

# Functional Requirement Gathering : An Engineering Perspective

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**Abstract:** Requirement gathering is the important step for good quality product. It is use to gather the needy and useful requirement. The success of quality product requires proper and functional data. There are different scenarios while gathering the requirement to develop the product with good quality. The most of the data gathered from various sources with the recasting of technology. This Paper present and extends the challenges of requirement gathering and increase the productivity of product in view to customer satisfaction in field of requirement engineering. There is necessity of applying classification and clustering technique to get the required functional cluster.

**Keywords:** Requirement Analysis, Elicitation, Classification, , Requirement Engineering.

## 1. INTRODUCTION:

Requirement engineering plays an important role in software development life cycle. Requirement engineering plays an vital role in collecting the useful and important requirement which leads to produce the software product of good quality of user requirement satisfaction. Requirement engineering is use to bridge the gap between the client and developer. Requirement engineering is the step by step sequential method. It is the first phase of software development life cycle [1]. Requirement analysis, requirement elicitation, requirement specification, requirement management are the important parameters of requirement engineering.

There are the various factors for measuring the quality of the software product like involvement, responsibilities and experience at the time of requirement gathering [2]. Quality of the software will have the direct impact with the correct execution of requirement engineering. In this paper we enlighten the development of software with good quality by making use of requirement engineering and its role in the development.

Software product depends on the requirement engineering. The noisy or incomplete requirement found in an preliminary level may be persisted to the next level of implementation. Identifying and correcting the error at intial level is easier than the later stage in terms of time and value. Because of this requirement engineering is the important to remove the errors at the initial level of the best great software improvement.

Gathering the required information leads to provide the product with good quality. There may be a need of making use of classification and clustering approach to segregate the functional and nonfunctional necessities. This Paper appraises the studies region of current requirement engineering to meet the brand new challenges of requirement category and increase the productivity of product in regards to client requirement.

On this we observe the class approach to segregate the functional and nonfunctional requirements depending on number of requirements' obtained from the exceptional customers.

Research paper gives complete view of the role of requirement gathering in the requirement Engineering. The one-of-a-kind sections in the paper are as follows. The section II centered at the literature evaluation of requirement engineering.

Section III describes problem and solution for requirement accumulating. Section IV describes requirement engineering process. Section V incorporates conclusion.

## 2. LITERATURE REVIEW:

In the area of requirement engineering many of researches share their ideas as follows :

J Malla Reddy, et al.[1], mentioned approximately the requirement engineering idea.

Huma Hayat Khan, et al.[2], mentioned the issue generating the risk within the mean time of requirement engineering method in paradigm of world software improvement. The work is useful for the people with much less experience working within the worldwide software program improvement.

Dr. Rajinder Singh [3]. Performed the survey on unique software development groups. He analyzed with proof how best of software product co-associated with the reengineering manner

Swarnalatha K.S, et al.[4] proposed the model to analyze useful requirements for any software product. The success implementation of proposed requirement engineering system can have a very good effect on the manufacturing of nice and quantitative software program product.

Dr. Rajinder Singh [5] reviewed critical processes utilized in requirement engineering position is the software improvement with sensible survey conducted on Indian companies and evaluated effects for higher software program product.

Haron, et al.[6] defined the responsibility of people, methods and generation all through software assignment requirement.

Dhirendra Pandey, et al.[7], focused on effects on product quality and suggested some method of requirement engineering.

Abhijit Chakraborty et al.[8], imposing an effective technique on requirement engineering the example of fitness care device.

Saima Amber, et al. [9], offered research paper on dedication of dangers inside the requirement evaluation system with framework version. In this assessment of model is proven on the idea of chance identity strategies.

Dhirendra Pandey, et al. [10], described the fundamental basics and dimensions of requirement engineering process and offer the idea on software requirement specification.

## 3. PROBLEMS AND SOLUTION FOR REQUIREMENT ACCUMULATING:

Requirement gathering is a crucial step for any successful software. Expertise is use to accumulating the requirement. At the time of gathering the requirements there are some common issues. Every issue will have some solution while gathering the requirement. The useful requirement makes the successful software project.

### *A. Undocumented Techniques*

In many corporations they maintain documentation or no documentation about the prevailing processes for requirement gathering. Here requirement accumulating becomes a two step process. First of all place of facts of present manner and then figuring out domain for development and enhance optimization.

To verify requirements are complete and accurate, its vital to pick out major stakeholders and situation information specialists and get in touch with them immediately.

### *B. Conflicting Requirements*

In requirement gathering there is chances of conflicting the requirements. The business analyst will play the vital role in record all the requirements. The thoughts of stakeholder will leads to conflicting requirements. Business analyst has to analysis the opinion of stake holder and have a few tips about what need to be prioritized and has to give priorities. The opinion of stakeholder could be essential considering the requirement.

### *C. Scarcity of Ingress To End Users*

Sometimes give up users have been too busy in their each day recurring undertaking and unable to take part in requirement gathering procedure. Absence of users might also lead to 3 motives and calls for appropriate resolution.

Business analyst will play the crucial role. Defining companies and locating the maximum suitable give up customers in each group. Doing as a good deal studies as viable previous to the engagement will assist to make verbal exchange greater established and insightful.

*D. Validating And Tracing Requirement*

Indexing should be done to requirement gathering and need to be tracing before starting the actual implementation. Tracing the requirement will play the critical role. It discards the unwanted or irrelevant requirements. There need to be ahead in addition to backward traceability.

*E. Stakeholder Layout*

Stakeholders or enduser have the need to utter how the system must works instead of imparting information about what the device should do.

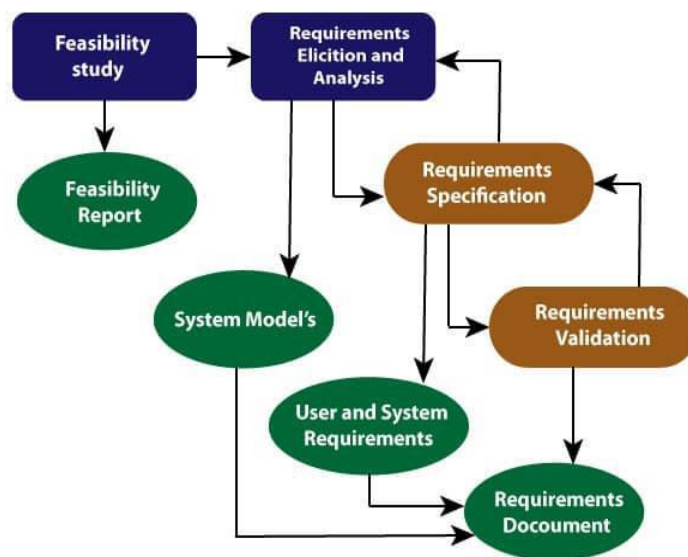
Hearing to stakeholders approximately feasible solution may be perceptive but might also redirect actual troubles and better solution designs.

*F. Verbal Communication Issues*

This includes language distinction, doubtful assumptions, and wrong vocabulary that lead to misunderstand between stakeholders and a business analyst. Due to verbal communication issues it leads to the unwanted or noisy requirement. The excellent solution to triumph over from this is to set up two manner communications.

**4. REQUIREMENT ENGINEERING PROCESS:**

Requirement engineering process consist of four steps they're  
Feasibility observe (study)  
Requirement Elicitation and analysis  
Software requirement specification  
Software requirement validation



Requirement Engineering Process

*A. Feasibility Observe*

The feasibility make the reasons for developing the software program that satisfy the user requirement. It needs to be consistent to set up the standards. There are 3 kinds of feasibility take a look at. They're

- Technical Feasibility
- Operational Feasibility
- Monetary Feasibility

Technical feasibility determines the technologies which might be required to collect the client requirement within the time and budget.

Operational feasibility examines the variety in which the specified software plays a series of stage to clear up enterprise problems and client requirements.

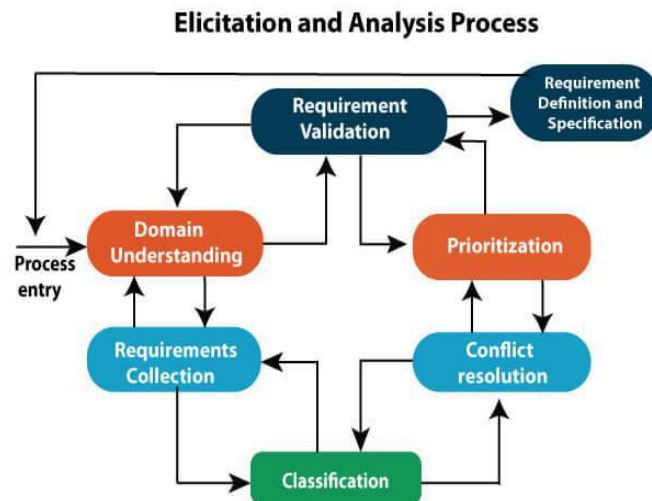
Monetary feasibility deals with the financial analysis of the organization. It decides whether or not the important software can generate financial earnings for groups.

### B. Requirement Elicitation And Analysis

On this requirement are examined with the assist of stakeholder, clients and system. Evaluation of requirement begins with requirement elicitation. The requirements are analyzed to find the missing, incomplete, inconsistencies. Right person have to involve solving the issues of elicitation.

Sometime stakeholders don't know what they required. Knowledgeable expertise can involve amassing the requirements. Once in a while requirement isn't always certain inside the specified way. Struggle requirements get up due to distinct opinion.

At some stage in evaluation manner requirement can exchange.



### C. SOFTWARE PRODUCT REQUIREMENT SPECIFICATION:

Requirements are accrued from the specific resources. A report is prepared by means of the software analyst after the requirements accrued is called software program requirement specification. The necessities received from the stakeholder are in natural language. It is the process of the analyst to translate the requirement inside the technical language .It will assist to the improvement crew to recognize technical language very effortlessly. ER diagrams, information float diagrams, data dictionaries may be used.

E-R diagram is an in depth logical illustration of the records for the agency. It particularly consists of information entities, courting and their associate attributes.

Records glide diagrams represent the drift of facts through a system. DFD'S are generally used for modeling the requirements.

Facts Dictionaries are repositories to store records approximately all records objects described in DFDs. It needs to make certain that the stakeholder and builders uses the same definition and techniques at the requirement degree.

### D. SOFTWARE PRODUCT REQUIREMENT VALIDATION

It's miles the method of checking that requirements described for improvement, outline the device that the client absolutely wishes. Requirement validation performs to test troubles related to necessities. A number of the requirement validation techniques are

Automated consistency evaluation

Prototyping

Check Case technology

Requirement inspection

A Software Requirement Specification ought to be:

Clear

Steady

Verifiable

Traceable

Modifiable

Accurate

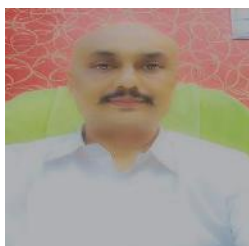
## 5. CONCLUSION :

From above take a look at, it's miles concluded that requirement gathering is the critical steps in software challenge. The different factors that make contributions to the requirement engineering manner primarily based at the know-how of requirement engineer and commitment of stakeholder. Requirement gathering may be used for software program development manner to provide a quality product.

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**Dr. S.V.A.V. Prasad** did his M.Tech and Ph.D (Satellite Communications). Presently working as professor, Dean ( CA) and Director Lingaya's Vidyapeeth, Faridabad, Haryana. Dr. Prasad has developed various products like 100 MHz dual Oscilloscope, High Voltage Tester, VHF Wattmeter, Standard Signal Generator with AM/ FM Modulator, Wireless Beacon, High power audio Amplifier, Wireless microphone and many more in the span of 25 years( 1981-2007). Dr. Prasad has been awarded for excellence in R& D in the years 1999, 2004 and National Quality Award during the Years 1999, 2000, 2004 2006. He has over 40 years of active professional, Research and Administrative experience both in Industrial and Academics in senior positions. Dr. Prasad has guided 28 research scholars and they were awarded Ph.D degree. Presently guiding eight Ph. D Scholars in the Research Areas of Communication Engineering, thermal image processing for early diagnose of breast cancer, medical facilities for remote areas using m-health solutions , thought processing gadgets adoptive for broad band wireless communication and Semantic Web, Information Retrieval and so on. Dr. Prasad has published 168 research papers in various National and International, referred journals such as SCL, IEEE, Springer, ACM etc and also published text volumes. Dr. Prasad's research area includes Satellite Communication, Acoustics, Neural Networks, Artificial Intelligence and m health.



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