Measurement of Software Quality

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Agenda

- Recap of Software quality views
- Measurement on User's View
- Measurement on Manufacture's View
- Why to Measure Defect count?
- Quality and Cost
- SQALE(Software Quality Assessment based on Lifecycle Expectation) Model

Measurement of User's View

Key terms to Measure:

1. Functionality
2. Reliability
3. Usability

- How many Functionality of a product delivers ? Is a metric to measure.
- It is measured through the following mannner: Number of test cases passed by the functionalities / Total number of test cases designed to verify the functionalities

Measurement on Manufacture's View

- Defect count (During Development + During Operation)
- Rework cost

Why to measure defects

- Defect density is useful to quantify the various phases involved in the software development.
- Let us assume that a large fraction of the defects are introduced in the requirements gathering phase, and those are discovered during system testing. Then, we can conclude thatrequirement analysis was not adequately performed.

- Defect density is useful measure to compare defects across modules.
- if a large number of defects are found in a communication module in a distributed application, more resource could be allocated to train developers in the details of the communication system.

- The ratio of the number of defects found during the operation of the end product to the total number of defects is a measure of the effectiveness of the entire gamut of test activities.

Cost and Quality

- Is Quality product cost more production?
- Is Quality directly propositional to Sales?
- Is Quality is related to maintanence?
- Is Quality is related to process standarad?

SQALE - Quality Framework or Model

Principles

- quality of the source code is a non-functional requirement
- Formalising requirements in relation to the quality of the source code
- Assessing the quality of a source code
- Cost remediation to meet the Quality
- assesses the importance of a non-conformity quality
- SQALE Methods Quality Model is orthogonal
- SQALE Method uses addition for aggregating the remediation costs, the non-remediation costs and for calculating its indicators

SQALE

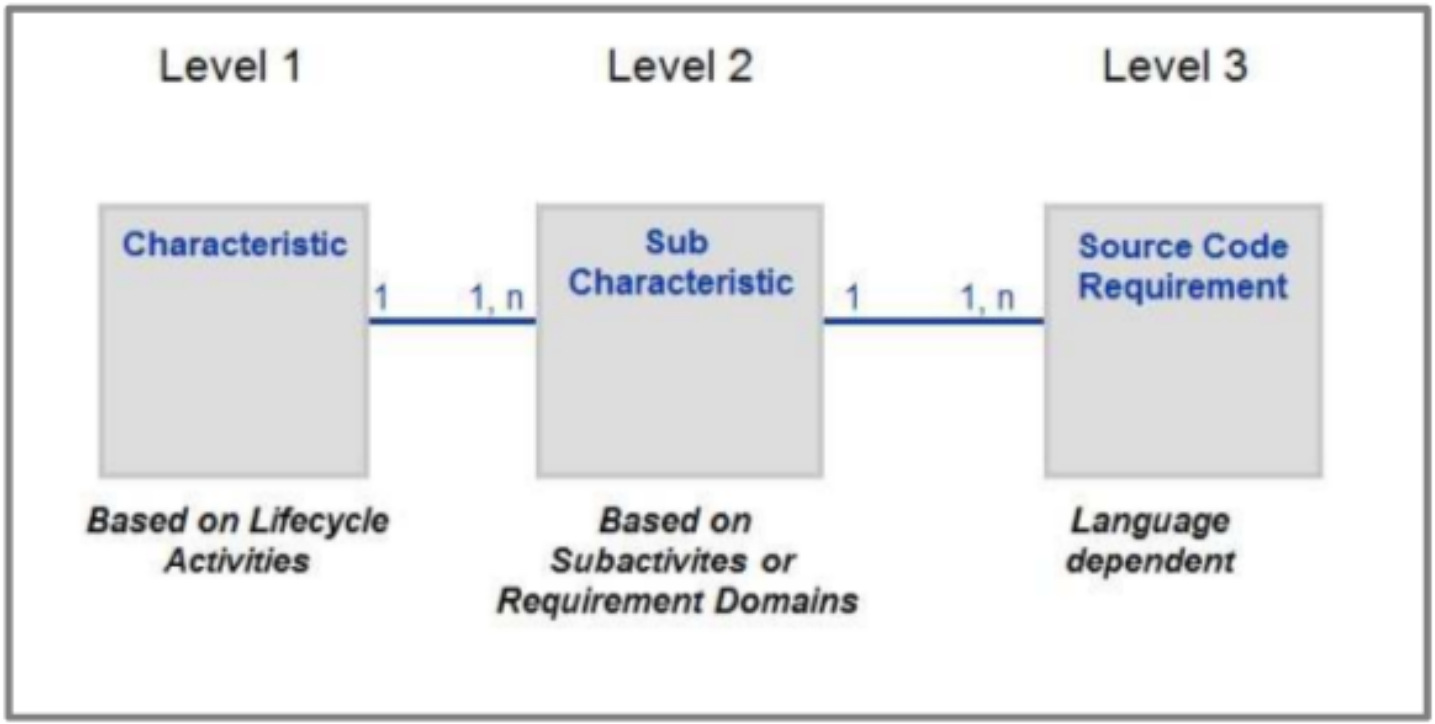

Figure : Classification

Figure : First Level

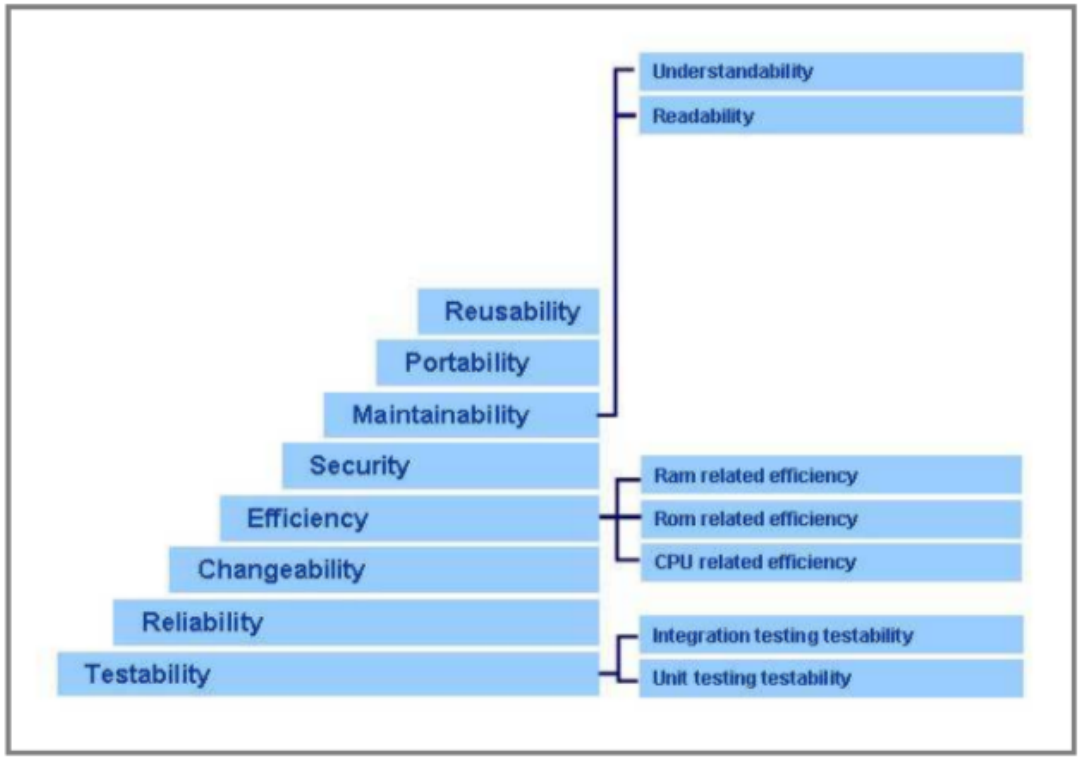

Figure : Second Level

References I

[1] K.Naik, *"Software Testing and Quality Assurance Theory and Practice"*, Chapter 17

Thank you