



# **Presentation & brief discussion of information retrieval**

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# Goals of this talk

- ⇒ Short overview about experimental setup as basis for discussion
- ⇒ Discussion of related questions

# Distinguish

## ⇒ Practical project contributions:

- Contiguous monitoring of quality using model metrics
- Allowing trend analysis of quality
- Goal directed quality improvements

## ⇒ Scientific project contributions:

- Validation of a Quality Model implemented in the Quality Monitor (model metrics) using accepted quality indicators (validation metrics)
- Scientific experiment

# Experimental setup

- ➡ Measuring software quality in two different ways and finding correlation
  - **Model metrics:** derived from source/binary code using Software Metrics and a Software Quality Model (QM – VizzAnalyzer)
  - **Validation metrics:** derived from bug, test, cost information
- ➡ Following up on measurements over time and looking back into project history

# Correlation

⇒ of High Software Quality indicators in:

- **Model Metrics**, e.g. good structure, documentation, etc.
- **Validation Metrics**, e.g. few bugs, many passed test cases, few failed test cases and low costs etc.

⇒ of Low Software Quality indicators in:

- **Model Metrics**, e.g. bad structure, documentation, etc.
- **Validation Metrics**, e.g. many bugs, few passed test cases, many failed test cases and high costs etc.

# Ideal Scenario

- ⇒ Partners record (have recorded) validation metrics
  - bug information (bug tracker)
  - test information (unit and integration test results)
  - cost information (time for a package, how many developers etc.)
- ⇒ Correlated to code (may be in a version control system)

# Questions - discussion

- ⇒ What kind of information is available?
  - Bugs
  - Test data
  - Development costs
- ⇒ What format has this information?
- ⇒ How can the information be accessed?
- ⇒ Can we restore/derive this information from others?
- ⇒ What relevance does it have for the partners?

# Challenge

- ⇒ Model metrics measure the quality for program elements having equivalence classes often in logical components (per class, package, sub-system, system)
- ⇒ Validation metrics measure bugs/tests having possibly other equivalence classes (one test case involves many classes and sub-systems)
- ⇒ Creating a relationship between the two