Requirements Collection
OR
Fact Finding Techniques

Software Development Lifecycle (1)

- Requirements Analysis: SRS
- Design: Design Document
- Implementation: Software
- Testing
- Installation
- Maintenance

Software Development Lifecycle (2)

- Traditional lifecycle
  - Sequential
  - Real projects rarely follow it

- Spiral lifecycle
  - Suitable for unknown domain
  - Partial development of each phase

- Prototyping lifecycle
  - User involvement large
  - User interface issues important

- Iterative lifecycle (we are going to follow)

Software Development

- Aim should be to produce the system that meets the needs of the people who will be using it
- Study of the existing system: computerized/ documents/ manual

Study of Existing System (1)

- How existing system works?
- Some functionality of the existing system will be carried forward into the new system
- Some data in the existing system is valuable for the new system
- Technical documents of the existing computer systems may provide details of processing algorithms
- The existing systems may have some defects which should be avoided in the new system

Study of Existing System (2)

- Studying the existing system will help us understand the problem domain in a better way
- Parts of the existing systems may be retained
- The baseline information about the existing system will help in setting performance targets for the new system

Analysis & Design (1)

- **Analysis:** A description of the problem & requirements: what the problem is about and what a system must do?
- **Design:** High level & detailed descriptions of the logical solution & how it fulfills requirements & constraints

Analysis & Design (2)

Analysis

- What
- Requirements
- Investigation of domain

Design

- How
- Logical solution

Analysis (1)

- A description of the problem & requirements: what the problem is about and what a system must do.
- Analysis emphasizes an investigation of the problem rather than finding a solution
- Information Gathering
- Specification: modeling requirements & constraints
- The product of analysis stage is System's Requirements Document (SRS).

Analysis (2)

- **Problems**
  - Communication gap
  - Facts will rarely emerge in a neatly ordered fashion
  - Facts found by the developers are usually detailed, unstructured and sometimes conflicting
  - Clear, precise documentation

Requirements (1)

- Create a specification of the problem domain & the requirements from the perspective of
  - Classification by objects
  - Understanding the terms used in the problem domain
- Conceptual model does not describe software components, it represents concepts in real-world problem domain

Requirements (2)

- Understanding the requirements includes understanding the domain processes & the role of the external entities
- Functionalities/Use Cases: Textual narrative descriptions of the processes in an enterprise or system

Requirements(3)

Example

Place an order

Description: A customer calls a sales representative to request a purchase of one or several products. The representative records the customer and product information.

Requirements (4)

- **Functional:** what a system does or is expected to do (functionality)
  - Descriptions of the processing the system will be required to carry out
  - Details of the inputs for the system
  - Details of the outputs expected from the system
  - Details of the data that must be held in the system

Requirements (5)

Nonfunctional : these describe the aspects of the system that are concerned with how well the system provides the functionality

- Performance criteria such as the response time for the updation of the data or retrieving the data

- Anticipated volumes of data

- Security considerations

Fact Finding Techniques Requirements Collection

- Background Reading

- Interview

- Observation

- Questionnaire

Fact Finding Techniques (1)
Requirements Collection Techniques

- **Background reading**
  - Company reports
  - Organisation charts
  - Policy manuals
  - Job descriptions
  - Reports
  - Documentation of the existing system

Fact Finding Techniques (2)

- **Interviewing**
  - Most widely used fact finding technique
  - Questionnaires are used if the interviewees are geographically dispersed(video conferencing??)
  - Requires good planning, alertness, good interpersonal skills

Fact Finding Techniques (3)

- **Observation :** watching people carrying out their job in natural setting
  - Can sort out conflicting information gathered during interviews

Fact Finding Techniques (4)

- **Questionnaires**
  - Do you print reports from the existing systems? *(Y/N)*
  - How many students are expected to register? *(Multiple Choice)*
  - How satisfied are you with respose time of the present system *(Scaled)*
  - Additional reports you would like to have *(Open Ended)*

Documenting Requirements

- Records of interviews and observations

- Details of the problem

- Copies of the existing documents

- Details of requirements

- Details of users

- Minutes of meetings

(papers/files/reports/digital)

Documenting Requirements

- Documentation should follow organizational standards
- CASE tools are usually used to draw the diagrammatic models and to maintain associated data (about various things shown in the diagrams) in a repository
- Digitally stored documents using document management system and a version control system

Sample Problem Statement

1A: Virtual Medical Home

Objective is to provide essential medical services online to everyone, no matter he/she lives in metro or a remotely located village. Users can connect through their home internet or approach any nearby kiosk to get these services.

The system must be able to do the following things:
- Users profile management and registrations
- Patients to make online appointment, look their previous health records, doctor's prescriptions, lab reports and medical expenses
- Doctor's to give appointments, e-prescriptions, view patient's history
- Site should have detailed online help manual for patients
- Local language support is essential