CSCI 4050/6050
Software Engineering

Requirements Engineering

The Requirements Engineering Process

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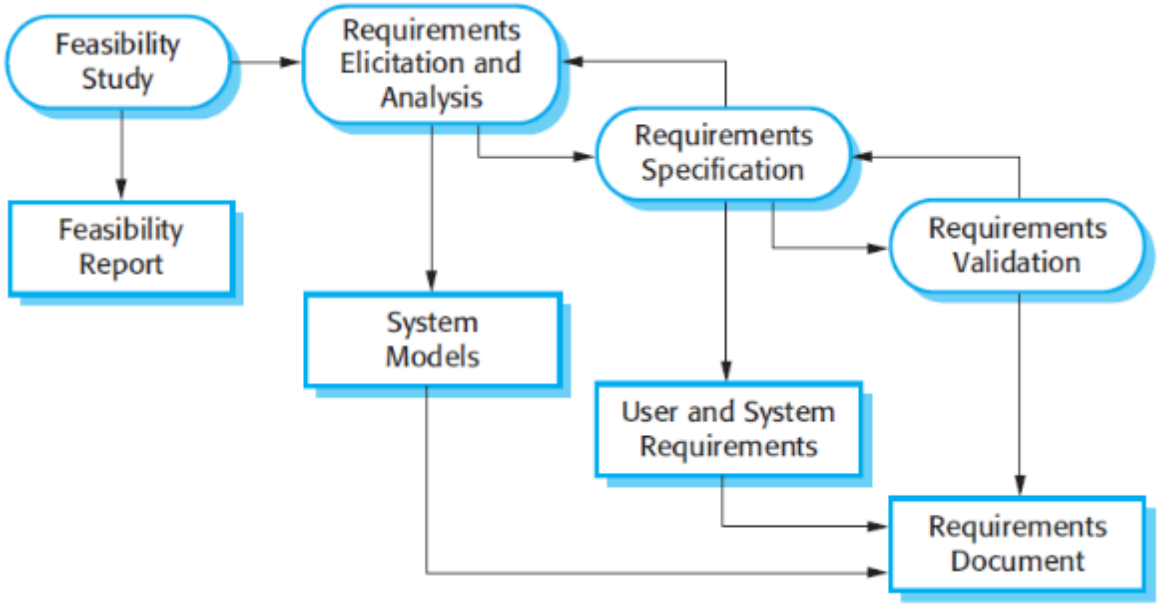
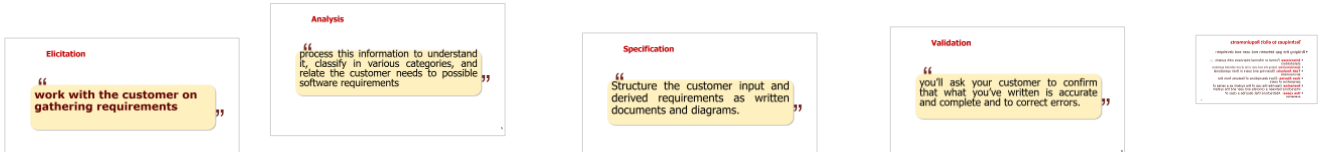
Software Requirements

descriptions of the services that a system should provide and the constraints on its operation.

Requirements Engineering (revisited)

Requirements Engineering is the process of understanding and defining what services are required and identifying the constraints on these services.
Requirements engineering processes ensures your software will meet the user expectations and ending up with a high-quality software.





Elicitation

“work with the customer on gathering requirements”

Analysis

“process this information to understand it, classify in various categories, and relate the customer needs to possible software requirements”

Specification

“Structure the customer input and derived requirements as written documents and diagrams.”

Validation

“you’ll ask your customer to confirm that what you’ve written is accurate and complete and to correct errors.”

Requirements Engineering Process

This iterative process continues throughout requirements development, No single standard approach to requirements development.

Requirements Engineering Process Activities

- Elicitation: work with the customer on gathering requirements

- Analysis: process this information to understand it, classify in various categories, and relate the customer needs to possible software requirements

- Specification: Structure the customer input and derived requirements as written documents and diagrams.

- Validation: you'll ask your customer to confirm that what you've written is accurate and complete and to correct errors.

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Techniques to elicit Requirements

- Bridging the gap between end user and developer:
  - **Interviews:** Formal or informal interviews with system stakeholders
  - **Questionnaires:** Asking the end user a list of pre-selected questions
  - **Task Analysis:** Observing end users in their operational environment
  - **User Stories:** Short descriptions of features from the perspective of users
  - **Scenarios:** Describe the use of the system as a series of interactions between a concrete end user and the system
  - **Use cases:** Abstractions that describe a class of scenarios

Interviews:

- Formal or informal interviews with system stakeholders In these interviews, the requirements engineering team puts questions to stakeholders about the system that they currently use and the system to be developed.

Requirements are derived from the answers to these questions.

Interviews may be of two types:

- 1. Closed interviews, where the stakeholder answers a predefined set of questions.
- 2. Open interviews, in which there is no predefined agenda.

How to write requirements?

- Usually, based on the development model.

- Traditional Approach:
  Shall, should language

Example: The user shall be able to add an item to the cart

- Scrum: User Stories (explained next)
- RUP: Use cases.
- Or Mix

Next Lecture..
Documenting Requirements in Scrum

User Stories