

RPL104 -Analisis dan spesifikasi kebutuhan perangkat lunak

Documenting Requirement

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Capaian Pembelajaran

Mahasiswa dapat menjelaskan mengenai dasar analisis dan rekayasa kebutuhan

Mahasiswa dapat menjelaskan mengenai Stakeholder

Mahasiswa dapat menjelaskan mengenai Business roles

Mahasiswa dapat menjelaskan mengenai tipe-tipe rekayasa kebutuhan

Mahasiswa dapat menjelaskan mengenai vision & scope

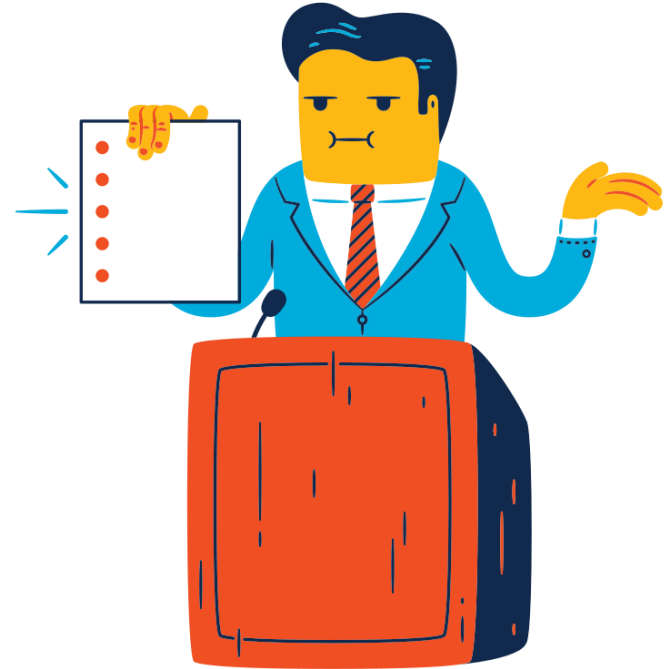
Mahasiswa dapat menjelaskan mengenai Elicitation dan Elicitation Indirect

Mahasiswa dapat menyajikan hasil analisis dari rekayasa kebutuhan

Mahasiswa mampu menyajikan hasil analisis dan rekayasa kebutuhan dalam bentuk dokumentasi

Requirement Documentation

- A documentation technique is any kind of more or less formal depiction that eases communication between stakeholders and increases the quality of the documented requirements.
- Any kind of documentation technique can be used
 - natural language-based documentation (prose)
 - more structured natural language-based text
 - more formal techniques such as state diagrams.



Documenting in Natural Language

The most commonly applied documentation form for requirements in practice

Pros	Cons
No stakeholder has to learn a new notation.	Requirements can be ambiguous
Language can be used for miscellaneous purposes—the requirements engineer can use natural language to express any kind of requirement.	Requirements of different types and perspectives are in danger of being unintentionally mixed up
	It is difficult to isolate information pertaining to a certain perspective among all of the requirements in natural language.

Documenting in Conceptual Models

In contrast to natural language, the different types of conceptual models cannot be used universally. When documenting requirements by means of models, special modeling languages must be used that pertain to the appropriate perspective.

Pros

Offer a decreased degree of ambiguity.

Cons

Requires specific knowledge of modeling

Type of Documentation

Data Perspective

- A static-structural perspective on the requirements of the system is adopted.
- For example, the structure of input and output data as well as static-structural aspects of usage and dependency relations

Functional Perspective

- Received from the system context and manipulated by the system or one of its functions.

Behavior Perspective

- Information about the system and how it is embedded into the system context
- Documenting the reactions of the system upon events in the system context, the conditions that warrant a state transition, and the effects that the system shall have on its environment

Documenting in Hybrid Method

- Depending on the target audience of the document, the perspective on the system, and the documented knowledge, suitable documentation types are selected.
- Contain a combination of natural language and conceptual models.
- The combination allows the disadvantages of both documentation types to be decreased by means of the strengths of the other documentation type

Documentation Standard

1. INTRODUCTION	<p>The introduction contains information about the entire document. This information allows gaining a quick overview of the system.</p> <ul style="list-style-type: none"><i>a) Purpose</i><i>b) System coverage</i> <i>Stakeholder</i><i>c) Definitions, Acronyms, and Abbreviations</i> <i>References</i><i>d) Overview</i>
2. GENERAL OVERVIEW	
3. REQUIREMENTS	
4. APPENDICES	
5. INDEX	

Documentation Standard

1. INTRODUCTION	<p>Additional information to increases the understandability of the requirements. This is operational and does not pertain to administration, management, or organizational aspects of the requirements document</p> <ul style="list-style-type: none"><i>a) System environment</i><i>b) Architecture description</i><i>c) System functionality</i><i>d) User and target audience</i><i>e) Constraints</i><i>f) Assumptions</i>
2. GENERAL OVERVIEW	
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Documentation Standard

1. INTRODUCTION

This part contains functional requirements as well as quality requirements.

2. GENERAL OVERVIEW

3. REQUIREMENTS

4. APPENDICES

5. INDEX

Documentation Standard

1. INTRODUCTION	<p>Additional information that completes the document can be documented.</p> <p><i>For example: the appendices can include</i></p> <ul style="list-style-type: none">- additional documents regarding the user characteristics, standards, conventions- background information regarding the requirements document.
2. GENERAL OVERVIEW	
3. REQUIREMENTS	
4. APPENDICES	
5. INDEX	

Documentation Standard

1. INTRODUCTION

A table of contents (i.e., a structure of the chapters) and an index directory.

2. GENERAL OVERVIEW

In highly dynamic requirements documents, this may be a highly critical section that must be kept up-to-date.

3. REQUIREMENTS

4. APPENDICES

5. INDEX

Using Requirement Document

Requirements documents serve as the basis for different tasks:

- Planning
- Architectural design
- Implementation
- Test
- **Change management:** Serve as the basis to analyze the extent to which other parts of the system are influenced when changes are made. The change effort can thus be estimated.
- **System usage and system maintenance:** used for maintenance and support.
- **Contract management:** prime subject of a contract between a client and a contractor

Quality Criteria for Requirements Documents

- Unambiguity and consistency [IEEE Std. 830-1998]
- Clear structure
- Modifiability and extendibility [IEEE Std. 830-1998]
- Completeness [IEEE Std. 830-1998]
- Traceability [IEEE Std. 830-1998]

Quality Criteria for Requirements

- Agreed
- Ranked [IEEE Std. 830-1998]
- Unambiguous [IEEE Std. 830-1998]
- Valid and up-to-date
- Correct [IEEE Std. 830-1998]
- Consistent [IEEE Std. 830-1998]
- Verifiable [IEEE Std. 830-1998]
- Realizable

Along with quality criteria for requirements, there **are two fundamental rules that enhance the readability** of requirements:

- Short sentences and short paragraphs
 - As human short-term memory is very limited, circumstances that belong together should be described in no more than seven sentences.
- Formulate only one requirement per sentence
 - Formulate requirements using active voice and use only one process verb. Long, complicated interlaced sentences must be avoided.

User Story Style

User Story

As a **<pharmacist>**, I want to **<enroll a patient in the SMS notification service>** so that **<they can receive notifications when their prescriptions are ready to pick up>**

Acceptance Criteria

- A pharmacist must complete all required fields before submitting the enrollment form
- Information from the form is stored in the enrollment database
- A confirmation SMS message is sent to the patient upon successful enrollment
- A pharmacist can view the enrollment status of a patient

Free Style

Format	<Subject doing the action> <auxiliary verb> <capability or functionality to be provided> <criterion that limits or further explains requirement (optional component)>
Examples	<p> <The Company> <shall> <develop an SMS notification system> enabling patients to <receive alerts when their prescriptions are available to pick up> </p> <p> <The Pharmalantalert system> <shall> provide the ability to <enroll patients in a notification service> </p>
Benefits	Can be used to capture complete requirements early in the project
Limitations	May lack enough detail for implementation

Use Case Style

Example

Use Case Number: UC-21.5

Title: Receive and acknowledge notification to opt in to the program

Description: The patient receives an SMS on their cell phone, indicating they have been successfully enrolled. Upon receipt, the patient replies with a message indicating they accept.

Actors: Patient

Scope: Pharmalantalert patient SMS

Priority: Essential

Assumptions: Patient is able to receive SMS messages

Preconditions: A valid phone number for the patient is stored in the system

Postconditions: Patient has fully enrolled in the program with a double opt-in

Trigger: Pharmacist enrolls the patient in the notification program