

Requirement Prioritization Based on Non-Functional Requirement Classification Using Hierarchy AHP

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Abstract. Requirement prioritization is a process in requirement engineering, which is a part of software development life cycle (SDLC). Requirement is prioritized due to constraints such as budget, time and resource allocation. Requirements of software is often classified as functional requirements (FR), and non-functional requirement (NFR). In order to produce a high-quality software, both requirement must be considered during requirement prioritization process. Various prioritization techniques have been invented, and Analytical Hierarchical Prioritization (AHP) is the most popular technique that has been cited. However, AHP does not support the NFR and unscalable. Meanwhile, Hierarchy-AHP has been introduced unto increase the scalability of AHP by using hierarchical requirements as input. Nevertheless, hierarchy-AHP does not meant for NFR and experimental result for increasing the scalability is not received significant attention. Thus, we intend to use NFR with large dataset on hierarchy-AHP. Aim of this paper is an exploration of hierarchy-AHP experimenting on RALIC dataset. Our major findings are: (i) NFR can be used hierarchy-AHP with minor process amendment, and (ii) hierarchy-AHP able to reduce pairwise comparison which is up to 97.33% for 403 number of requirements, compared to original AHP.

Keyword. Requirements prioritization, Non-functional requirement, Analytic Hierarchy Process (AHP), Hierarchy AHP.

1. Introduction

Requirement engineering is one of the most important and fundamental stage in SDLC in any software process model. Requirement engineering is the process to collect the software requirement from user, analyses and document are known as requirement engineering. Requirements prioritization is an activity for identifying the most important requirements for a system [1]. Requirement prioritization is in either software validation or software analysis process which is part of software requirement engineering [2]. Determining the accurate requirement which is selected from massive amount requirements is a crucial step. Requirement is prioritized based on many aspects such as significance, cost, time, risk and volatility. Various scale can be used in prioritization activity such as a ratio scale or ordinal scale [3].

