Accelerated Agile Testing

Harnessing the Power of Exploratory Testing

CAMUG, March 6th, 2014

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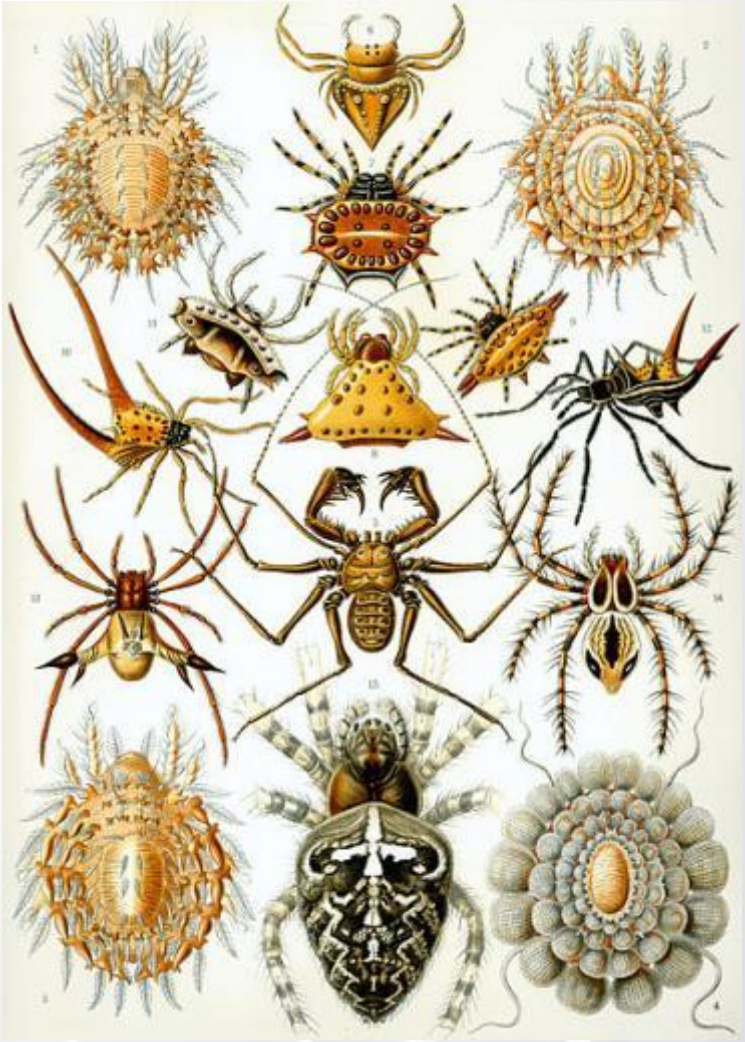
PQA TESTING

test smarter...

Outline

- Agile Testing
- The Objective of Testing
- Exploratory Testing
- Time-Boxed Test Sessions
- Reporting and Metrics
- Agile Testing Workflow



About

- Christin Wiedemann
  - Regional VP/Chief Scientist
  - PQA Vancouver
  - Ph.D. in Physics in 2007 (Stockholm University, Sweden)
  - 2 years as a developer before I found my true vocation – testing
  - Moved to Canada in 2011

Testing on Agile Projects

- Iterative
- Continuous changes
- Fast pace
- Testing early
- Team effort
- Less focus on artifacts

Cheap, Good, Fast

- You can get it *fast* and *cheap*, but you will not get high quality
- Reducing cost and time typically means increasing *risk*
- There are always constraints
- You can only pick two attributes

Objective of Testing

- In testing, we:
  - Execute tests and observe how the software responds
  - Record and store test results
- However, the goal of testing is not the *execution* or the *artifacts,* but what we *learn* about the product
- *Software testing is a quest for information and knowledge*
- Knowledge must be efficiently communicated to stakeholders
- Knowledge allows for informed decision making

Risk-Driven Testing

- Complete test coverage is impossible
  - We must prioritize
- We can never prove that software is *working* – only find proof of ways in which it *fails*
- A test process should help us understand and control the risk of product failure
- In risk-driven testing, we:
  - Select tests that we think are the most likely to expose serious problems
  - Skip tests that we think are unlikely to expose problems, or likely to expose problems that have very little impact
- Risk-driven testing is an *approach* – not a technique

Risk-Driven Testing

- Risk-driven testing:
  - Organize testing to reduce the level of *product* risk when shipping software
  - Doesn't deal with *project* risk

- Risks are used to:
  - Select test approach/technique
  - Design tests by considering risks at an early stage and letting risks steer the design
  - Prioritize tests during execution

- Risk analysis is an important part of test planning

Exploratory Testing

- What is Exploratory Testing?
  - A software testing approach
  - Simultaneous learning, test design and test execution
  - Introduced by Cem Kaner in 1983

- Why the name Exploratory Testing?
  - To distinguish it from ad hoc testing
  - To emphasize the exploration

Exploratory Testing

- What is Exploratory Testing not?
  - Ad-hoc testing
  - Sloppy testing
  - Careless testing
  - Unstructured testing
  - Undocumented testing
  - Unskilled testing

Exploratory Testing

- Why Exploratory Testing?
  - Less preparation
  - Do not need complete specifications or requirements
  - Bugs found quickly
  - Adaptable and flexible
  - Creative, fun and stimulating

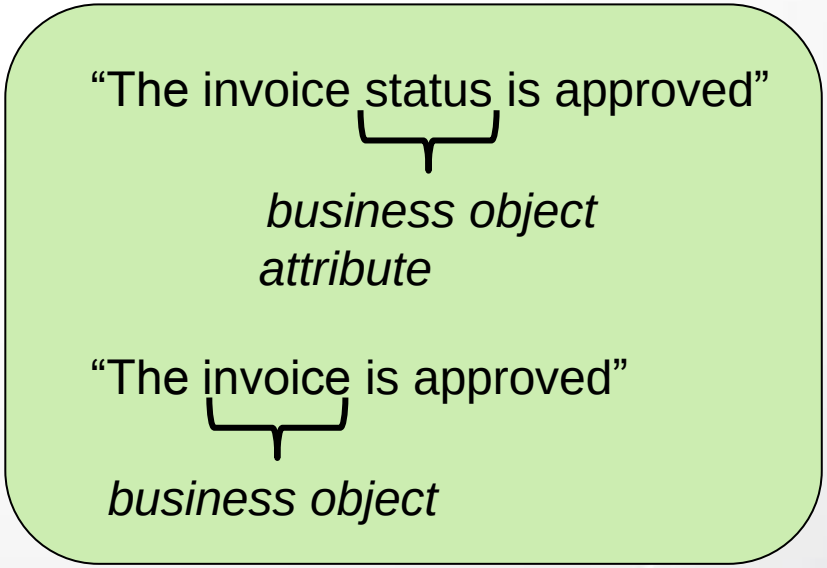
Scripted Versus Exploratory Testing

- Testing requires specialized skills
- Which takes more time?
  - Maintaining test suites
  - Training testers
- Testers need to be aware and observant
  - http://youtu.be/ubNF9QNEQLA
  - http://youtu.be/Ahg6qcgoay4

Transport for London
http://www.tfl.gov.uk

How Much Detail?

- How much detail is too much?
- Focus on business objects – not attributes
- Use preconditions

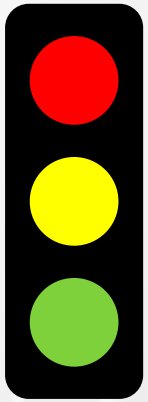


Testing Versus Checking

- Don’t confuse testing and checking!
- Checking:
  - Confirming something we believe to be true
  - Confirm, verify, validate
  - Pass/fail
- Testing:
  - Exploring with the motivation of finding new information
  - Exploration, investigation, discovery, learning

Testing Versus Checking

- Checking:
  - Suitable for automation
  - Detailed test cases/scripts
- Testing:
  - Should be done by humans
  - High-level guidelines rather than detailed steps
  - Use-case level



Testing Spectrum

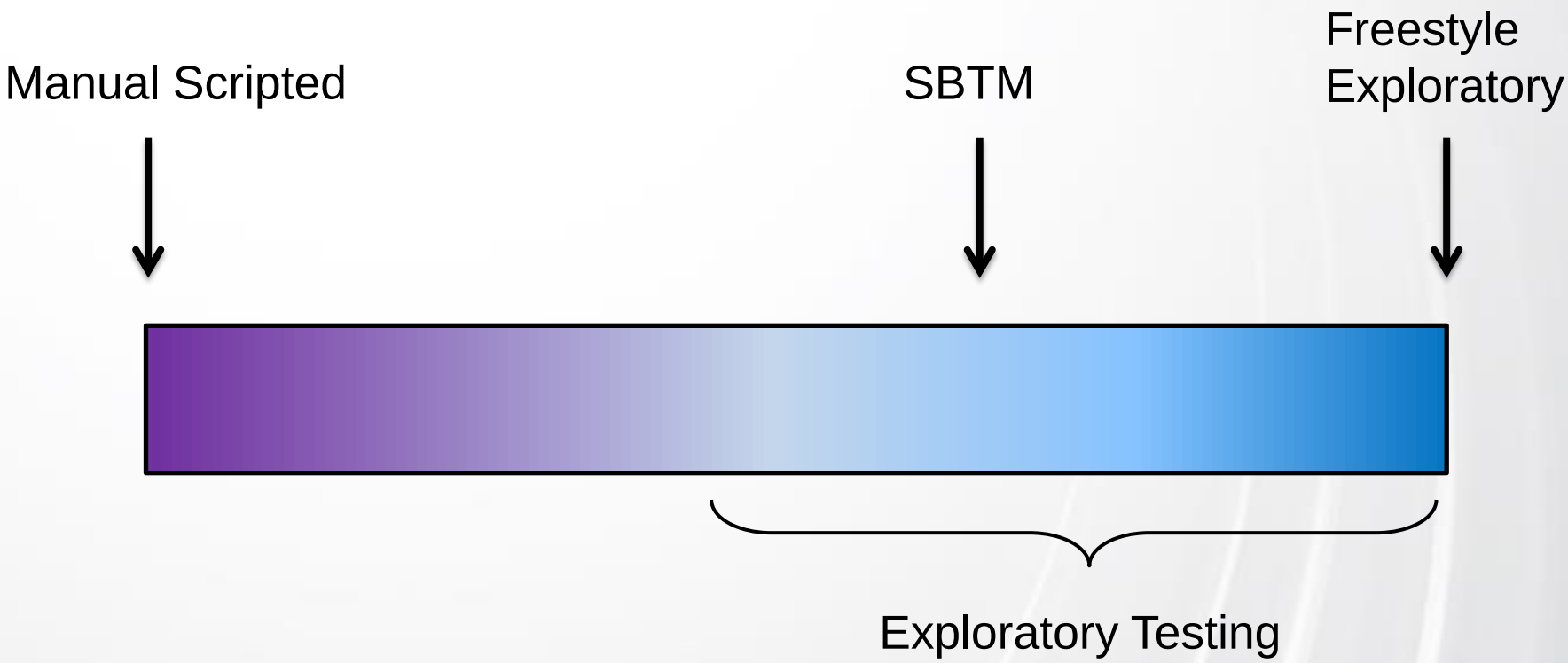


Figure adapted from original by Jon Bach

Session-Based Test Management (SBTM)

- What SBTM is:
  - Tool-supported testing approach
  - Introduced by Jonathan Bach and James Bach in 2000
  - Structured and documented exploratory testing

- Why use it:
  - Management control
  - Metrics reporting
  - Accountability
  - Documentation
  - Rapid defect discovery
  - Flexibility

Session-Based Test Management (SBTM)

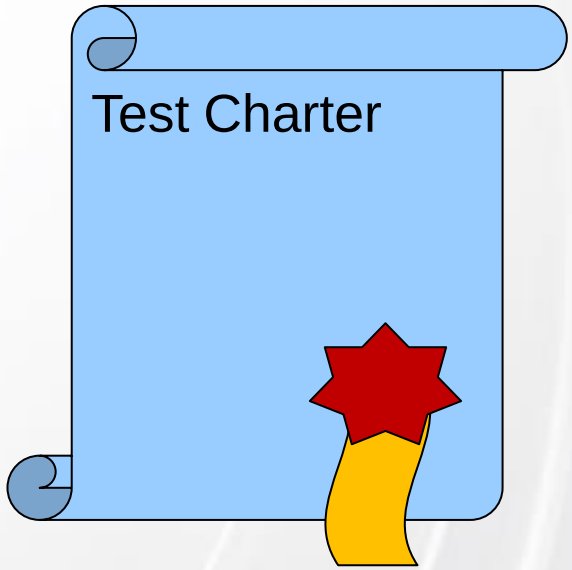
- Work in sessions
- Time-box
- Uninterrupted
- Reviewable
- Feedback (debriefing)

- Test charter: Mission for the session
- Session report

Test Charter

- Test Charter:
  - Mission for the session
  - How to test
  - What kind of problems to look for
  - Often created in advance
  - Extent and level of detail flexible

- Structure:
  - Risk
  - Coverage
  - Time frame



Credit: Michael D. Kelly

Session Report

- Session Report:
  - Date, Time & Tester
  - Test Charter
  - Function Area
  - Time break-down:
    - Test design
    - Test execution
    - Test reporting
    - Other (e.g. interruptions and setup)
  - Bugs found
  - Issues found
  - Opportunity
  - Notes

Planning and Tracking

- Estimate number of charters, time for each charter is given

Charters planned	78
Charters run	12
New charters added	5

(78 + 5) - 12 = 71 charters left to run
71 * 90 min = 106 hours

Charter	Status
Charter #1	John
Charter #2	Lisa
Charter #3	Anne

Blocked

Run

Waiting

Charter assigned to

Reporting

- Distinguish between reporting on *status* and *quality*
- Know your audience
- Beware of misunderstandings and misinterpretation

Metrics

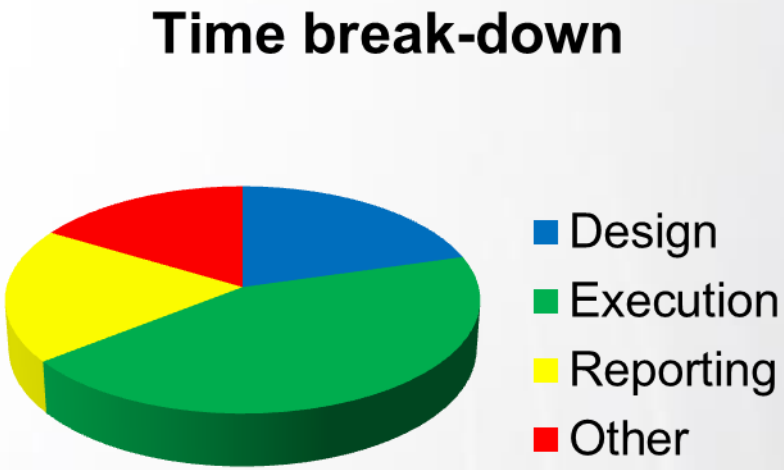
- *What* are you trying to measure
- *Why* are you trying to measure it
- *When* are you measuring it
- Qualitative or quantitative

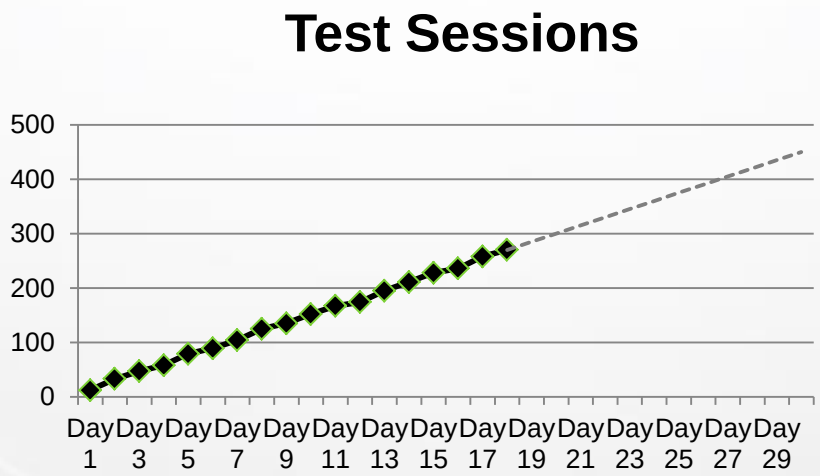
- Example – defects found
  - How is the metric affected by the measurement?
  - Does “defects found” accurately reflect:
    - Status
    - Quality

- Many metrics tend to reflect learning rather than status/quality

SBTM Metrics

- Metrics
  - Bugs found
  - Issues found
  - On-charter vs opportunity
  - Session vs non-session work
  - Number of sessions over time





Coverage

- Measuring coverage of manual testing:
  - Test cases
  - Test charters/sessions

Function Area	Charters	Risk
Area 1	12	1
Area 2	5	2
Area 3	7	4

Test Automation on Agile Projects

- Each iteration adds new functionality
- You want to run same *checks* over and over again (regression test)
- Hard if not impossible to do for humans
- Humans test

Traditional Testing Workflow

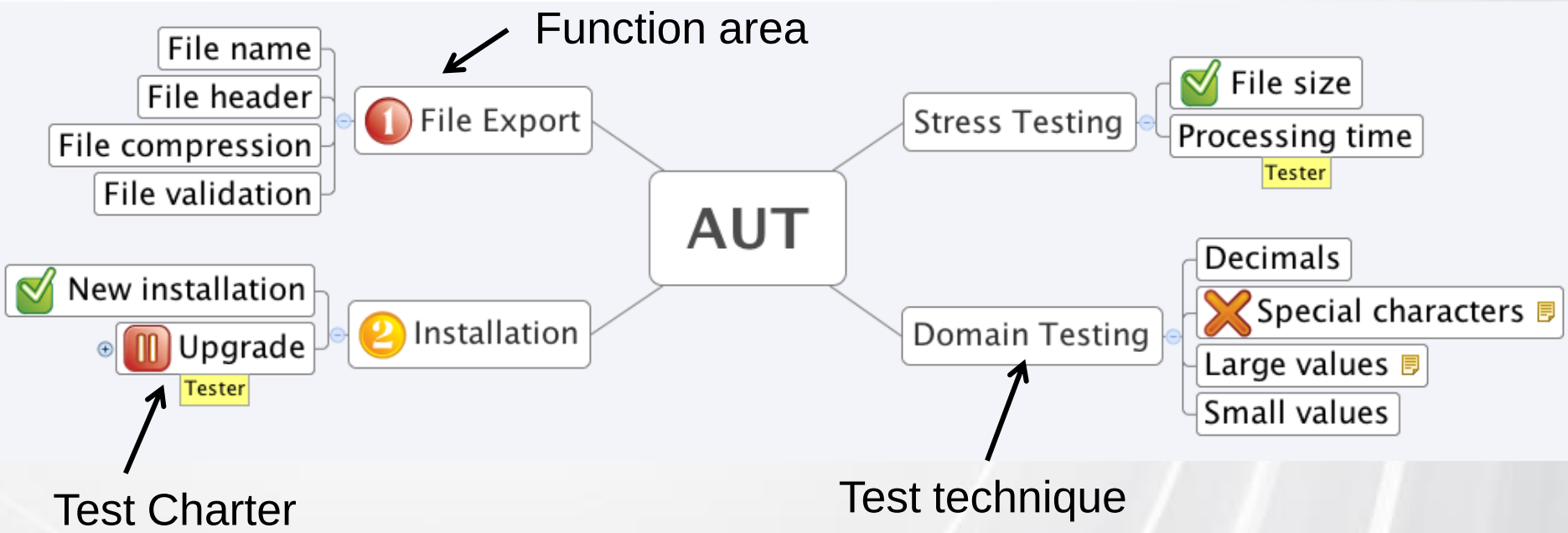
- Waterfall
  - Consecutive phases

- Agile
  - All phases repeated in every iteration

Agile/Exploratory Testing Workflow

- Planning
  - Test ideas in mind map
  - Function areas and/or test techniques
  - Group test ideas into sessions (optional)
  - Estimate number of charters needed (optional)

Agile/Exploratory Testing Workflow



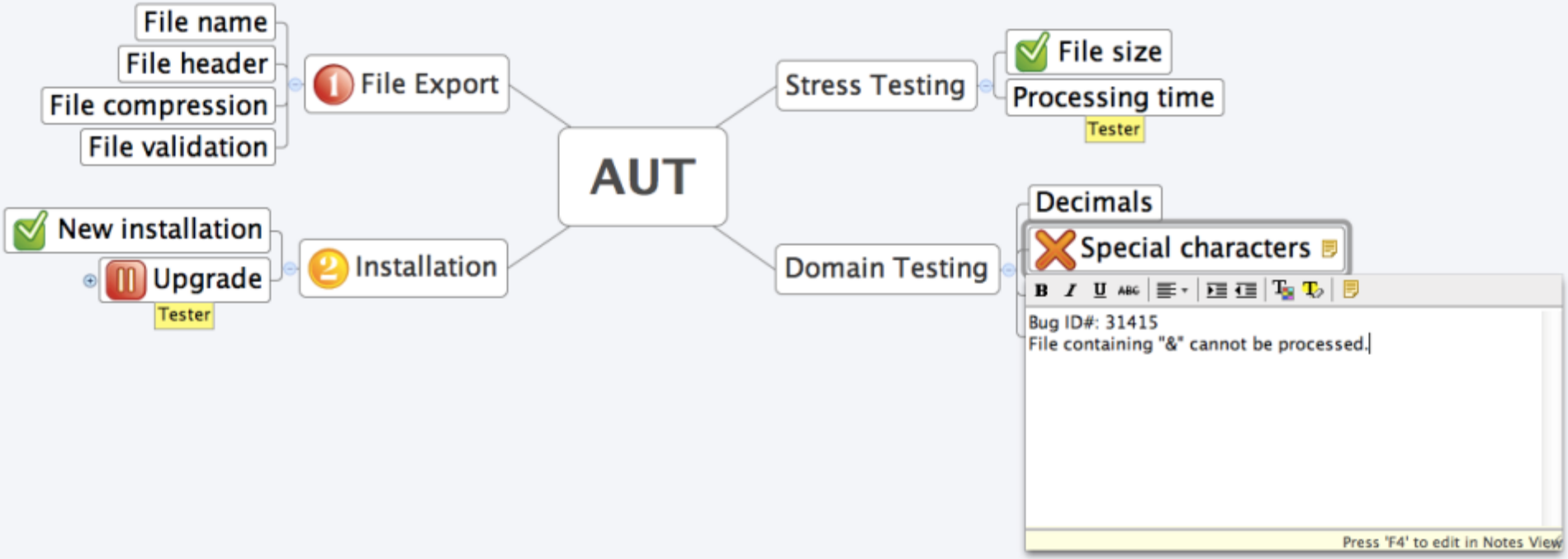
Agile/Exploratory Testing Workflow

Function Area	Charters	Priority
Installation	Upgrade	Medium
Installation	New installation	High
File export	File validation	Low

Agile/Exploratory Testing Workflow

- Design, Execution, Reporting
  - Update mind map
  - Session reports (optional)
  - Update test charters (optional)
  - Add test ideas
  - Create additional test charters (optional)

Agile/Exploratory Testing Workflow



Do We Fix All bugs?

- Do we always have to fix all bugs?
  - Which bugs can be left in the software?
  - Why would we want to leave bugs unfixed?
  - What are the *risks* of fixing bugs?

Do We Fix All Bugs?

- *Not fixing* a bug is associated with a cost:
  - Customer dissatisfaction and potentially lost revenue
  - Cost of releasing patches
  - Providing support

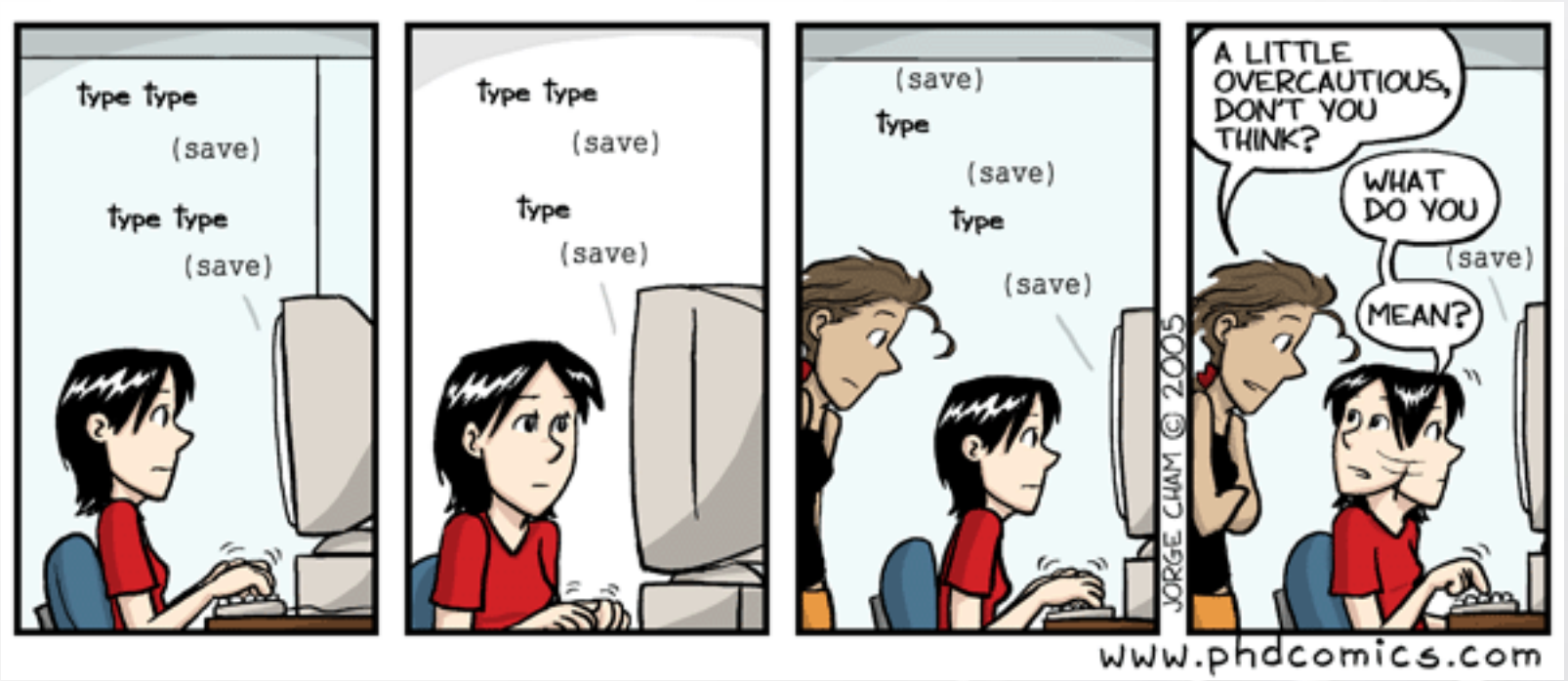
- *Fixing* a bug is associated with a cost:
  - Development time to make fix
  - Test time to retest bug
  - Test time to regression test
  - Slower time to market
  - Resources tied up

- *Postponing* a bug is associated with same costs as fixing a bug, as well as:
  - Additional administration time

http://memecrunch.com/meme/GIHE/fix-all-bugs

Can You Be Too Safe?

- Are we being over-cautious?
- Can we be too safe?
- How can we tell if we are?



Contact Information

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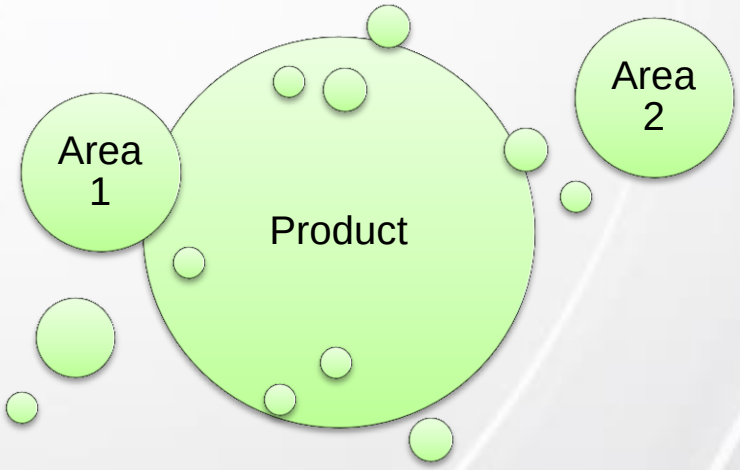
Links - Mindmapping

- XMind: Powerful tool with a lot of nice features, used in examples
  - http://www.xmind.net
- mindmeister: Collaborative tool.
  - http://www.mindmeister.com
- FreeMind: The simpler of the mind mapping tools, but still very useful.
  - http://freemind.sourceforge.net/wiki/index.php/Main_Page



Links – SBTM Tools

- Rapid Reporter: A note taking tool for exploratory testing sessions.
  - http://testing.gershon.info/reporter/
- Session Tester: A tool for recording and managing exploratory testing session.
  - http://session-tester.software.informer.com/
- SBTExecute: A tool that produces summary reports and calculates metrics from an Excel session report template.
  - http://www.addq.se/test-och-kvalitetssakring/produkter/sbtexecute (scroll down to bottom of page for English)