Exploratory Testing –
Risk-Based Agile Testing

2 days workshop with hands-on exercises, by Ståle Amland.

What is Exploratory Testing?

"Exploratory testing is an interactive process of concurrent product exploration, test design and test execution." (James Bach, Satisfice Inc., james@satisfice.com)

"Exploratory testing involves simultaneously learning, planning, running tests, and reporting / troubleshooting results." (Dr. Cem Kaner, Floriday Institute of Technology, kaner@kaner.com)

- Have you ever been on a project that did not have enough time for test planning, scripting and execution?
- Have you ever been on a project that did not have enough resources for testing?
- Have you ever been in a project without requirements or specifications?

So have we!

Exploratory testing is about making the best use of available resources, skills and knowledge and finding as many critical errors as possible within available timeframe. Exploratory testing is based on the tester's skills, knowledge about testing and well known testing techniques.

Exploratory testing works very well together with scripted testing. As you as a tester learn about the application and the application domain during the project, new "exploratory tests" should continuously be added to your existing documented (scripted) tests. However, when there is no time and no resources for scripted testing, Exploratory testing as a stand-alone approach can be a powerful and effective way to test and to mange quality before the application is released to the users.

No matter how you want to use exploratory testing, basic testing knowledge and skills (system analysis, questioning skills and testing techniques), are important for you to become a good exploratory tester – this is what we will focus on in the workshop! Those skills will make you even more valuable to your company and to your projects!

Exploratory Testing is to Scripted Testing what eXtreme Programming is to formally requirement and specification based system development.

Workshop Objectives:

The objectives of this course is to give the students an overview of

- What is Exploratory testing? (As opposed to scripted testing and ad-hoc testing)
- When to use it? How to do it effectively?
- How to manage it?

Who should attend:

Everybody involved in software quality and planning of or execution of software testing:

- Quality managers,
- Product managers
- Project managers
- Test managers
- Test analysts
- Testers

Basic knowledge or experience with software testing is expected.

Topics in the workshop:

- Introduction to testing, What is Exploratory Testing, Risk and Risk-Based Testing.
- Summary Testing Fundamentals.
- How to do Exploratory testing: Planning, Execution and Documentation
- Exploratory Testing Styles – Skills and Techniques
- Managing Exploratory Testing

What will you learn:

After the training the students should be able to:

1. Identify required knowledge to become an skilled and effective exploratory tester
2. When to apply and when not to apply exploratory testing
3. How to pick correct testing techniques and styles to do effective exploratory testing
4. How to plan and document exploratory testing.
5. How to manage an exploratory test team

DAY 1:

Description of Session

1. Introduction.

- Overview different testing approaches
- Basic skills as a tester and a testers attitude – how to think like a tester? Exploratory Testing Context and Heuristics.
- What is Exploratory Testing?
- Where to use it (type of projects)?
- When to use it (test phase)?
- Introduction to Risk and Risk-Based Testing

2. Summary Test Management and Testing Techniques:

2.1. Testing Fundamentals

- Black Box, White Box/ Glass Box testing
- Test Strategy and Planning
- Test Documentation

2.2 Test Execution and Techniques

- The Problem of testing
- Test Models, Coverage and Evaluation
- Overview Test Techniques
- Boundaries and Equivalence Classes
- Bug Advocacy / Bug Reporting
- Test Automation

2.3 Heuristic Risk-based testing

- The process of heuristic risk analysis – how to use risk in your software to find bugs?
- Use of Quality Criteria, Generic Risk Lists and Risk Catalogues

2.4 Test Management and Metrics

- Progress Tracking and Metrics

3. How to do Exploratory Testing?

3.1 Planning, Tasks and Documentation

- How much planning is done with ET? Sources of planning and how to identify units of work (sessions)
- How do you execute the tests with ET to make them reliable and traceable (high accountability)? Using Test Models to identify Test Coverage
- What kind of documentation is produced with ET? The use of testing Charts
- One sample Exploratory Test process

3.2 Exploratory Testing in Pairs

- How do efficient pairs work together?
- Benefits and Risks of Pair testing

3.3 Exploratory Testing with eXtreme Programming

- eXtreme Programming (XP) is an agile development methodology based on the “test first” principle. The majority of testing is automated tests scripted before the code is written. How to use ET with XP? Can ET be useful with XP?

Introduction to sample applications used in exercises.

Description of Session
Exercise 1a, b and c (Pairs): Prepare a test strategy / mission and produce a charter for testing selected area of the different sample applications to be tested
Exercise 2: Based on previously produced charters and available information about the sample applications; Select one (or more) testing technique(s) and test the application. Document technique used and errors found.
End of Day 1.

DAY 2:

Description of Session
Summary of Day 1
4. Exploratory Testing Styles - **Skills and Techniques** Different styles of exploratory testing will be discussed, i.e. what type of information is the testing based on and what strategy to use to explore the system under test? What kind of skills is required and how to the different styles ask questions about the system under test? The following information sources will be discussed: • Hunches • Models • Examples • Invariances • Interference • Error Handling • Troubleshooting • Group knowledge • Specifications At the end of this section, the Exploratory Testing Body of Knowledge (BOK) will be discussed: what kind of skills and knowledge is required to do Exploratory Testing?
Exercise 3: Select a different area of the sample application (or continue on another area / another sample application if you prefer). Create a new chart and select a (different) testing style and continue to test.
Exercise 4: Continue testing based on Exercise 3 (select a new area / sample application if you prefer), and new knowledge about different testing styles.

Description of Session

5. Exploratory Test Management –

5.1 Exploratory Test Team Management

- How to build and lead an effective test team
- Different types of testers: the pragmatist, the pioneer, the analyst and the facilitator

5.2 Risk-Based Test Management

- What is Risk-Based Testing
- Why Risk-Based Testing?
- Project / Process Risks vs. Product / Business Risks
- Prioritize testing in critical areas based on business risk
- How to identify the probability and the consequences of an error

5.3 Session Based Test Management

- The benefits of focusing the test effort into *session*s with duration of about 60 minutes.
- How to use Charts and Debriefing as part of a Session to manage the test coverage and progress

Group Discussion / Exercise 5

Based on available information, discuss how you would manage and track a test team working on testing the AUT.

End of day 2.