

# Chapter 19: Requirements Gathering

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## Overview

- Definition
- Functional requirements
- Data requirements
- Usability requirements
- Relationship between requirements and usability

## Definition

- **Requirements gathering:** the process of finding out what a client requires from a software system.
- One main purpose is to clarify the client's needs and to identify infeasible requirements, omissions, ambiguities, and vagueness.

## Functional Requirements

- Specify both what the system does and what the human does.
- Concerned with what the system has to be capable of doing.
- **Functional specification:** a formal document which details what the system is to do.
- Functional constraints must also be identified
  - Ex: amount of memory that the system should fit into.
  - type of programming language needed to develop system.

## Dataflow Diagram

- Describes a system from the point of view of the data that is passed between processes.
- They represent systems as a hierarchy of functions.
- Processing specified in a **data dictionary**.

## Data Requirements

- The meaning and structure of the data must be defined and agreed with the users.
- Focus attention on structure as opposed to processing.
- Must conform to operational and other constraints.
- Data dictionary can be used to help analyst define the meaning of data.
- **Entity relationship** diagram: concerned with expressing the semantics of data.

## Usability Requirements

- Requirements gathering must explicitly focus on the usability of the system.
- Major criticism of ER modeling, dataflow diagrams, etc. is that they focus too much on the system and not on the users.

## Components of Usability

- **Learnability:** the time and effort required to reach a specified level of use performance (ease of learning).
- **Throughput:** the tasks accomplished by experienced users, the speed of task execution and the errors made (ease of use).
- **Flexibility:** the extent to which the system can accommodate changes to the tasks and environments beyond those first specified.
- **Attitude:** the positive attitude engendered in users by the system.

## Usability (cont.)

- **Usability study:** the activity of gathering usability requirements.
- **User modeling:** relies mostly on checklists of user characteristics; there are no conceptual user modeling techniques like ER or dataflow diagrams.

## Relationship Between Requirements and Usability

- There is much overlap between data and functional requirements and usability requirements.
- The usability criteria specify constraints on the processing and are ensure that the system is designed with users in mind.