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A Scrutiny of the Software Requirement Engineering process

Mrs. Manju Geogy [*], Dr. Andhe Dharani [#]

[*]Research Scholar, Dept of MCA, R. V. College of Engineering, Bangalore – 560 059, India
[#] Professor, Dept of MCA, R.V. College of Engineering, Bangalore – 560 059, India

Abstract

   Current complexities and high client expectations of an application, the software development is more being an art with a mix of technical experts and managerial techniques. Due to globalization, software and technology are the part of any automated entity. Each and every organization expects a good and reliable software technology working with it. In any domain, building an application is a challenging task due to the lack of requirements gathering or the developer not understanding the actual needs of the client. There are multiple tools to collect the requirements from the clients. The major faults are occurring in requirement analysis phase. Which is considered a sensitive task, any mistakes or wrong perception may lead to major catastrophic for the end product. By considering all facts about requirement engineering the study here gives the basics and some of the key challenges in the requirement analysis phase of software process.

Keywords: Requirement Engineering(RE); Analysis; Challenges

1. Introduction

The essences of all software applications are the "software requirement", which is the main feature, or the function or the capability that characterizes a particular software application. Software requirement, describes the outlook of a software application, by specifying the frame work for its development process, specifying its main objective and goals of the software for the development team.
Articulating the parameters under which it operates. The main challenge for a Software requirement engineering process is to uniquely translate the user requirement into a workable solution, optimally utilizing the client's available resources.

   Manju Geogy. Tel.: +91-80-67178093; fax: +91-80-2860-8011.
    *E-mail address:*mailstomanju@gmail.com

Thus requirement engineering is the key aspect and critical area, on which the whole software process relies. As

highlighted by many researchers the maximum number of defects found in an application is contributed to the requirement engineering phase.

Hence the focus of this paper is the analysis of software requirement engineering phase of the Software development life cycle. To understand the phase – requirement engineering and its process, to analyze problems found and provide feasible solutions.

2. Requirement engineering

Requirements are basically information about system objective, behaviour, properties exhibited by the system and related constraints on the system and its development.

According to The Institute of Electrical and Electronics Engineers (IEEE) requirement is defined as

- ➢ A condition or capability needed by a user to solve a problem or achieve an objective
- ➢ A condition or capability that must be met or possessed by a system or system component to satisfy a contact, standard, specification, or other formally imposed documents
- ➢ A document representation of a condition or a capability as in definition 1 or 2 [IEEE 1990a] [1].

Requirement Engineering Process

Requirement engineering process gives importance to the systematic and recursive techniques that ensures the completeness, consistency, and relevance of the system requirement. Thus requirement plays a major and key role in complex system development.
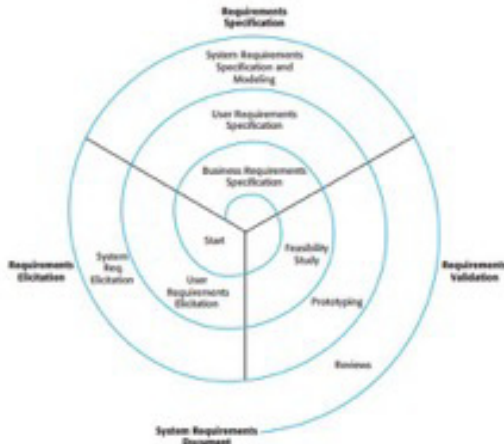

Fig1: A spiral view of the requirement engineering process

In particular, system requirement engineering emphasizes on requirement collection, analysis, specification, verification and management as depicted in Fig 1[2] where:-
Requirement Elicitation - Is the process of discovering requirements from other sources.
Requirement Analysis – Is the logical breakdown of the proceeds from elicitation. It includes detailed understanding of the requirements.

Requirement Specification – Is documentation of user needs and collected requirements in a well-arranged fashion.

Requirement verification – Ensures that collected information is correct and are well arranged to meet system business objectives.

Requirement Management – Keeps track of changes in requirements and ensures that changes are made to meet stakeholder's requirement [3].