# Requirements

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# 1 Requirements and Requirements engineering

## 1.1 Goal of Software development

- Develope quality software on time and on budge - that meets customers' real needs.
- customer needs are critical for software development
- Requirements shall be engineered and analyzed between testers, customers, designers, and implementers

## 1.2 Requirements

### 1.2.1 Definition

Abstract description of the *services* provided by the system and the constraints under which the system must operate. Written *understandably* for the customers

### 1.2.2 Requirements Specification

- Produced in form of a requirement specification document
  - A structured document that sets out the system service in detail

### 1.2.3 Characteristics of good requirements

- Unambiguous
  - doesn't use short forms or abbreviations
  - doesn't not contain words or forms that might have a double meaning i.e. No need to think about a double meaning. i.e. don't make me think twice
- Verifiable
  - don't say "etc"
  - don't say "as they say, ..."
  - The arguments in the requirement should be exact.
- Concise
  - don't use run-on
  - don't use long *unnecessarily* long sentences.
  - don't use may conjunctions
- correct
  - no Falsified information
- understandable
  - Grammatically correct
  - don't use may,will,must or can
- Feasible/realistic
  - could be applied and tested
- independent
  - don't relate requirements to each other
- atomic
  - focusing on one point only or one element
- necessary
  - shall be needed by an stakeholder
  - shall be effective (can't go without it)
- Implementation-free (Abstract)
  - should not contain unnecessary design and implementation information
  - don't mention coding or files

### 1.2.4 Characteristics for the Set of Requirements

- Consistent
  - No conflicts between the requirements
  - applied terminology should consistent
- Non-redundant
  - No overlap between the requirement
- complete
  - all applicable requirements should be specified

### 1.2.5 Functional and non-functional requirements

### 1.2.5.1 Functional requirements

- Functional Requirements include:
  - Activity that the system must perform
  - Mention the process the system shall do
  - Mention the information the system shall include
  - flow directly into the creation of functional, structural and behavioral models.

#### 1.2.5.2   Non-functional Requirements

- specifies
  - how the system should behave
  - system behavior constraints
- Quality attributes for a system

### 1.2.6   Difference between functional and non-functional requirements

The difference is that *non-functional requirement* describes **how the system works**, while *functional requirement* describes **what the system should do**

### 1.2.7   Requirements gathering techniques

- Observation
- Interview
- Questionnaires
- Scenario Walkthourghs
- Focus groups
- Prototypes (**RPD**)