Verification - Test Design

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Agenda

- Overview
- Static Test Design techniques
- Dynamic Test Design Techniques

Overview

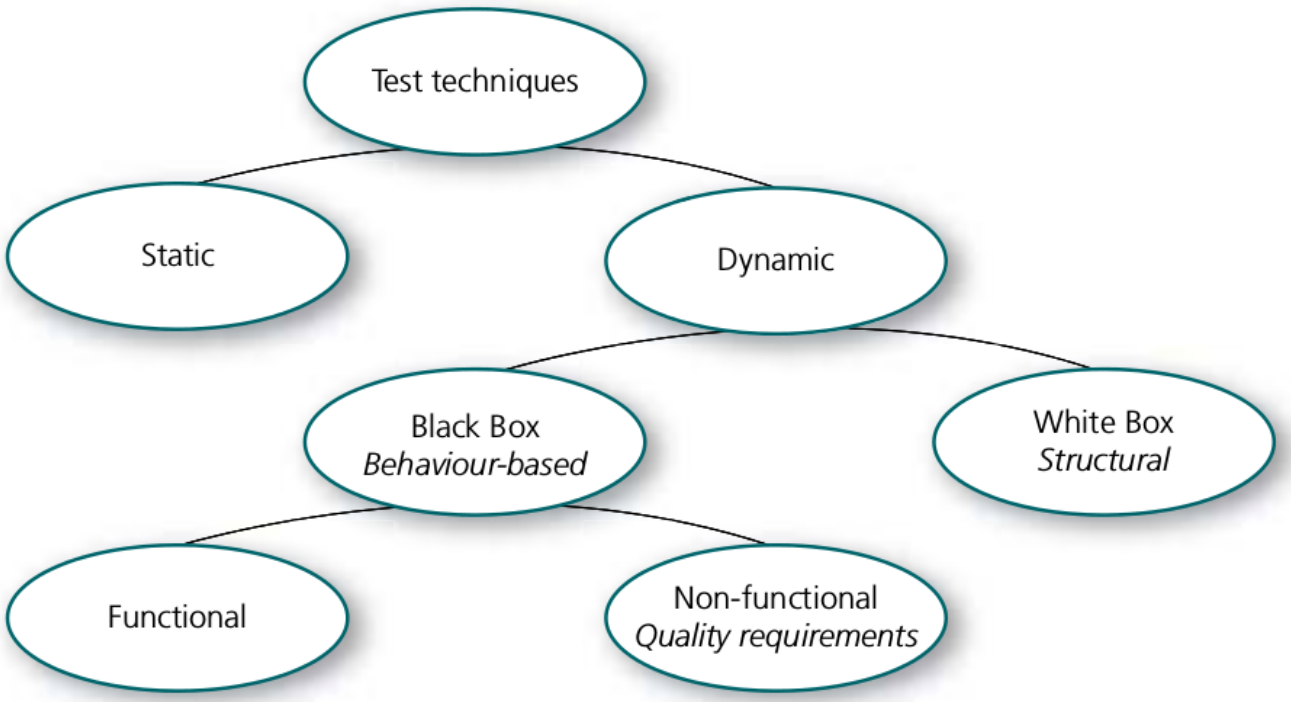

Figure : overview of Testing

Static techniques

- No code is executed
- Documents - text, model or code analysed by hand
- Manual inspection

Inspection

- Developed by Michael E. Fagan at IBM.
- It is a formal approach.
- limited amount of material is examined.
- participants to be trained, check-lists to be compiled, and the review meeting itself to be chaired by an experienced moderator

Walkthrough and Technical review

Walkthrough

- simpler and less formal technique.
- The purpose is more one ofcreating a common picture, than of identifying defects

Technical review

- Concentrate on technical parts of the project like architecture and program design.
- Technical experts and the architects take part together with other developers.
- The purpose is both to evaluate choices of solution, and compliance with standards and other documentation

Modelling

- Alternate approach to reviews
- system behaviour will be modelled
- Inconsistent, wrong requirements about the system are detected.

Dynamic Test Design Techniques

- Testing code by execution.
- behaviour based - black-box testing
- structural based - white-box testing
- Regardless of behaviour-based or structural, there are a great many different techniques which can be used in order to create good test cases

Data

- Test data can be efficently spit-up into equivalence partitions.
- The boundary of those partitions are analysed using boundary value analaysis

Flow

- Business process and program code both will have flows
- program code - control flow and data flow.
- Flow graph will be drawn and using that flow test design is done.
- How good the test coverage needs to be, depends on risk-level and how complicated the flow is.

Logic: Sets of Rules, Formulae.

- complex logics and mathematical Formulae in the code are tested with the help of decision tables.
- Decision tree are used to analyze the completness of the decision tables.

References I

[1] Torbjrn Ryber *"ESSENTIAL SOFTWARE TEST DESIGN "*, Chapter 4 Chapter 5

Thank you