JURUSAN
TEKNIK INFORMATIKA
POLIBATAM

PROGRAM STUDI
TEKNOLOGI REKAYASA
PERANGKAT LUNAK
POLIBATAM

RPL104 -Analisis dan spesifikasi kebutuhan perangkat lunak

Requirement Elicitation:

Indirect Elicitation Technique

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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

Ways to elicit information..

- Analytics
- User Task Analysis
- Problem Report & Enhancement Request
- Document of Current Product & Competitors
- Event & Response
- Prototyping

Analytics

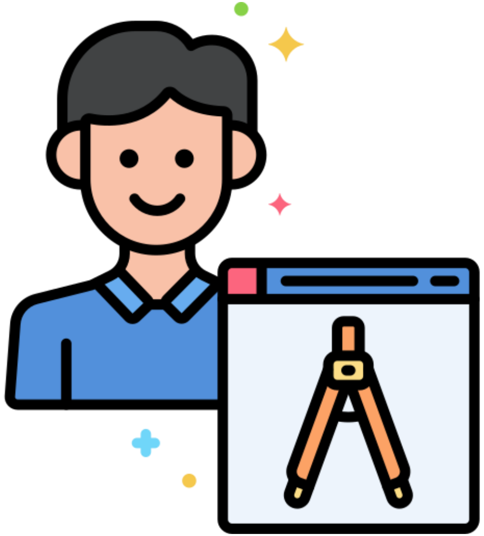
- Good to understand the existing behaviour
- Only applies for existing product
- Highly quantitative. Only capture the "what" but not "why"

User Task Analysis

- Understand process / work with multiple steps, roles, or department.
- Can become complex if not structured carefully

Tips:

- Complex process / task should be broken up to small parts to increase understanding

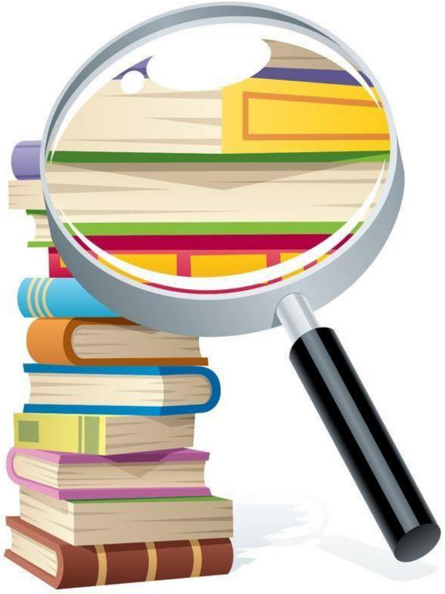


Problem Report / Enhancement Request

- The help desk & field support are valuable resources of requirement.
- They help us learn about the problem that user encounter with the current system & users input for improving the system.
- It only applies for existing product. With a lot of inputs.

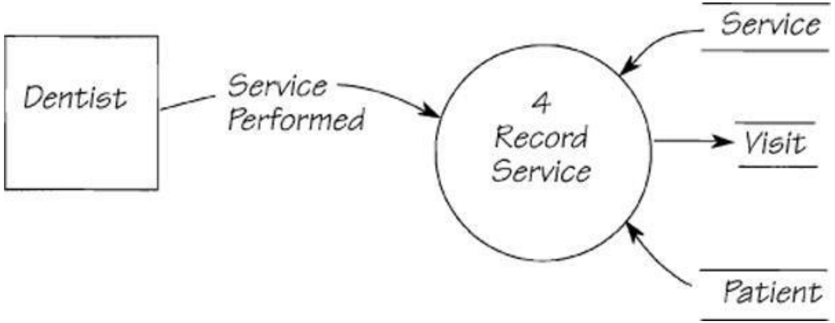
Document of Current Product / Competitors

- Depends on the size of document, the amount of eliciting the information from a large documentation can be huge
- Focusing on the current process rather than the enountered product that need to be solved
- Focusing on competitors may bias our judgement, as competitor may have different goals and need.



Event & Response

- List the external events to which the system must react and the appropriate responses.
- This works particularly well for real- time system, which must read and process data streams, error codes, control signals and interrupts from external hardware devises.



Prototyping

- Visually represent the user interface
- Can focus on the whole solution or specific area
- Great for validating requirement and uncovering gaps

Tips:

- Better to gather enough information to understand the process flow, not to jumpt quickly into prototyping.

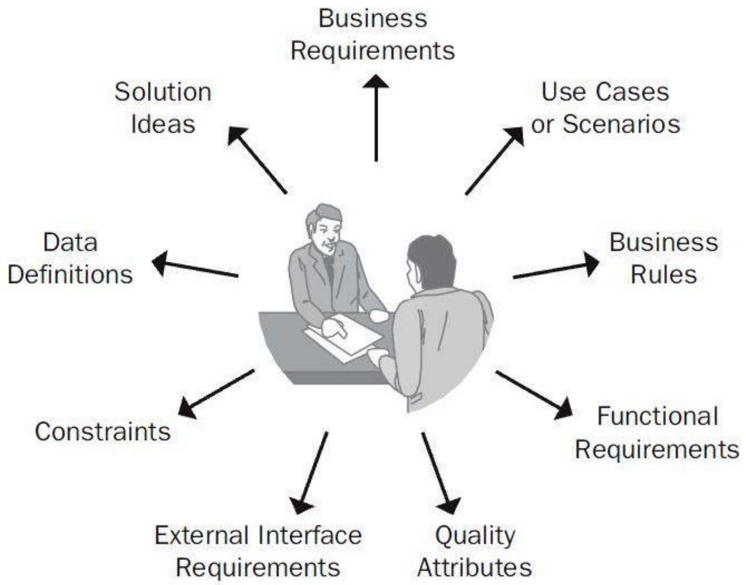
DRAWER OPEN
CLOSE
THE 14 YEAR OLD WHO BOUGHT A HOUSE
DRAWER OPEN
CLOSE
AW, YOUR GROOVE IS OVER. YOU MIGHT LIKE THIS ONE:

Indirecly Involving User

Technique	(+) Positive	(-) Negative	Description
Analytics	- Quick way to gather data	- Quantitative and cannot capture qualitative data - Does not apply in a new project	
Analysing User Tasks	- Give strong insight into process at the user level	- Cannot capture user's actual behavior, as user's behavior may vary	
Problem Report & Enhancement Request	- Quick way to know the issue in the current system	- Does not apply in a new system	
Document of Current Product & Competitors	- Can have an extensive understanding of the current system	- Time consuming - Might be obsolete, user behavior & need may change - Does not address problem that need to be solved	
Event & Response	- Extensive development of a clear use case & technical requirement	- Time consuming	List all external events which the system must react and its appropriate response

Classifying Customer Input

- Customers input are not, complete, and well organized list of their needs. Analyst has to classify information they hear into appropriate categories.
- Information doesn’t fit in product requirement if the fall into:
  - Unrelated to the product (need to train the user)
  - Project constraint (cost, schedule, they fall into project requirement)
  - An assumption



- **Business Requirement**
- Use Cases Scenario
- Business Rules
- Functional Requirement
- Quality Attribute
- External Interface Requirement
- Constraint
- Data Definition

Business Requirement

Anything that describe the financial, marketplace, or other business benefit that the customer / organization wish to gain for the product is a business requirement

Listen for statement like this:

- *"Increase market share by x%"*
- *"Save $Y per year on electricity"*

Business Requirement

Use Cases Scenario

Business Rules

Functional Requirement

Quality Attribute

External Interface Requirement

Constraint

Data Definition

Use Cases Scenario

General statement of user goals or business tasks hat user need to perform are **use cases**

A single specific path through a use case is a **usage scenario**

Way to discover use cases is to ask user to state the goal that they have in mind when they sit down to work with the system

Listen for statement like this:

- *"I need to print a mailing label for a package"*
- *"I need to manage a queue of chemical samples"*
- *"I need to calibrate the pump controller"*

Business Rules

Business Requirement

Use Cases Scenario

Business Rules

Functional Requirement

Quality Attribute

External Interface Requirement

Constraint

Data Definition

When a customer says that only certain user classes can perform an activity under specific control, he might be describing a business rule.

Listen for statement like this:

- *"If <some condition>, then <action>"*
- *"Must be calculated using <some formula>"*
- *"Must comply with <some law>"*
- *"Must conform to <standard>"*

- Business Requirement
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- **Functional Requirement**
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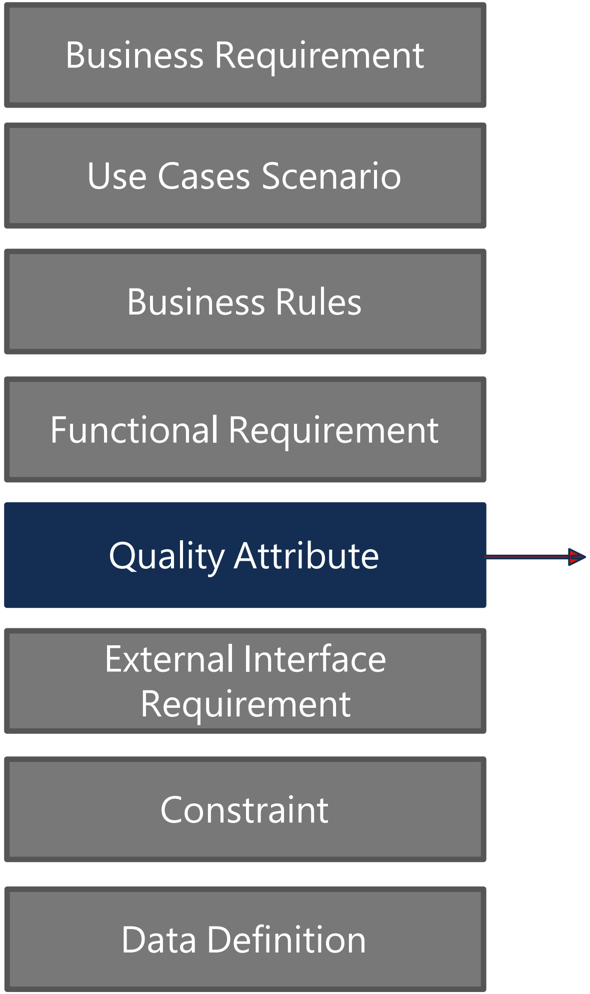
Functional Requirement

Functional requirement describe the observable behavior of the system will exhibit under certain condition and the action the system will let user take.

Functional requirement derived from system requirement, user requirement, and busines rules, and also other sources

Listen for statement like this:

- *"If pressure exceed 40psi, the warning should be on"*
- *"The user must be able to sort the project list in alphabetical order"*
- *"System sends an email to the idea coordinator whenever someone sent and idea"*



Quality Attribute

Statement that indicate how well the system should perform a behavior or let the suer take some action are quality attribute.

Listen for the words that describe desirable system characteristic such as : *fast, easy, intuitive, user-friendly, robust, reliable, secure, efficient*

You have to work with the user to understand precisely what they mean by these ambiguous and subjective word, and write a clear & verifiable quality goals.

- Business Requirement
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External Interface Requirement

Requirement in this class describe the connection between your system and the rest of the universe. The SRS could include section for interfaces to user, hardware and other software system.

Listen to the following words:

- *"Must read signal from <source>"*
- *"Must sent message to <some system>"*
- *"Must be able to read / write files in <some format>"*

Business Requirement

Use Cases Scenario

Business Rules

Functional Requirement

Quality Attribute

External Interface Requirement

Constraint

Data Definition

Constraint

Design and implementation constraint legitimately restrict the option available to th developer. Be careful with constraint, as unnecessary constraint will prevent developer to create the best solution.

Listen to the following words:

- *"File submitted electronically may not exceed 10 MB"*
- *"Browser must use 128-bit encryption for all secure transaction"*
- *"The database must use the Framalam 10.2 run-time engine"*
- *"Must use <specific control>"*

- Business Requirement
- Use Cases Scenario
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- Quality Attribute
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- Data Definition

Data Definition

Whenever the customer describe the format, data type, allowed values, or dafault value for a data, they're presenting a data definition.

Statement like *"The ZIP code should consist of 5 digits, followed by an optional hypens and a default value of 00000"*

Store those kind of information in data definition.

How do you know when you’re done?

- If the user can’t think any more use case.
- If user repeat the same issues that already covered.
- If further suggested new features, user requirement, or functional requirement are starting to be out of scope.
- If proposed new requirements are all low priority.
- If user proposing capabilities that might be included “sometime in the lifetime of the product” rather than “right now”

Case Study: Course Scheduling System

Type of Information	Details
Business Requirement	“We want to minimize the time spent on the manual schedulling tasks”
Use Cases Scenario	“We need to be able to input the courses, lecture’s contraint, and other entity such as room, capacity, and time slot”
Business Rules	“If a lecturer is more than 55 years old, they should not teach in a class located in the 3rd floor of a building” “Every Friday, all of the active department committee should be free from any courses / lectures schedule”
Functional Requirement	“The system should put the schedule on the first time slot first as the first priority. And the last time slot is only to be used only if necessary as the least prioritiy.”

Case Study: Course Scheduling System

Type of Information	Details
Quality Attribute	“The system should not be down when used, especially in the period of schedule generation time”
External Interface Requirement	“System should be able to read lecture’s calendar from Outlook Calendar”
Constraint	“Senior should be palced on early time slot, and not be placed on a late course schedule (At time 13.00 and 15.00)”
Data Definition	“The Room should have these properties: Building, Floor, Capacity”

Summary

- Use the appropriate technique to elicit different kind of information. Not just using one method.
- Customers input are not, complete, and well organized list of their needs.
- Analyst has to classify information they hear into appropriate categories.