Requirements Analysis

Identifying Requirements

■ Correct systems can only be built if you know exactly

what the system must do

what the user needs

Systems Analyst

■ Therefore most important factor in building correct systems is to first clearly define what the system must do

■ For that we should have a better communication between system users and the analyst.

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Requirements Analysis

Importance of Communication

- Analyst must ensure that no ambiguities arise, during the discussions between various people involved in the analysis phase

- Different jargon used by different people may cause problems

- Reduce misunderstandings between the end-users and developers

Requirements Analysis

Example:

Ambiguous Requirement Statement

Identify the mode of transportation to transfer
a single individual from home to place of work

**Management
Interpretation**

IT Interpretation

User Interpretation

Disadvantages of not identifying user requirements correctly

- The system will exceed time schedules and cost schedules
- The user may not be satisfied with the system requirements. Therefore, they may not use the system
- The cost of maintenance may be excessively high
- The system may be unreliable and prone to errors
- The reputation of the IT staff on the team will be tarnished

Process of Requirements Discovery

- Consists of

    - Problem discovery and analysis (already discussed in Chapter 3)
    - Requirements discovery (the process and techniques used by systems analysts to identify or extract system problems and requirements from the user community)
    - Documenting and analyzing requirements
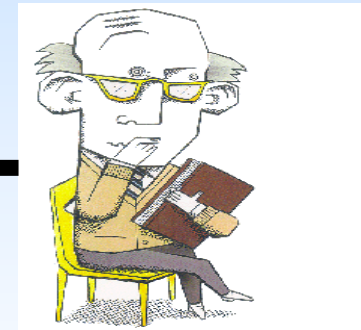   - Requirements management

Requirements Discovery

- Can start to define requirements after understanding the problem

- Must use effective methods for gathering information (Fact Finding)

- After completing the process of fact finding use various tools to document the requirements

Requirements Discovery…

- The process and techniques used by systems analysts to
  - Identify
  - Analyze
  - Understand

System Requirements

Works with

Systems Owner

Systems User

Systems Analyst

Works with

Requirements Discovery…

- **System Requirements**

    Specify what the information system must do, or what property / quality the system must have

Requirements Discovery…

System Requirements

Functional Requirements

Specify what the information system must do

Non functional Requirements

Specify a property / quality the system must have

e.g. user friendliness, Security etc. Refer page 209 Ref1 table 6-1

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Requirements Discovery…

System requirements can be gathered by

- using discussions with users, about their requirements
- building systems that satisfy these requirements

Requirements Discovery…

System requirements should meet the following criteria

- **<u>Consistent:</u> not conflicting / ambiguous**
- **<u>Complete:</u> describe all possible system inputs and responses**
- **<u>Feasible:</u> satisfied based on the available resources and constraints**
- **<u>Required:</u> truly needed and fulfill the purpose of the system**
- **<u>Accurate:</u> stated correctly**
- **<u>Traceable:</u> directly map to the functions and features of the system**
- **<u>Verifiable:</u> defined so that they can be demonstrated during testing.**

Documenting and Analyzing Requirements

- Assemble or document the gathered information / draft requirements in an
  - Organized
  - Understandable
  - Meaningful way.
- Provide direction for the modeling techniques

Documenting and Analyzing Requirements…

- Documenting the draft requirements
  - Use various tools to draft the initial findings

    - **Use cases: describe the system functions from the external users' perspective**

    - **Decision tables: document an organization's complex business policies and decision making rules**

    - **Requirement tables: document each specific requirement.**

Documenting and Analyzing Requirements…

- Analyzing Requirements
  - Fact finding activities produce requirements that are in conflict with one another

  - Requirements analysis activity
    - **Discover and resolve the problems with the requirements**
    - **Reach agreement on any modifications to satisfy the stakeholders**

Requirements Management

- Help to alleviate the many problems associated with changing requirements
  - **Emerging new requirements**
  - **Changing existing requirements**

- Encompasses
  - **Policies**
  - **Procedures**
  - **Processes**
    Refer Page 215 Ref1