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Universiti Malaysia PAHANG
Engineering • Technology • Creativity

BCS 3263
SOFTWARE QUALITY ASSURANCE

Chapter Seven
Software Product Quality: Reliability

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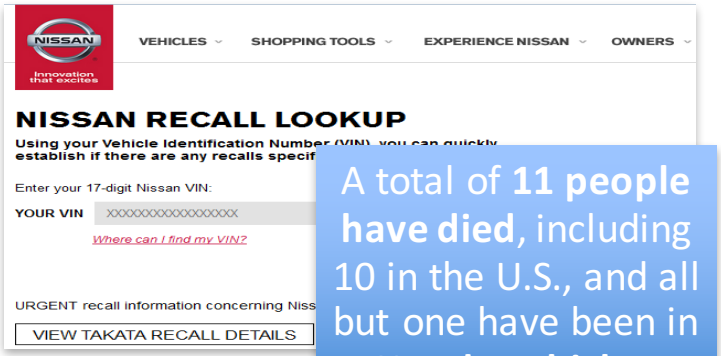
Chapter Description

- Aims
  - Reliability of software products
- Expected Outcomes
  - Develop a Quality Assurance plan for a software project using international standards
- 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

Software Disasters



A total of **11 people have died**, including 10 in the U.S., and all but one have been in **Honda vehicles**.

Small fraction for side airbags, that can **rupture** upon deployment and cause the inflator's metal casing to cut **into a person's face.**

Takata Recall Another 35 Million Airbag Inflators & More than 24 million cars from 24 brands under recall

Software Reliability

The probability that the software will function without failure and defects, for a specified period in a specified environment.

Software Reliability

The software has no moving parts, that causes the product to malfunction through wear and tear. Therefore, the term reliability should not be applicable to software. Argue this statement?

Software Failures

Caused by defects inherent in the software.
Different types of software faults:

- Software Design Faults
- Coding or Construction Faults
- Quality Assurance Problems (Not having a QA department)
- Data Failures .. Etc ..

Suggest **three methods** to minimize the **Software Failures** ?

Prediction of Software Reliability

There are many Software Quality Metrics, such as:

Product metrics: Size, Complexity and Test coverage.

Project management: Quality M, Configuration M and Team morale.

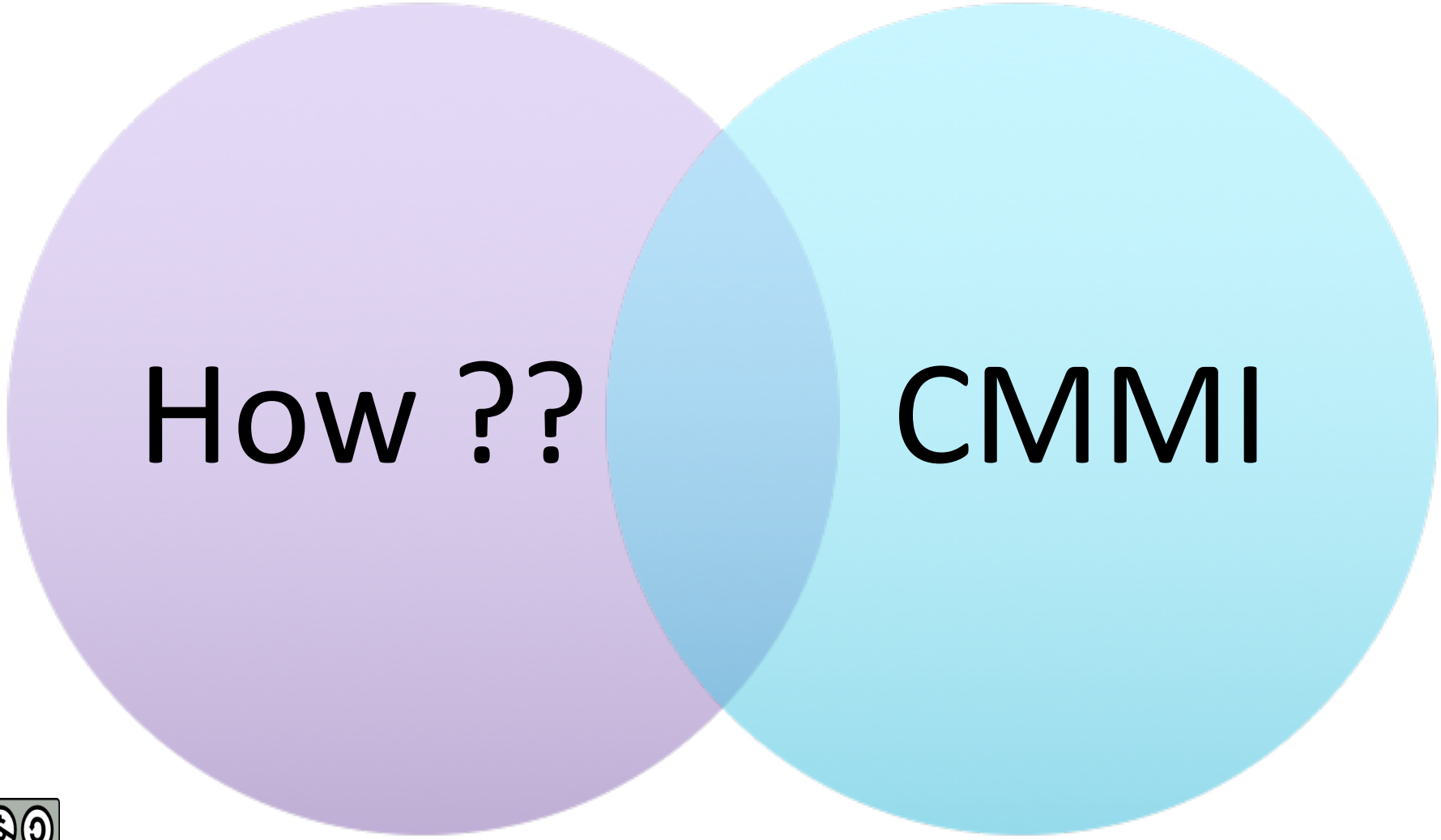
Software development process metrics: Standards and guidelines , MTF.

Defect density: Number of confirmed defects detected.

Defect removal effectiveness: Ability to remove defects in the code.

Read more in Chapter 3

Software Reliability Improvement



Conclusion of The Chapter

- Conclusion #1
  - Software Disasters
- Conclusion #2
  - Software Reliability
- Conclusion #3
  - Prediction of Software Reliability
- Conclusion #4
  - Software Reliability Improvement

Assignment : THREE

CHAPTERS: (7: Software Produce Quality: Reliability) and (8: Process Quality)

#Prepare class presentation for discussion