ADR Manager: A Tool-Supported Approach for the Efficient Creation and Management of Architectural Decision Records

Research Project (Bachelor-Forschungsprojekt Informatik)

Organization

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Timeframe:	2020-10-16 – 2021-04-16

Context & Motivation

While software architecture is often focused on structural elements of a system [1], there are also definitions that place *decisions* at the center of architecture [2]. In this context, an architectural decision is a software design choice that addresses a functional or non-functional requirement that is architecturally significant. Decisions are documented as architectural decisions records (ADRs) [3] and contain additional elements like the rationale or considered alternatives. To store them close to the source code, ADRs are usually created in structured text formats like Markdown [4].

However, due to the lack of convenient tool support, the efficient creation, browsing, or analysis of ADRs is currently not feasible. A graphical user interface (GUI) would add significant value for managing ADRs and likely increase industrial adoption of this technique.

Objectives

The goal of this research project is therefore to analyze challenges and detailed requirements in the context of creating and managing ADRs. Based on this analysis, a tool supported approach with a GUI should be designed and implemented. The final tool support should then be evaluated with respect to functional suitability and usability [5] (similar to perceived usefulness and perceived ease of use in the technology acceptance model [6]). Lastly, it is also possible - albeit not mandatory - to submit the results to the ICSE SCORE competition [7].

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Methods

The elicitation of challenges and requirements should start with the supervisors but can also include literature or even broader interviews [8]. To design and develop the approach, some form of (rapid) prototyping could be feasible [9, 10], potentially even with an approach specific to user interfaces [11]. For the evaluation, a think-aloud study [12], dialog-based study [13], or some other form of field study data collection [14] could be used. An alternative may be a small-scale experiment [15]. The detailed study design should be developed by the students.

References

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