Evaluation criteria for the 2023 HomeExam

Question 2: Update / redesign the software architecture design for the application. Use good software architecture design and coding best practices according to SOLID principles and Booch's metrics. Also reflect on and motivate:

- how you are addressing the quality attribute requirements (in requirements 13 – 14 on the previous page). What design choices did you make specifically to meet these quality attribute requirements?
- the use of design-patterns, if any, in your design. What purpose do these serve and how do they improve your design?

Quality attributes: Modifiability, Extensibility, Testability

Note about evaluation for question 2: During the 15-minute oral exam it will be difficult to assess to what extent the student has been able to satisfy the quality attribute and therefore the assessment of this will be done in Question 3. Instead, the assessment of Question 2 will focus on the student's ability to correctly reason about and justify design choices that have been made to satisfy the quality attributes with arguments supported by best practices, SOLID principles, and Booch's metrics.

Evaluation criteria:
Total 9 points

1. Identifying shortcomings in the original design based on best-practices, SOLID principles, and Booch's metrics (0-1p)
2. Reasoning and justifying design choices in the refactored/redesigned code based on best-practices, SOLID principles, and Booch's metrics (0-3p)
3. Reasoning about how the updated design satisfies the quality attributes Modifiability, Extensibility, and Testability (0-3p)
4. Motivating the choice of design pattern(s) or choice not to use design pattern(s) that might have been applicable (note: the exam does not require you to use design-patterns if you can motivate why it would not improve the design, points will be awarded for based on your understanding of why and when design patterns should or should not be used) (0-2p)

Question 3: Refactor the code so that it matches the design in question 2. The refactored code should adhere to the requirements and should address the Extensibility, Modifiability, and Testability quality attributes.

Note about question 3: Assessment of Extensibility overlaps slightly with assessment of Modifiability and assessment of Testability due to the nature of the Extensibility quality attribute. Therefore, for the evaluation criteria the assessment 1) below will be focused specifically on to which extent new extensions (new game modes) can be integrated with the game without affecting existing (compiled) implementation. This includes being able to unit-test and integration test the extension prior to launching it (unit-tests may update when adding an extension). For additional information please refer to the documentation (available in Canvas →Files →Slides from 2023)

Evaluation criteria:
Total 14 points

The extent to which the code

1. can be extended (new game modes) (0-2p)
2. can be modified (network functionality, new cards, scoring, optional rule) (0-3p)
3. is designed for testability (0-1p)
4. is unit-tested (requirements 1-12) (0-2p)
5. follows best practices (structure, standards, naming, etc.) (0-1p)
6. correctly implements the functionality of the game (0-2p)
7. handles and reports errors (0-1p)
8. is appropriately documented (0-1p)
9. is true to the design in question 2 (0-1p)