2DV608 – Assignment 3 (AD)

In this assignment you should work *individually* (NO Teamwork).

If you have questions, post them on the forum. It is ok to help each other in public forums. For any question about the Assignment use **"Architecting and Design Forum"** on MyMoodle**,** or **"#03_ad"** channel on Slack.

Please note that all tasks **MUST** be documented, that is, a model without text that explains it has little or no value!

Grading

Your submission will receive a grade from 0 to 100. You are allowed to improve your work after the initial submission before the deadline. **The grade is final**, *i.e., you will not get an opportunity to correct/improve after grading*.

Your answers should be your own! You are not allowed to copy code, models, or texts (books articles, blogs, wikis) in your answers! Each submission will pass through a plagiarism/clone detection system before correction. If plagiarism is detected, the assignment is failed, and a formal investigation will be initiated.

Submissions that arrive after the due date will be downgraded by 25 %-units.

Evaluation Process

- **Deadline:** **June 04 (23.59)**
- **Cut-off date:** **June 06 (23.59)**
- Submit 2 different files:
  1. A PDF file, containing the report
  2. A ZIP file, containing the re-engineered codebased

- **NB**: Filenames MUST be:
  - `YourLastName_YourFirstName_A3.PDF`
  - `YourLastName_YourFirstName_A3.ZIP`

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Task 1 – Codebase Analysis (20 pt)

1) Download from MyMoodle and unzip the file `JMines-code.zip`
2) Import the source code in ***Sonargraph Explorer***
3) Analyze the codebase (using **Java/Default Quality Model**) and show the results (i.e., screenshot)
4) For each identified issue, discuss:
   - **What** type of issue is it (e.g., cyclic dependency, threshold violation, …)? and what is its severity?
   - **Why** does it happen (e.g., problem with the architecture, code…)?
   - **How** should it be mitigated/solved (e.g., applying architectural pattern, design pattern, …)? and what is the rationale for the proposed solution?

Task 2 – Re-engineering Plan (30 pt)

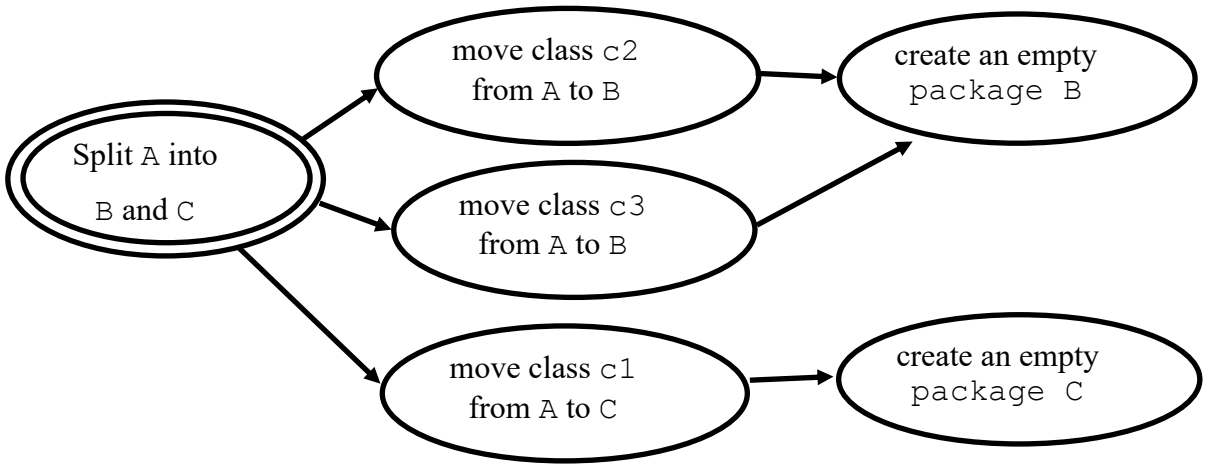
Define a plan (specified according to the Mikado Method) to:

1. Resolve the *Cycle Groups* issues found in Task 1
2. Re-architect the application according to the well know **Model-View-Controller (MVC) Architectural Pattern**

While performing the above activities

- Consider Design Principles (e.g., coupling, cohesion, abstraction, …)
- List and discuss possible design alternatives
- Motivate all your design decisions

For example, let's say we want to split a large `Package A` into 2 small packages `B` and `C`, to distribute the responsibilities among them. A possible re-engineering plan consists of the following set of actions:



Task 3 – Re-engineering (50pt)

1. Implement the Plan devised at Task 2 and re-engineer the Software Application.
2. Import the new codebase in Sonargraph Explorer:
    - Show the resulting architecture (i.e., screenshot), and discuss its new design by demonstrating that it is compliant with MVC
    - Analyze the codebase, and show (i.e., screenshot), discuss and motivate the obtained results.

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