REQUIREMENT ELICITATION : A REVIEW

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ABSTRACT*—Requirement elicitation is complex and critical phase in software development. The process involves various activities like acquiring domain knowledge, identifying sources of requirements, identifying stakeholders, selection of technique, approach and tool to collect requirements. Traditional requirement elicitation system may contain biasing. The system can be developed using fuzzy approach for collaborative filtering and binary search tree approach for requirement prioritization.*

Keywords— Biasing, Collaborative filtering, Requirement elicitation, Requirement prioritization,Stakeholder.

I. INTRODUCTION

An old saying "Well begun is half done" is applicable to any software project. The software project succeeds only if requirements from different stakeholders are identified and prioritized properly. Understanding of the customer needs is the process of Requirement elicitation. Users who own business processes are experts in their domain, but they lag to mention their requirements to solve specific business problem in technical word that can be understood by software developer. Requirement engineer plays the crucial role to gather requirement from stakeholders of business process and put those requirement in technical SRS document that can be understood by software developers. Requirement elicitation using fuzzy collaborative filtering is a collaborative approach to identifying and prioritize requirements of different stakeholders.

Various techniques are used by requirement engineer to collect requirements from stakeholders' viz. One-to-One or group interviews, Joint Application Development (JAD), Prototyping, Use cases, brainstorming, etc. The problems associated with these techniques are many of these processes are time consuming, not effective if requirements to be gathered from large number of users, also these techniques are susceptible to observer, interviewer or facilitator bias. Sometimes it may happen that stakeholders are absent during requirement gathering process and their requirements are not considered which leads to disappointment of that user. Many times biasing happens while assigning priorities to requirement by different stakeholders.

Several traditional approaches used for gathering requirements are Interviewing, questionnaires, Requirements workshops, Brain Storming, idea reduction, Storyboards, Use Cases, Role Playing and, Focus Groups.

To overcome these problems, this work proposes an approach that uses collaborative filtering for requirement elicitation as it scales to a large number of user requirements. Collaboration supports team and individual goals; also, people innovate faster in the collaborative workspace.

II. LITURATURE SURVEY

Karlsson et al. [2] discusses one of the major problem in software development is deviation of developed software from customer's needs and expectations. In the article "Supporting the Section of Software Requirements" [2], Karlsson et al. came to the conclusion that "the set of requirement selected for implementation is the primary determinant of customer satisfaction." Lehtola et al. [1] mentions that requirements prioritization techniques are casual. Individual practitioners prioritize requirements on the basis of their experience. Bhushan et al. [8] discuss collaborative filtering as a recommender system that makes prediction about most likely item to be rated by user by comparing users' preference with like-minded users. Soo et al [7] proposed a novel method StakeRare, which identifies stakeholders and asks them to recommend other stakeholders and stakeholder roles, builds a social network with stakeholders as nodes and their recommendations as links, and priorities stakeholders using a variety of social network measures to determine their project influence. It then asks the stakeholders to rate an initial list of requirements, recommends other relevant requirements to them using collaborative filtering, and priorities their requirements using their ratings weighted by their project influence. StakeRare was evaluated by applying it to a software project for a 30,000-user system. [9] mentions that projects often have more requirements than time, resource, and budget allow for. As such, requirements should be prioritized and managed so that those that are critical and most likely to achieve customer satisfaction can be selected for implementation.

III. MOTIVATION

A. Requirements prioritization is an ambiguous concept

Although it is essential that people have a common understanding about the terms they use and activities they perform in product development, the terms "requirements prioritization" and "priority" have different significance in practice. This reasons confusion and misunderstandings among product development persons. The terms are not consistently definite in companies, so in verbal language different actions with different purposes are referred to by the same terms. This occurs without the alertness of the practitioners

B. Prioritization practices are informal and dependent on individuals

There are different ways to present requirements prioritization in the industries. Requirements are prioritized mostly on the basis of practice of development persons. The issues one should take into account when deciding priorities are not commonly explained. Roughly speaking, individuals make prioritization decisions mostly on the basis of their implicit information or approach. No explicit requirements prioritization methods were in use in the industries. The development persons attempted to build a irregular guess which requirements were the most important ones to customers and users, how gainful requirements were to their own industry, and how all this join together with the strategy of the industry, but there were no efficient ways for these study.

C. Requirements are prioritized in many stages

Assessment about which requirements can be included in the next version of the product and which can be delayed are needed in many stages of product improvement. Requirements meaning is a process during which priority assessment have to be made repetitively. Requirement priorities are required, not only for making assessments as to which requirements to leave out, but also for analysis purposes after the release and in order to help the communication within the association and with the users.

D. Developers do not know enough about customer predilections

The product development employees would like to know why a requirement is significant to users or customers. Usually they have no idea because people are working separately in the product development; product development employees do not have straight contacts with users and customers. In addition to this, there are no common ways to communicate customer and user information through the product development procedure.

E. The priority of a requirement is based on many issues

The requirement's significance to a customer is an vital, but usually not the only, factor that has an effect to a requirement's priority. There are many difficulties in defining which issues should be taken into account when setting the priorities. Getting the true information for to use as the basis for prioritization decisions is not always easy.

IV. PROBLEM DEFINITION

To develop a requirement elicitation automated recommender system that will help to work with all stakeholders in the collaborative fashion and provide a simpler user interface that will give information about priorities assigned to various requirements.

V. CONCLUSION

To overcome the limitations like biasing, priotization of the requirements etc. of the traditional systems, it is necessory to develop requirement elicitation system which must consist of automated recommender system that helps to work with all stakeholders in the collaborative fashion. The system can be developed using fuzzy approach for collaborative filtering and binary search tree approach for requirement prioritization.

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