

MT19
4-Day

Test Strategy and Techniques

This intensive course provides an overview and hands-on experience of the critical test types performed during the lifetime of a project. Everything is testable. However, we pay attention to the ROI in terms of testing benefits and put this in the context of XP development. Modern “incremental” testing is presented, based on the JUnit /HttpUnit/NUnit testing philosophy, together with more conventional forms of test. Tools for managing and automating software test are presented, together with methods to make their use viable. The integration of metrics, testing, designing for testability and modern development techniques as presented here will enable attendees to deliver quality products with confidence.

Course Objectives

The course covers:

- Test Planning and the Master Test Plan
- Software lifecycles - RAD, XP, Staged, Waterfall and how testing is performed within them
- The Test Lifecycle
- Testing Types
- Prioritised Testing
- Bug Classification
- Requirements gathering and management
- Acceptance test design
- Inspections and reviews
- CMM
- Reusable tests
- Tests and Test Metrics
- Incremental testing with Junit, JTest, JContract and HttpUnit
- Creating a Testbed
- Design by Contract
- Web-based Testing
- Continuous Process Improvement

- Risk Based Testing
- Problem avoidance
- Network Tests and Performance simulation
- Use Cases Design
- Test Generation from Use Cases
- Static and Dynamic testing
- Integrated Regression testing
- Master Test Plan
- Knowing when Testing is Completed

Audience

- Project Managers
- Lead analyst / programmers
- Test Specialist Staff
- Staff needing a view on Test Planning
- Staff expecting to move test groups

Prerequisites

- Exposure to software development
- Familiarity with multi-person projects
- Some exposure to programming languages and development issues

Timetable

Register at 09:00 on day one for 09:30 start. 09:00 start on successive days. Finish at 17:00 each day.

Presentation Style

Lectures, demonstrations and group discussions.

Dates and Venues

Refer to *Course Schedules*.

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Introduction to Testing

- What it is
- What it is not
- Quality and Testing
- Influence of Lifecycle
- RAD
- Spiral
- Waterfall
- V-Model
- Agile Processes
- Extreme Programming
- CMM
- Refactoring

Test Strategies

- What if it is not Testable?
- Error definitions
- Fault classifications
- Traceability matrix
- Risk Assessment and Testing
- Test ROI
- Inspections
- Reviews
- Project Test Strategies
- Introduction to Test Design and Automation

Requirements Management and Test

- Good Requirements and how to get them
- Interviews, JAD, Storyboards, Use Cases
- Functional Requirements
- Non-functional Requirements
- Testing Requirements
- Review Techniques
- Checklists
- Designing Acceptance Tests
- Design Tables to aid specifications

UML and Testing

- UML Introduction
- UML and Design Process
- Use Cases and Requirements
- Scenarios with Test Director
- Test Case Derivation
- Lock-in to Acceptance Tests
- Design Tools: Rational Rose

Testing Types/Phases

- Functional
- System
- User acceptance
- Performance
- Usability
- Configuration
- Installation
- Security
- Structure
- Stress
- Recovery
- Volume
- Environment
- Unit
- GUI
- Daily Build and Smoke test
- Regression testing
- Instrumentation

Creating & Maintaining a Test Bed

- The Testing Lifecycle
- Re-usable Tests
- Test Harnesses
- Equipment
- JUnit
- JUnit examples
- FIT
- Test databases
- Configuration control
- Regression testing
- Data conversions

Code Testing

- Design of Code Tests
- Decision tables in Test Design
- Black Box testing
- White Box testing
- Equivalence Testing
- Documenting Code Tests
- OO
- Testing and Design by Contract
- DbC and Java
- Introduction to Automatic Test Tools

Testing in Distributed Environments

- Client Side Tests
- Server-side Tests
- Performance Issues
- Network Simulation

Test Automation

- Product Review
- Tool Categories
- Comparison of Tools
- Designing Automated Tests
- Issues of Test Automation
- Planning Test Automation
- Configuration Management in Test Automation

Web Testing

- Issues of Web Testing
- Web Testing Framework (WATF)
- HttpUnit
- Examples of Using HttpUnit
- HttpUnit and JUnit
- Jakarta Cactus
- References

Test Metrics

- Test Metrics
- Metric Gathering
- Useful Metric Analysis
- The Metrics Database
- ROI and Ease of Use
- Drowning in Paper

The Master Test Plan

- Contents and use
- Identification & prioritization
- Developing an MTP
- Reporting Results

Test Completion

- When is enough?
- Quality vs. Testing
- Analysis
- Lessons Learned
- Feedback
- Continuous Improvement

Review

- Testing and Lifecycles
- Introducing a Test Culture
- Further Information

References

- Information on where to research on Testing

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