Functional Requirements + Lab

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Functional Requirements

- Functional requirements describe what the system shall do to meet the customers' needs.

- The system shall…

Guidelines

- Use active voice.
- Avoid negations (e.g., no “shall not”).
- Be concise.
- Use “provide” when possible.

Workshop

- We will look at a set of independent requirements.
- Critique each requirement:
  - What are the problems with these requirements (and they way they were stated)?
  - Re-write the requirement to remove the problems.
    - Feel free to make assumptions if there is not enough information.

Requirement 1

- Requirement Specification:
  - The system shall prevent processing of duplicate electronic files by checking a new SDATE record. An e-mail message shall be sent.
- Critiques:
  - Requirement is vague: need to define the e-mail message.
  - Requirement has design implications: SDATE record.
    - A requirement should specify what the data in the record are and not the name of the record as it exists in the design and implementation.
  - As specified it cannot be implemented or tested.
  - (Two "shalls" statements under one requirement).

- Re-specification:
  - The system shall:
    - Prevent processing of duplicate electronic files by checking the date and time of the submission, and
    - Send the following e-mail message:
      - request updated submission date and time, if necessary, and
      - the processing was successful, when successful.

Characteristics of a Good

Necessary	Needed for the system to meet real needs.
Feasible	It is doable and can be accomplished within available cost and schedule.
Correct	Facts related to the requirements are accurate and it is technically and legally possible.
Concise	Requirement is stated simply.
Unambiguous	Requirement can only be interpreted in one way.
Complete	All conditions under which the requirement applies are stated, and the requirement expresses a whole idea or statement.
Consistent	Requirement is not in conflict with other requirement.
Verifiable/testable	Requirement can measured and quantified.
Traceable	Requirement can be traced to its source (originating stakeholders) and can be tracked throughout the system.
Implementation-free	Requirement does not contain a specific implementation solution.
Non-redundant	Requirement is not a duplicate of another requirement.
Stated using a standard construct	Requirement is stated as an imperative using the word shall.
Avoid escape clause	Avoid the *usually, generally, often, normally, typically*.

Discussion – Requirement 1

- Requirement Specification:
  - The system shall purge state control records and files that are older than the retention period.

Discussion – Requirement 2

- Requirement Specification:
  - The enrollment process shall take from one to ten calendar days to complete for all payment types.
  - The enrollment process shall take no more than three days to complete for:
    - Credit payment, and/or
    - Note payment.

Discussion – Requirement 3

- Requirement Specification:
  - When doing calculations the software shall produce correct results.

Discussion – Requirement 4

- Requirement Specification:
  - The system shall provide status messages at regular intervals not less than every 60 seconds.

Discussion – Requirement 5

- Requirement Specification:
  - The system shall switch between displaying and hiding non-printing characters instantaneously.

Discussion – Requirement 6

- Requirement Specification:
  - All computer-resident information that is sensitive shall have system access controls. Access controls shall be consistent with the information being protected and computer system hosting the data.

Discussion – Requirement 7

- Requirement Specification:
  - The output of the program shall usually be given within 10 seconds.

Discussion – Requirement 8

- Requirement Specification:
  - The system shall display pictures of goods for the customer to click on.