Software System Design (2023) - Architecture

Assignment 1

(20 Points)

You are responsible to complete three individual tasks related to software quality attributes and tactics. Each student has to INDEPENDENTLY complete the three tasks described below and compile his/her report.

DEADLINE: 12:00am on (Monday) May 8, 2023

Task 1: Quality Attribute Scenarios (8 points)
Choose TWO pairs of quality attribute, at least ONE in any pair neither from the quality attribute on lecture notes, nor elaborated in class, which are often tightly intertwined with each other, for example *modifiability vs. flexibility*, and *continuity vs. sustainability*. Apply scenario-based (stimulus-response) analysis method to create their general scenarios and typical concrete scenarios (using six-element analysis) respectively based on your research and understanding. Your concrete scenario description must contain at least THREE response measures. Present the general scenario in the format of six-element table and the concrete scenario in the stimulus-response diagram.

Task 2: Tactics (6 points)
Discuss at least TWO possible strategies to improve each quality attribute; propose at least TWO different tactics for each possible strategy and identify their potential impacts on both attributes in each pair. Use a table with columns of quality attributes and rows of strategies and tactics to discuss the benefits and penalties of the potential impacts that may come with each tactic.

Task 3: Quality Attribute Debate (6 points)
Identify the quality attributes that may relate to '*maintainability*', such as (not limited to) '*testability*', '*complexity*', and '*reusability*', and discuss their relationships with '*maintainability*' based on your research. Describe the research you did on this task, and elaborate the reasons to support your argument.

Assignment Deliverable:
The assignment deliverables should be submitted individually. Each deliverable contains no more than 10 pages (A4 size) plus a cover page. Note your individual submission will be plagiarism-checked. You'll receive no point if plagiarism is detected in any task of your assignment with others.