Independence:
    - Testing Lists
    - Testing With Tables
    - Testing Work Flow
  - And Beyond:
    - Manipulating State
    - Tests as Requirements (Story Testing)

## What is Acceptance Test Driven Development?

- 1) “A way of augmenting requirements with tests that satisfactorily demonstrate that the requirement is implemented.” – Distributed and/or Specialist Based Development
- 2) “An iterative process were teams collaboratively develop requirements, tests and code.” – Co-Located and Generalised Development

## What is the Point?

- ***Problems in Requirements Cost Money***
- ***Translation Errors Accumulate***
- ***Business Do Not Communicate Needs***
- ***Developers Do Not Understand Needs***
- ***Poor Quality: Built wrong and we built the wrong thing***
- ***Technical Debt***
  - ***Redundant Tests, Not Redundant Code***
- ***State Coverage vs. Code Coverage***

Project Challenged Factors and % of Responses		
1	Lack of User Inputs	12.8%
2	Incomplete Requirements & Specifications	12.3%
3	Changing Requirements & Specifications	11.8%
4	Lack of Executive Support	7.5%
5	Technology Incompetence	7.0%
6	Lack of Resources	6.4%
7	Unrealistic Expectations	5.9%
8	Unclear Objectives	5.3%
9	Unrealistic Time Frames	4.3%
10	New Technology	3.7%
11	Other	23.0%

• A Standish Group research report shows a staggering 31.1% of projects will be canceled before they ever get completed. Further results indicate 52.7% of projects will cost 189% of their original estimates

# Fit and FitNesse

- Open Source Tools for Communicating With Tables
- FIT – Framework for Integrated Testing
- FitNesse – Standalone Web-Application and Wiki for Managing Tables
- FIT is a Tool for Communicating Requirements
- FIT Uses Examples of Behavior to Test a System
- FIT is Used by Business Analysts and Developers

# Story Telling

- Business Rule:
  - “Credit is allowed, up to an amount of \$1,000, for a customer who has been trading with us for more than 12 months, has paid reliably over that period, and has a balance owing of less than \$6,000”

Calculate Credit Examples	months	reliable	balance owing	allow credit	credit limit
	14	TRUE	5000	TRUE	1000
	0	TRUE	0	FALSE	0
	24	FALSE	0	FALSE	0
	18	TRUE	6000	FALSE	0
	12	TRUE	5500	FALSE	0

# Testing Columns

Assertions: 4 right, 0 wrong, 0 ignored, 0 exceptions

jamiedobson.fitness.column.ColumnExample		
one	two	remove()
hello	llo	he
one	two	one
llo	hello	llo
oneoneone	one	blank
banana	a	bnn

- “remove all occurrences of a substring from within the source string”
- Simple Example of how Apache’s String Utils ‘remove’ method should work.
- Easy to read
- Easy to code
- An Example of a well Specified Requirement

# Testing Lists

Assertions: 5 right, 0 wrong, 0 ignored, 0 exceptions

```
jamiedobson.fitness.row.ListExample  
set ups  
string  
hello my name is david
```

```
check string list  
toString()  
hello  
my  
name  
is  
david
```

- “Split the provided text into an array using whitespace as the separator”
- Simple Example of how Apache’s String Utils ‘split’ method should work.
- Easy to read
- Easy to code
- An Example of a well Specified Requirement

# And Beyond... Testing Business Rules

- Procedural Testing:
  - Series of steps altering and/or testing state
  - Advantages:
    - Natural
    - Good for use cases
  - Disadvantages:
    - The steps are dependent
    - Dependent also on interfaces and support code
    - Difficult to debug
- Declarative Testing
  - For a given state and input, tests the new state and output
  - Advantages:
    - Easy to debug
    - Steps are independent
    - Explicit
    - Tests many, many, permutations of business rule – difficult with procedural tests

# Conclusion

- Communication with Tables is Natural and Very Powerful
- Collaborative Work is Highly Productive
- Test Driven Development is a Known Best Practice
- FitNesse and Fit can help deliver projects on time
- FitNesse and Fit are perfectly suited for regression testing
- FitNesse can be downloaded from: <http://fitnesse.org>
- Quality assurance strategy must be holistic. No one techniques enough
- Thanks for your time.

## If We Have Time

- Tips and Tricks
- Let's add different strength passwords to the login!
- Any more suggestions for business rules?