

SMA: Software Modeling and Analysis

Practical Session
Week 07

Assignment 07

Discussion

You have to attend the lecture to reveal such slides.*



**Disclaimer:*

The content that has been shown on this slide is irrelevant for the exam.

A07 - Exercise 01 | General knowledge

- Does correlation imply causality?
 - No.
 - Yes.
- How was the quality of Melvin Conway's initial proposal about his discovery regarding design and structure?
 - He had no weaknesses in his paper.
 - He had too many spelling mistakes in his submission.
 - He lacked scientific evidence for his hypothesis.
 - The paper was not yet finished when the deadline approached.
- Which statements regarding sociotechnical aspects and systems are correct?
 - A regular computer mouse is a sociotechnical system
 - A sociotechnical aspect does not necessarily refer to materialized technology
 - A sociotechnical system considers exclusively sociotechnical aspects
 - Facebook is a sociotechnical system
 - The internet is a sociotechnical system at large

A07 - Exercise 02 | Social-technical aspects

- **Paper 01:** What are according to the authors significant elements that affect the resolution time of modification requests?
 - Age
 - Cultural background
 - Domain familiarity
 - General programming experience
 - Size of the modification
- **Paper 01:** How does time affect the congruence measures across releases?
 - Geographical congruence remains stable without any significant changes
 - Internet relay chat congruence increases significantly over time
 - Modification request congruence decreases over time
 - Structural congruence decays over time

A07 - Exercise 02 | Social-technical aspects

- **Paper 02:** To what refers the term “proportion of ownership”?
 - Ratio of bugs caused in commits that the contributor has made relative to the total number of bugs caused for that component.
 - Ratio of lines of code of commits that the contributor has made relative to the total number of lines of code in commits for that component.
 - Ratio of minutes spent on coding for a commit that the contributor has made relative to the total number of minutes that have been spent on developing that component.
 - Ratio of number of commits that the contributor has made relative to the total number of commits for that component.
- **Paper 02:** Which statements are correct?
 - Higher levels of ownership for the top contributor to a component results in fewer failures when controlling for the same metrics, but the effect is smaller than the number of minor contributors.
 - Measures of ownership and standard code measures show a much larger relationship to post-release failures in Windows 7.
 - Ownership has a stronger relationship with pre-release failures than post-release failures.
 - The number of minor contributors has a weak negative relationship with both pre- and post-release failures even when controlling for metrics such as size, churn, and complexity.

A07 - Exercise 02 | Social-technical aspects

- **Paper 02:** What have been the recommendations to avoid common pitfalls?
 - Changes from externals should be reviewed first, before the changes get committed to the main work branch
 - Changes made by minor contributors should be reviewed with more scrutiny
 - Components with low ownership should be given priority by QA resources
 - Pair programming should be enforced for programming tasks involving complex problems
 - Potential minor contributors should communicate desired changes to developers experienced with the respective binary
- **Paper 03:** Which of these open-source project datasets have been used for evaluation?
 - Ant
 - Eclipse
 - Gradle
 - LibreOffice
 - Lua
 - Oracle Database
 - Ruby
 - Smalltalk

A07 - Exercise 02 | Social-technical aspects

- **Paper 03:** Which of these hypotheses has *not* been qualitatively and quantitatively confirmed?
 - Pairs of developers within the same subcommunity will have more files in common than pairs of developers from different subcommunities.
 - Social networks constructed from product-related discussions will be more modular than those relating to non-product related discussions or all discussions.
 - Subcommunities of participants will form in the email social networks of large open source projects and the levels of modularity will be statistically significant.
 - The average directory distance between files committed to by developers in the same subcommunity will be less than similar sized groups of developers drawn different subcommunities.

A07 - Exercise 03 | PyDriller

- What is the main purpose of PyDriller available from [here](#)?
 - It brings novel machine learning algorithms to Python
 - It helps developers in analyzing Git repositories
 - It is a spell-checker for Python IDEs
 - It provides static code analysis for Python scripts

Assignment 08

Preview

A08 - Exercise 01 | Completion of Method

Task 1: Java *coding*.

Your task is to implement `InternalInvocationAnalysis#process()` that is applied on all methods defined within the analyzed application.

Look at the class and its comments to get an idea on what is left to do.

a) Submit the code of the method

b) Submit the output of the analysis

A08 - Exercise 01 | Inspection of results

Task 2: Java code *reading*.

Analyze the output of InternalInvocationAnalysis. Inspect the documentation and code of the 10 most used methods.

a) Submit a short summary of your inspection results.