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Universiti Malaysia PAHANG
Engineering • Technology • Creativity

BCS 3263
SOFTWARE QUALITY ASSURANCE

Chapter Three
Software Product Quality

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Chapter Description

- Aims
  - How to achieve quality?
- Expected Outcomes
  - Inquire a knowledge of main software quality assurance activities, their tasks, work products and their models
- Other related Information
  - Introduces students to the concept of Software Quality Assurance (SQA) including principles, component, process, models, standards and certification of SQA.
- References
  - Mastering software quality assurance : best practices, tools and techniques for software developers / Murali Chemuturi Chemuturi, Murali, J. Ross Pub. QA76.76.Q35 C44 2011

Functionality Standpoint (1/2)

Product Functionality

Core Functionality

Ancillary Functionality

Designed to Fulfill

Safety & security

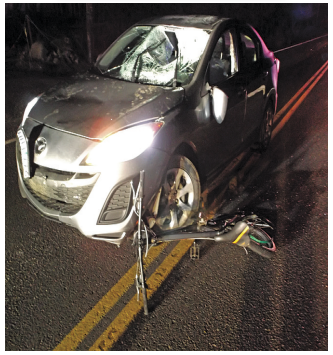
Usability

Fault tolerance

Feel-good

Esteem

One-upmanship



Functionality Standpoint (2/2)

Functionality	How to Achieve	How to ensure quality
Core Functionality	Software specifications and software design, standards and guidelines	Functional testing & reviews
Ancillary Functionality		
Safety & security	Software specifications and software design, standards and guidelines	Security testing, reviews
Usability	Usability guidelines, design guidelines, and software architecture guidelines	Reviews and usability testing
Fault tolerance	Design standards, user interface design guidelines, and data validations	Negative testing
Feel-good	Aesthetics guidelines	Managerial review
Esteem	User interface design guidelines and brainstorming	Positive testing
One-upmanship	Managerial guidance	Normal testing

White Box Standpoint

Features	How to achieve the feature
Maintainability	Coding guidelines
Portability	Standard constructs and coding guidelines
Flexibility	Coding guidelines and avoid hard coding and parameterizing
Efficiency	Efficiency guidelines
Modularity	Software architecture guidelines and software design guidelines
Reusability	Reusability coding guidelines
Readability	Formatting guidelines
Testability	Software design guidelines

Presence of Defects in the Product

Defects	How to uncover them
➢ Critical defects	➢ Software reviews, negative testing, and stress testing
➢ Major defects	➢ Threaten inside a product, and it is very difficult to uncover and eliminate all of them.
➢ Minor defects	➢ Using a careful system of software verification and checklists during reviews.

Conclusion of The Chapter

- Conclusion #1
  - Functionality Standpoint
- Conclusion #2
  - White Box (Glass Box) Standpoint
- Conclusion #3
  - Presence of Defects in the Product
- Conclusion #4
  - Program Quality & Measurement of Product Quality

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Thank you ☺