

Assignment 5: Non-functional Testing

Overview: Functional tests cover *what* a system does, but not *how* it does those functions. While it is important that a system supports all of the functional use cases that it intended to support, software products usually maintain an edge over their competition due to their non-functional qualities.

General notes: This assignment counts towards Lab 2. Deliver solutions to all exercises as defined in the *deliverables* to pass this assignment. When using material outside of the official course material (lecture, slides, tutorials), state the source and critically reflect on its usage. In case of questions, please contact Zeth Danielsson (zeda21@student.bth.se).

Work distribution: At the beginning of each assignment submission, state how the work was distributed among the two team members.

1. Qualities

Testing software qualities, also called non-functional testing, requires additional groundwork, and rarely follows a unified approach. The first step of non-functional testing is to clearly define the qualities to test before identifying appropriate approaches to conduct the respective tests. *Explain, why it is necessary to explicitly define a quality before testing it, find explicit definitions for three of the qualities accessibility, evolvability, interoperability, maintainability, reliability and safety, and propose how to test them.*

Deliverables: The submission to this exercise must contain all of the following:

1. An explanation, why an explicit definition of a quality is necessary before testing.
2. An explicit definition of three qualities (choose from accessibility, evolvability, interoperability, maintainability, reliability, and safety).
3. A potential test technique for the each of the three chosen qualities.

2. Static testing

While the current version of the system is still under development, stakeholders have made apparent that YouTube videos shall not be the only type of resources which the EduTask system shall help organize. In fact, stakeholders have voiced an interest to include medium articles¹ as a type of resource.

It is, however, unclear how difficult it will be to include this type of resource as the current code base does not support other resources than YouTube videos. This calls for an evaluation of the system's *extensibility*, which can be defined as "the ability of a system to be extended with new functionality with minimal or no effects on its internal structure and data flow."² To explore this potential extension, a preliminary code review of the current state of the system shall be conducted. *Explain the nature of static test techniques and perform a preliminary code review investigating the extensibility of the EduTask system.*

Deliverables: The submission to this exercise must contain all of the following:

1. An explanation of static test techniques as opposed to dynamic test techniques.
2. A static code review of the EduTask system and an evaluation of the systems extensibility in regard to the proposed change.

¹E. Williams, "Medium," A Medium Company, 8 2012. [Online]. Available: <https://medium.com/tag/data-science>. [Accessed 25 04 2022].

²N. Johansson and A. Köfren, Designing for Extensibility: An action research study of maximizing extensibility by means of design principles, Gothenburg: University of Gothenburg, 2009.