



## Assignment QAA – 1.5 ECTS

PA1454 – Software Architecture and Quality



Published on September 13th, 2023

Due on October 12th, 2023

### General Information

In this assignment, you will continue to work in the same groups as for Assignment SAD.

The goal of this assignment is to apply the knowledge and understanding you have gained in the course and analyze an existing software system of your choice. The system must be publicly available, e.g., on GitHub, so it can be examined by the reviewers. You will examine the selected system in order to assess three quality attributes: *Modifiability*, *Testability*, and a third quality attribute of your choice, which this document will refer to as *YourQualityAttribute*.

You will examine the current state of the system utilizing the tools from the workshops and summarize your observations. You will define two quality attribute scenarios to improve each quality attribute: a *general quality attribute scenario* and a *specific quality attribute scenario*. The quality attribute scenarios should be tailored to your selected system. You will provide measurements according to the defined quality attribute scenarios to assess the current status of the system. You will provide decisions for how to improve the system with regard to the quality attributes. And finally, you will summarize how these decisions could be transferred into development.

Note that you will have to provide the rationale for the selection of *YourQualityAttribute*, their respective scenarios (and parts of each scenario), and the improvements. You will examine the systems using the tools introduced in the lectures and workshops.

The content of the submission needs to be *coherent and consistent*, i.e., the quality attributes' scenarios, the measurements, the decisions, and the rationale must not be conflicting.

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## 1 Introduction and Description of the System (25 points in total)

### 1.1 Choice of System and Quality Attribute (10 points)

Describe the system you are investigating and a rationale for selecting *YourQualityAttribute* as the third quality attribute of interest besides *Modifiability* and *Testability*.

### 1.2 Summary of Status Quo (15 points)

Summarize the current state of the system according each of the three quality attributes, by incorporating charts, figures, and measurements.

## 2 Modifiability (25 points in total)

### 2.1 General Quality Attribute Scenario (5 points)

Provide a general quality attribute scenario for *Modifiability*. Follow the known template of: *Source of Stimulus*, *Stimulus*, *Artifact*, *Environment*, *Response*, and *Response Measure*.

## 2.2 Specific Quality Attribute Scenario (5 points)

Provide a specific quality attribute scenario for Modifiability. Again, follow the known template of: *Source of Stimulus, Stimulus, Artifact, Environment, Response, and Response Measure*.

## 2.3 Measurements (5 points)

Provide measurements for the Modifiability using the tools introduced in workshops and lectures. You are required to provide concrete evidence in the form of charts, figures, and measurements to describe the current state.

## 2.4 Decisions to Improve (10 points)

Document the decisions that are needed to improve Modifiability and how to transfer them into the development process.

## 3 Testability (25 points in total)

Same as Section 2, but for Testability.

## 4 YourQualityAttribute (25 points in total)

Same as Section 2, but for *YourQualityAttribute*.

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## Submission

To complete this assignment, you need to submit a written report.

### Report Structure

Use the same section structure as the above assignment description (i.e., 1., 1.1, ..., 4.4).

### Formatting

- Formatting specifications: single column, 12-point serif font (e.g. Times), and regular margins.
- Page limit: There is no page limit (but avoid repetition)
- References and citations: Select any style (APA, Harvard etc.) for references and citations. You shall then use the selected style consistently throughout the report.
- Tables and figures: Number and label the tables and figures consistently, and also refer/cite them in the text.
- Sections and sub-sections: Use the section and sub-section numbering style consistently throughout the document.

*NOTE: You can find a [LaTeX DIPT Template here](#), and we recommend using it.*

### Notes on Submission & Grading

The report, as a PDF file, has to be submitted on Canvas before the deadline date. You are advised to **proofread and critically review the final report before submission** to identify and remove language related issues (e.g. grammatical mistakes) and formatting issues.

The minimum passing marks are 60/100, i.e., 60% for the minimum passing grade.