Extracting Non-Functional Requirements Based On Agile Software Development(ASD)

Raghu Veer, Deepak Kumar Singh

Abstract— In present senario Agile methodology perform very popular role in software design & development with the help of customer requirement. In development process we generally consider functional requirement more than non-functional requirement but non-functional requirement also contain equal weightage in Agile Software Development. This paper incorporates to find non functional requirements based on priority algorithm. With the help of this algorithm author tries to find comparisons different non functional requirement

Keywords—   Functional-Requirements,   Non-Functional Requirements, Agile Software Development (ASD)

I.   INTRODUCTION

In early Agile Software Development (ASD) mainly Functional Requirements are considered and Non-Functional Requirements are not considered properly so that the software quality is degraded and customer complaints are increased. To overcome these quality issues the story's of Non-Functional Requirements are discussed and acceptance parameter are developed.

In ASD process requirements are categorized in the priority basis. Highest, High, Medium, Lower and Optional requirement features. Sprints are developing according this priority basis. Sprint is a cyclic process every process is test if any requirement change then it's immediately changes project according the requirement. ASD rapidly actions make software valuable and customer satisfactory. Rapidly changing requirements handling task provide the strength and challenge in ASD. Before ASD 29 percent of traditional project failed outright. So priorities of Non-functional requirement must be set so that project quality and customer satisfaction is maintained. After ASD the failure of projects is re-duced to 9 percent. Before ASD 60 percent traditional projects are completed but due to delay cost is increased and requirements are modified due to delay. After ASD this drawback can be minimized.

The types of requirements are :
1.   Functional Requirements
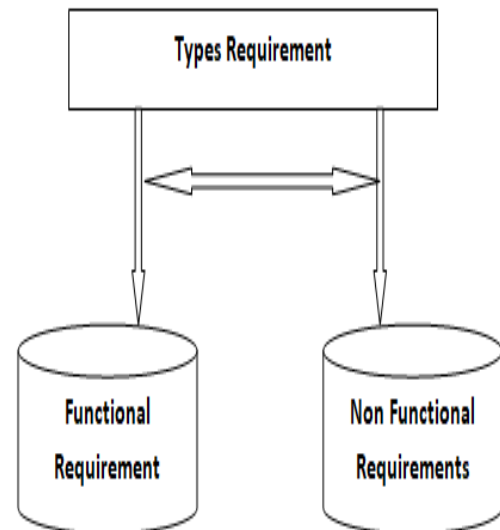2.   Non-Functional Requirements

Fig.1. Different categories of requirements [10]

II.   RELATED WORK

Agile methodology is very popular due to customer satisfaction and frequent delivery by the agile team figure 1 shows Software quality tree [20] in this non-functional requirements are considered in dif-ferent condition as-in-utility and maintainability and further considered efficiency, reliability, portability, testability, understandability and then further considered non functional requirement related to these parts. This is shown in Software quality tree.

Non functional requirement stories are presented in front of experts and agile team. Requirements of all stakeholders are considered. Presented story will release and then implemented release planning then coding and acceptance testing is done and small release initiated. As shown in figure (2).

For prioritizing the non functional requirements numbers of models are available. Some models quantize the non functional requirements, some models divided NFR in different groups, and some models take functional requirement model to implement NFR. Author proposed an algorithm in which NFR will prioritize according to the project require-ment. Different software had different requirements so this algorithm can prioritize as per software requirements as well as increase customer satisfactions.

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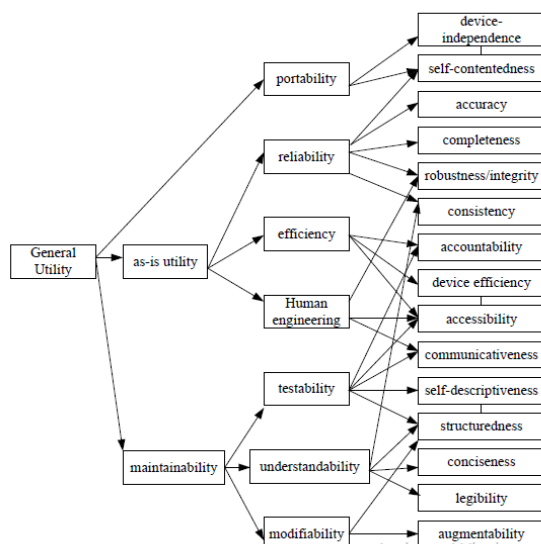   (E-mail: deepak.iiita@gmail.com)
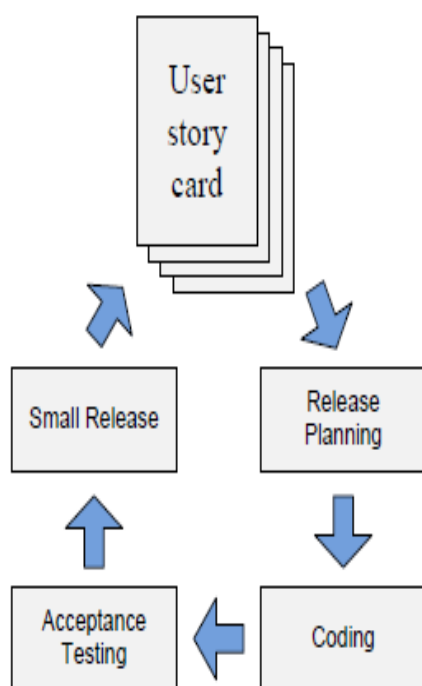
Figure 2.: Software quality tree [9]

Figure 3.: Agile process in general

III. PROPOSED MODEL & RESULTS

In agile generally work considered using functional requirements in comparison to non functional requirements so there is lot of issues occurs like project maintainability , quality of project and many more so author says if we considered non functional requirement frequently then software project will becomes more reliable and quality of project will become improves.

In this paper author firstly try to collect all non functional requirement based on some useful parame-ters which help to priories these requirement after collecting these requirement, requirement engineers presented these story in front of agile team. based on story and customer feedback agile team decided which story accepted .All accepted requirements implemented through agile Software development model

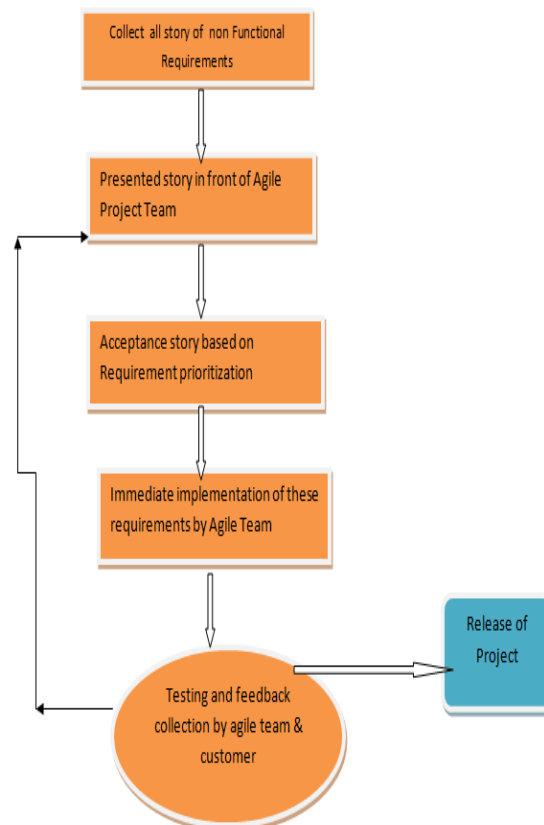and when customer reviews satisfied then final product launched.

Figure 3:Selection of based on Priority of Non functional Requirement

Generally any software project contain any no of non functional requirement priorities but according to the end user the basic and main non functional requirement priorities goes to security because security is most important aspects. After security

IV. ALGORITHM FOR SELECTION OF NON FUNCTIONAL REQUIREMENT BASED ON PRIORITY

Priority (TOP, element, PRIORITY)
Step 1: new node Contain Initial_priority_DATA
Step 2: Check if TOP has lower priority. then move another Requirement If true follow Steps 3-4 and end. Else goto Step5.
Step 3: NEW_DATA_set =NEXT NFR Requirement
Step 4: TOP = NEW_DATA
Step 5: Set TEMP_NFR data to TOP of the list
Step 6: TEMP -> NEXT = NEW
Step 7:: End

Initially new node contain security priority in database and then we compare another non functional requirement, if the priority of another data is more than security then we will move ahead otherwise we will work on initial priority which is nothing but security. In this paper we have taken security as a initial priority because security play more impotent role in all aspects. Priority will change according the project requirement so final decision of selection based

on agile team which will work of that project.

V. CONCLUSION

Non functional requirement play wide role to extract user requirement as well as improve the quality of the project so through the agile development process author try to include the non functional requirement based on the priority based algorithm. With the help of this algorithm author find which non functional requirement contains more priority. So based on this algorithm we select the priority and add in the project.

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