Fundamental Test Process

September 2014

Agenda

- *What is testing*

- *Why is testing necessary*

- *Main testing principles*

- *Key phases of Fundamental Test Process according to ISTQB standard*

What is testing
Why testing is necessary
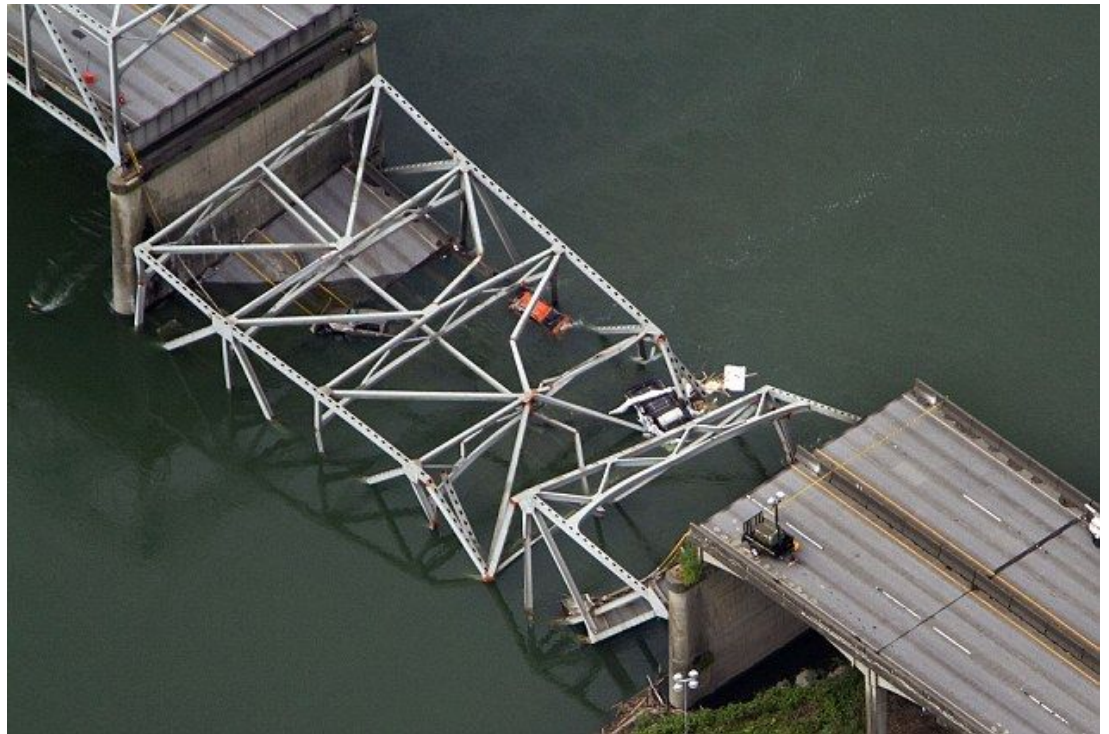
What is Testing?

When we are testing something we are checking whether it is OK

Why testing is necessary

People make mistakes

Why testing is necessary

We should assume our work contains mistakes

Why testing is necessary

Software is part of our life

Why testing is necessary

Some of the problems might be trivial, but others can be costly and damaging – with loss of money, time or business reputation – and even may result in injury or death
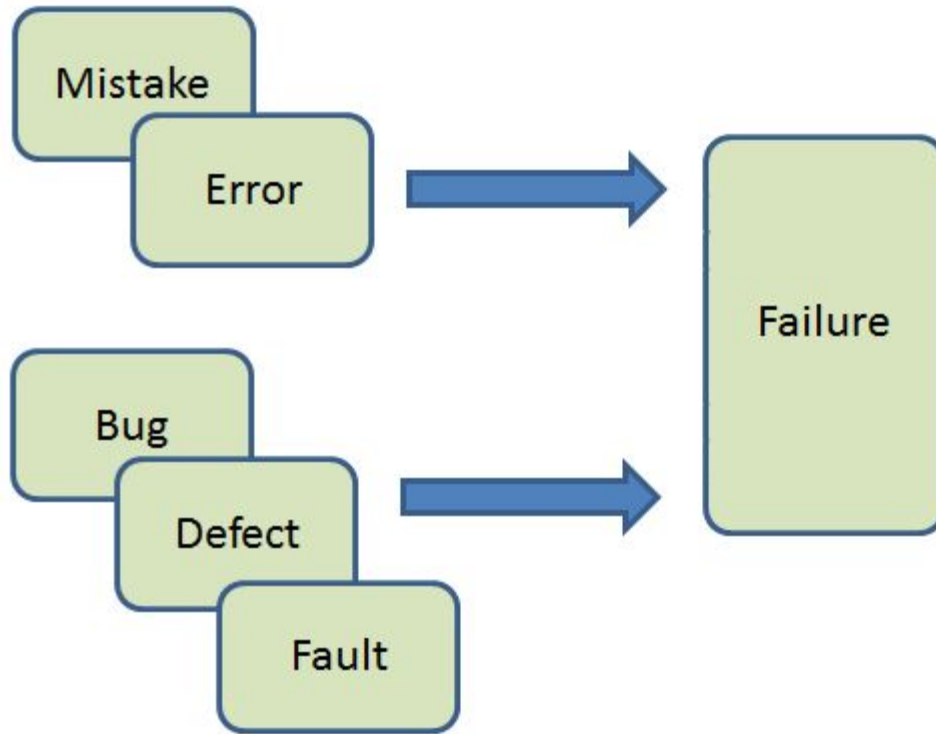
Why testing is necessary

Not all software systems carry the same level of risk and not all problems have the same impact when they occur

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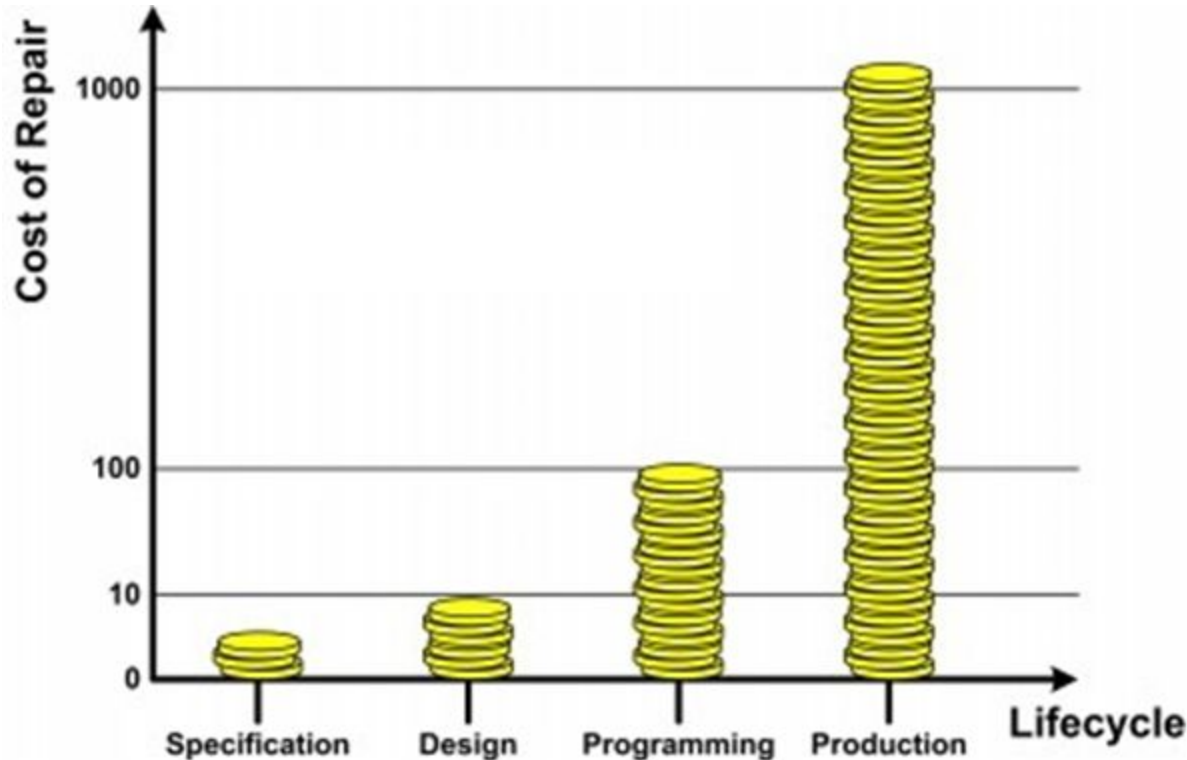
Causes of software defects

Human action that produces incorrect result

Deviation from expected result

A flaw in a component or system that can cause the component or system to fail to perform its required function

Cost of defect

The cost of finding and fixing defects rises considerably across the life cycle

Testing and Quality

Testing helps us to measure the quality of software in terms of:
- the number of defects found,
- the tests run,
- and the system covered by the tests.

Software Quality – ISTQB definition

Quality: the degree to which a system, component, or process meets:
- specified requirements
- customer or user needs or expectations

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Software Testing – ISTQB definition

Testing is the process consisting of:
- all lifecycle activities,
- both static and dynamic,
- concerned with planning, preparation and evaluation of software products and related work products

Description of testing as a process

- to determine that software products satisfies specified requirements,
- to demonstrate that they are fit for purpose,
- and to detect defects.

Objectives of the test process

Quality assurance– ISTQB definition

Quality assurance: Part of quality management focused on providing confidence that quality requirements will be fulfilled

Quality Assurance

Quality Management

Quality Control

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Quality Assurance/ Quality Control

	QA	QC
What it is	Ensure quality in software **development process**	Ensure quality in software **products**
Aim	Improve development and test processes	Identify failures/ defects
Approach	Proactive	Reactive
Responsibility	Project Team	Testing Team
Lifetime	**Before** software development process	**Post** software development
Activities	Process Definition and Implementation Audits Trainings	Reviews Testing

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Testing Principles

Principle 1

Testing shows the presence of bugs
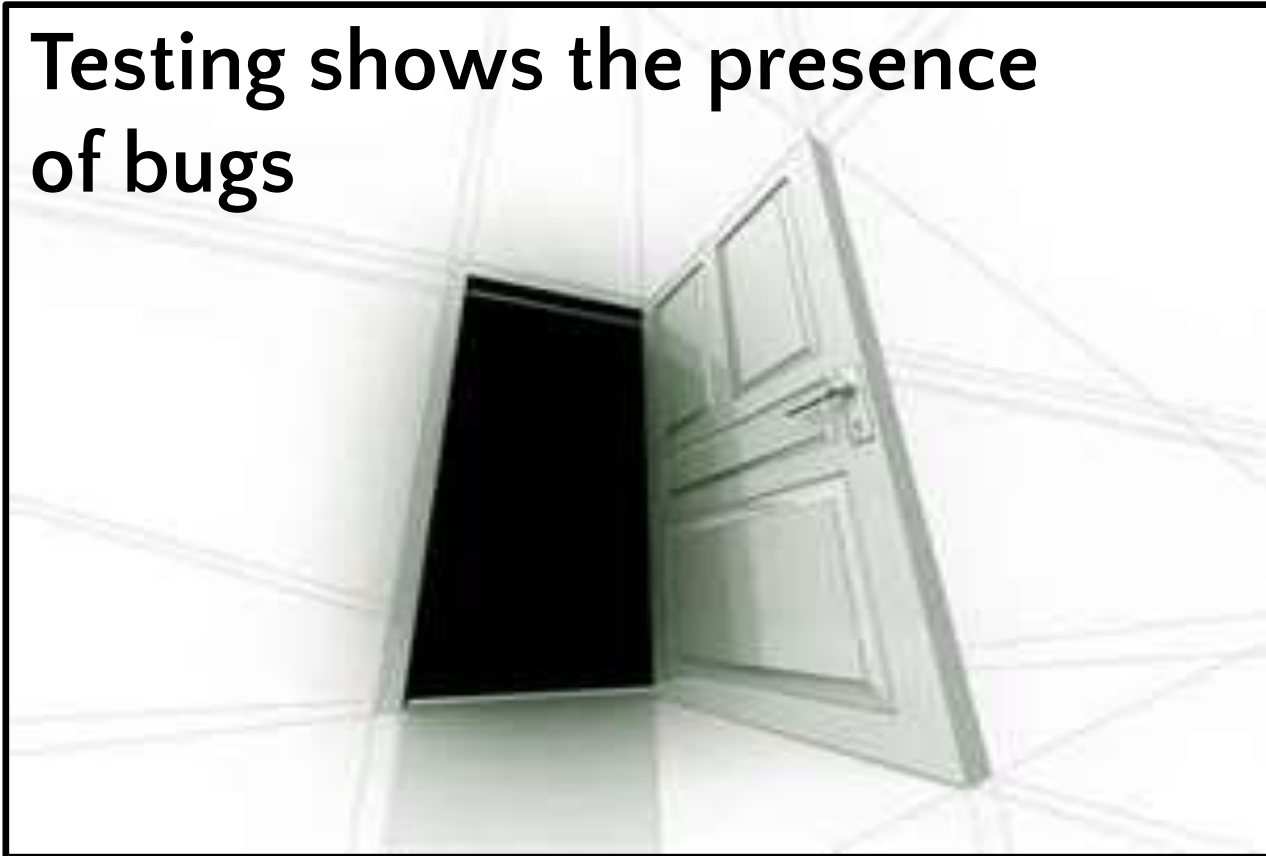
If no defects are found, it is not a proof of correctness

Principle 2

Exhaustive testing is impossible

Instead of exhaustive testing, use risks and priorities to focus testing efforts

Principle 3

Early testing

Find defects early on when they are cheap to find and fix
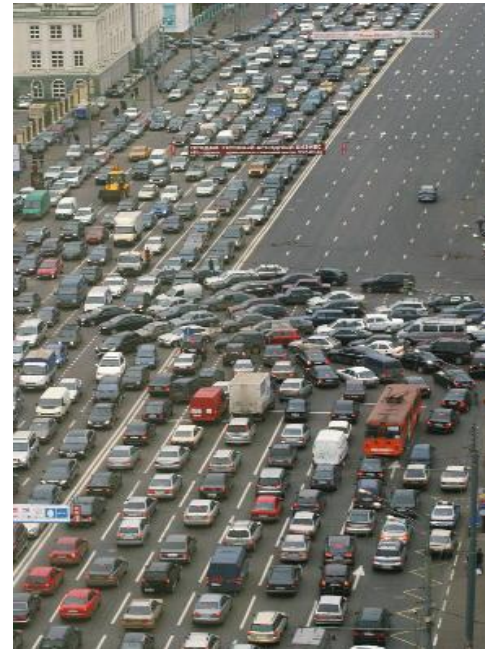
Principle 4

Defect clustering

Review defects and failures in order to improve processes

Principle 5

Test cases need to be regularly revised, new and different tests need to be written

Principle 6

Testing is context dependent

The higher the possibility of losses, the more we need to invest in testing
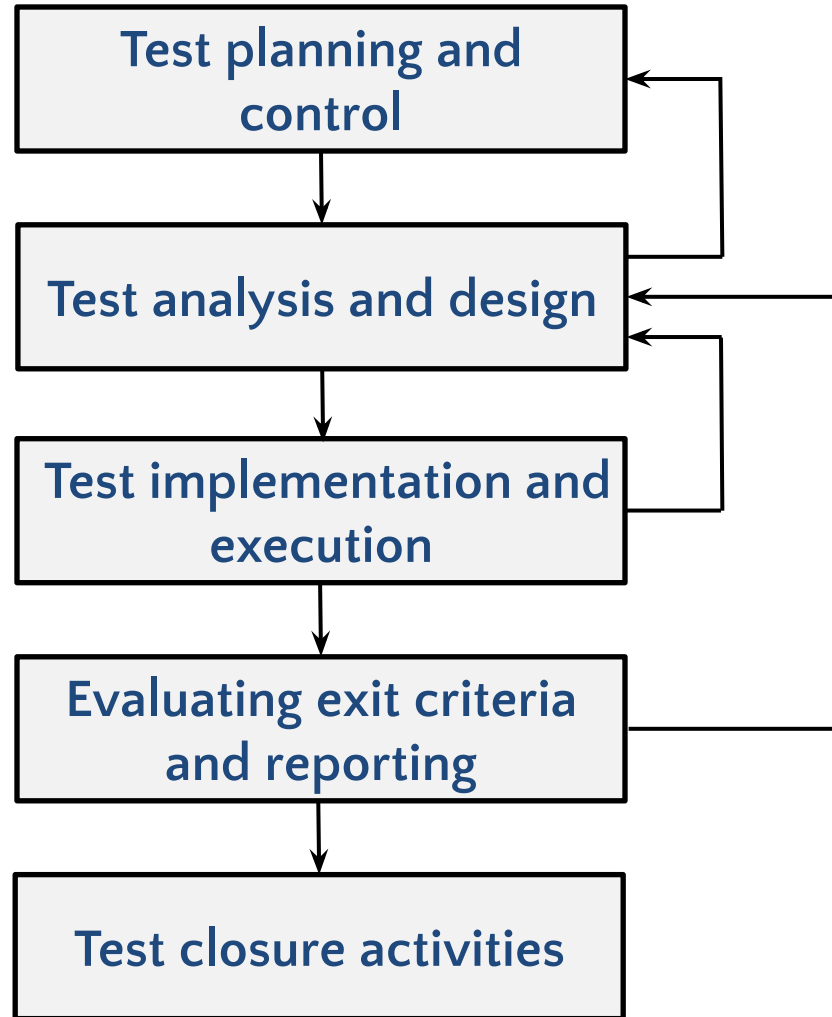
Principle 7

The fact that no defects are outstanding is not a good reason to ship the software

Fundamental Test Process

Fundamental Test Process

Fundamental Test Process

Planning
- Determine scope
- Determine risks
- Identify objectives
- Select test approach
- Use test policy/strategy
- Required resources
- Schedule tasks
- Exit criteria

Control
- Measure/analyse results
- Monitor/document progress
- Provide information on testing
- Initiate corrective actions
- Make decisions

Analysis
- Review test basis
- Identify test conditions
- Evaluate testability requirements/system

Design
- Design tests
- Design test environment

Implementation
- Develop/prioritize test cases
- Create test suits
- Implement/verify environment

Execution
- Execute test suits/cases
- Log the outcome
- Compare actual/expected results
- Report discrepancis
- Confirmation/re-testing

Evaluating exit criteria
- Check test logs against exit criteria
- Assess if more test are needed

Reporting
- Write a test summary report for stakeholders

Test closure activities
- Check which planned deliverables we actually delivered
- Finalize and archive testware
- Hand over testware to the maintenance organization
- Evaluate how the testing went and analyze lessons learned for future releases and projects.

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Thank you