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Requirement Development Process

Văn Lang Admissions

# Revision Table

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| --- | --- | --- | --- |
| Author | Date | Reason for changes | Version |
| Hai Tran | 1/11/2016 | Initial the document | 1.0 |
| Minh Doan | 24/04/2017 | Fix template | 2.1 |
| Khoi Nguyen | 24/5/2017 | Add logo | 2.2 |

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# Process

## Process Purpose

Software Requirements is a field within software engineering that deals with establishing the needs of stakeholders that are to be solved by software. The IEEE Standard Glossary of Software Engineering Terminology defines a requirement 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 contract, standard, specification, or other formally imposed document.
* A documented representation of a condition or capability as in 1 or 2.

The activities related to working with software requirements can broadly be broken up into Elicitation, Analysis, Specification, and Management.

## Process Activities/Steps

C:\Users\haitr\Downloads\requirement.png

## Activities Description

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Phase** | **Objective** | **Input** | **Output** | **Activities** |
| Elicitation | Understand business workflow, customer needs, constraints of proposed system | 1.Customer needs | 1.Business workflow doc  2.Propose system function | 1.Contact stakeholder and meeting  2.Discover and elicit high level requirement |
| Analysis | Analyze customer requirements to offer solutions for proposed system | 1.Business workflow doc  2.Propose system function | 1.Propose system prototype | 1.Obtain project scope approval  2.Add/Modify/Delete requirement  3.Collect detailed requirement  4.Revise detail requirement |
| Specification | Specify the requirement into user and developer requirement to implement easier | 1.Propose system prototype | 1.Con-Ops  2.SRS  3.URD  4.Use case document | 1.Prioritize requirements |
| Validation | Validate with stakeholder(customer) to make sure the requirement is correct | 1.Con-Ops  2.SRS  3.URD  4.Use case document | 1.Con-Ops  (validated)  2.SRS(validated)  3.URD(validated)  4.Use case document  (validated) | 1.Document and revise requirement  2.Present document with customer |

# Role and Responsibility

|  |  |  |
| --- | --- | --- |
| **Role** | **Responsibility** | **Assign to** |
| Requirement Leader | * Make and manage phase plan * Set up meeting schedule with stakeholder * Prepare template to use in phase * Summarize and release phase document |  |
| Requirement Engineer | * Agree and apply method, technique to use in phase * Communicate, explore, gather Customer’s requirement * Define perspective of requirement, make prototype * Write document * Prioritize and validate requirement (complete, consistent) * Convert the user Req. to software Req. |  |
| Stakeholder (customer) | * Meet with team to provide and communicate requirement * Validate the document |  |
| Developer | * Involve in Specification to provide idea of Software function, help team understand better |  |
| Architect | * Involve in Specification to provide idea, help team understand better * Ensure the requirement match with scope * Identify the conflict of hardware, software, system |  |

# Tools and Methods

|  |  |  |
| --- | --- | --- |
| **Phase** | **Method used** | **Supported tool** |
| Elicitation | * Interview * Questionnaire * Brainstorm |  |
| Analysis | * Prioritize * Use workflow, scenarios * Use dataflow diagram, state diagram * Prototyping (proposed system) * Conduct trade-off | Draw.io |
| Specification | * Prototyping * Use UML Lang, flowcharts, swim lane * Use Use-cases | UML Language program |
| Validation | * Inspection * Review: walkthrough * Prototype | Checklist |

# Goal, Question, Metric:

## Goal

Goals are defined in term of purpose, perspective.

* Purpose: To analyze requirements to understand it and develop it.
* Perspective: Examines the requirement change from the point of view of the customer.

## Question

The question for requirement development process:

* What data should be collected?
* What kind of the program that stakeholder wants to develop?
* Is the data that give by customer clearly?
* How to collect data from customer?
* The data from the customer enough to build the software?

## Metric

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Formula** | **Purpose** | **Reference value** |
| Unambiguous | Q =Nui / Nr | Percentage of requirement that have been interpreted by all reviewer | 0 = Ambiguous requirement  1 = Unambiguous requirement |
| Correct | Q = Nc / Nr | Percentage of all requirement that are valid | 0 = Incorrect  1 = Correct |
| Complete | Q = Nu / Ni \* Ns | The number of functions currently specified | Closer to one, the more complete |
| Understandable | Q = Nur / Nr | The number of requirements that are understood by all users and reviewers | 0 = No requirement understood  1 = All requirements understood |

* Nui: the number of requirement for which all reviewers presented identical interpretations
* Nr: total number of requirement
* Ni: the stimulates input of the function
* Ns: the stage input of the function
* Nur: the current unique functions requirement