Bachelor-Thesis
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Awakening Users' Awareness of Non-Functional Requirements through Vision Videos

Background

Non-Functional Requirements (NFRs) are the backbone for the software quality. A non-functional requirement describes "how" the system shall work, e.g., how fast a function executes (time behaviour), that there should be a sorting and filtering mechanism in a list presenting some items (operability), or that users can login with their Google or Facebook accounts (authenticity). Correct NFRs need to be elicited, specified and then implemented to ensure the software quality.

However, the definition of NFRs is challenging because of their complexity, especially when a software is not yet developed. We propose that requirements engineers identify NFRs from vision videos. A vision video visualises an envisioned software solution, which can describe an NFR.

In a preliminary study, three requirements engineers have identified NFRs from five vision videos. The requirements engineers have documented which NFR is presented in a vision video, and how the NFR is presented. The results show each requirement engineer identified different NFRs than others. After discussing the different NFRs from two vision videos, all three agree with each other on the difference for the two vision videos. We notice that every requirement engineer has its own perspective in identification of NFRs. In this thesis, we want to ask potential users to identify the NFRs from a vision video and propose usage methods of a vision video in communicating NFRs.

Task

In this thesis, you will design and conduct an empirical study systematically by following a Goal-Question-Metric paradigm, with a programming task which supports this study.

Concretely, you will conduct following tasks (among others):
1. Familiarisation with existing vision videos and existing NFRs;
2. Development of a textual tutorial which introduces NFRs in vision videos;
3. Collection of NFRs which participants identify <u>before</u> showing the existing NFRs.
4. Development of questions where participants express (1) their opinions (agreement/disagreement) about the shown NFRs in the vision video and (2) reasons of an opinion. You ask a participant these questions either in a questionnaire or an interview, <u>after</u> showing the existing NFRs. If needed, further questions can be developed;
5. Collection of further NFRs from participants after answering the questions from step 4;
6. Further programming of an existing vision video player. Possible functionalities are: showing the textual tutorial, showing NFRs, collection of NFRs.

A report of about 35-45 pages must be prepared for the work, including all tasks and scientific reflections/discussions.

Organisational Matter

Supervisor: Jianwei Shi   **Examiner:** Prof. Schneider   **Begin**: from 01.03.2024
Required Skills: independent and active self-learning of empirical research (See also StudIP Course: Einführung in Empirische Methoden des Human-Centered Computing)