System Analysis and Design

Chapter-2

The System Development Life Cycle

Systems Models

- ***Schematic Models :****2D,information* flow, material flow, and information feedback
- ***Flow System Models*** : material,energy, information flow orderly,
- ***Static System Models***: one pair relationships, activity time, cost quantity,Gant chat, static pircutre.
- ***Dynamic System Models***: ongoing, constantly changes status, input, process, program, output

Categories of Information

- ***Strategic Information***

  :long range planning policy for next few years, trends in revenue, financial investment, human resource, population growth *,DSS*

- ***Managerial Information*** : Middle management for short, sales analysis, cash flow, projection, annual financial

- ***Operational information***: low management for daily and short term planning to enforce day-to-day operational activities. For example, keeping employee attendance records, overdue purchase orders, and current stocks available.

System Analysis and Design (SAD)

- Mainly deals with the software development activities. Success of any system depends on good SAD.
- SAD, as performed by the system analysts, seeks to understand what human need to analyze data input or data flow systematically,
- process information in the context of a particular business.
- Furthermore, system analysis and design is used to analyze,

- design and implements in the support of users and the functioning of business that can be accomplished through the use of computerized information system.

System Analysis

1. To know how a system currently operates and
   2. To identify the users requirements in the proposed system

is a process of collecting factual data, understanding the process involved, identifying problems and recommending feasible suggestion for improving the system functioning. This involves studying the business processes, gathering operational data, understand the information flow, finding out bottlenecks and evolving solutions for overcoming the weakness of the system so as to achieve the organizational goals. System analysis also includes subdividing of complex process involving the entire system, identification of data store and manual process

System Design

1. PRELIMINARY OR GENERAL DESIGN:

- general design, specified,
- The costs of implementing these features and the benefits to be derived are estimated. If the project is still considered to be feasible (possible), we move to the detailed design stage.

2. STRUCTURED OR DETAILED DESIGN

More structured, blue print, relationship among components, input, output, databases, forms, codifications scheme, and process specification.

STRUCTURED OR DETAILED DESIGN

1. Defining precisely the required system output
2. Determining the data requirement for producing the output
3. Determining the medium and format of files and databases
4. Devising processing methods and use of software to produce output
5. Determine the methods of data capture data input
6. Designing input forms
7. Designing codification scheme
8. Detailed manual procedures
9. Documenting the design

System Development Life Cycle

1. High Quality System,Customer satisfaction,
2. completion in time and cost evolution
3. Efficently, effectively work in updated technology infrastacture

"System Development Life Cycle (SDLC) is a conceptual model which includes policies and procedures for developing or altering systems throughout their life cycles".

System Development Life Cycle

What is system development life cycle?

- The **systems development lifecycle** describe a process for planning, creating, testing, and deploying an information system.

How a system development cycle relates to system analysis?

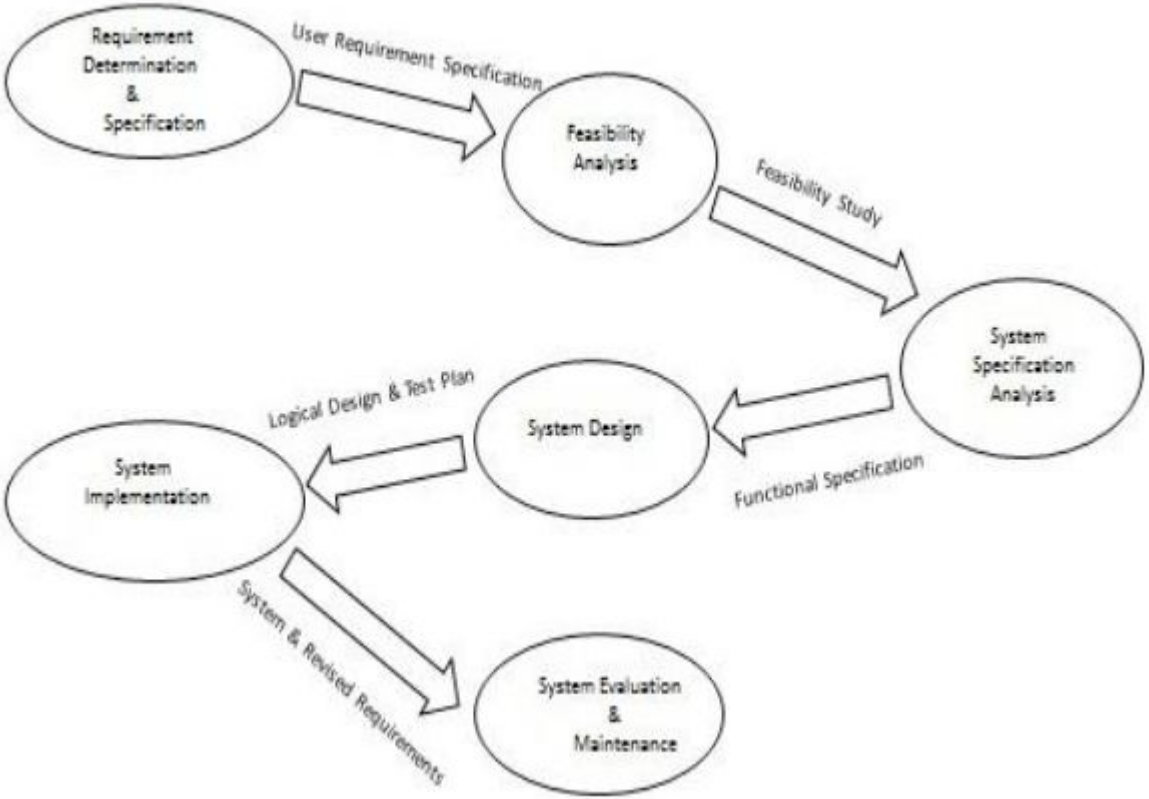
- A system development cycle is a very important process in system analysis. It describes a system analyst that, hoe to plan and analyze a system. After analysing a system system analyst need to design the system

System Development Life Cycle

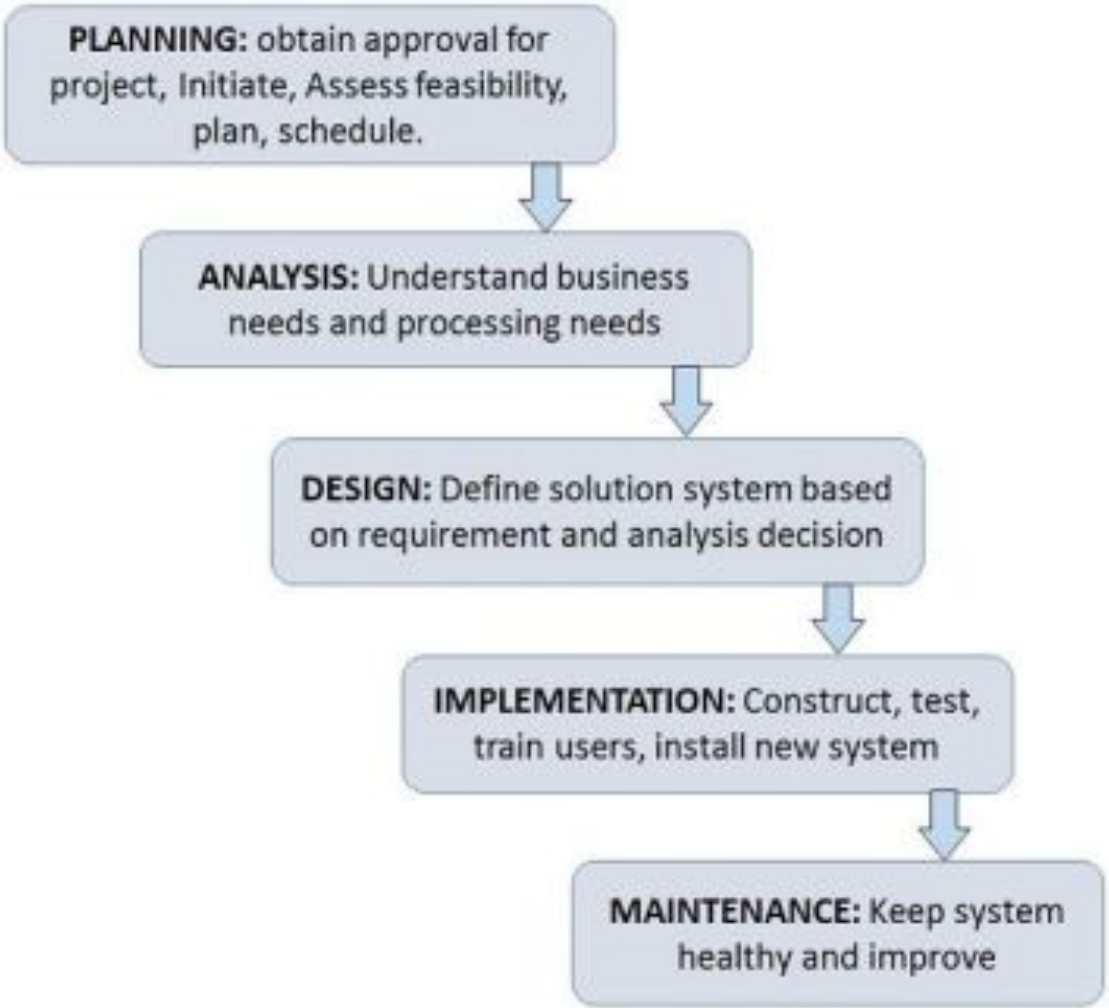
SDLC is used by analysts to develop an information system. SDLC includes the following activities

- Requirements (Recognition of need—What is the problem)
- Impetus for system change
- Feasibility study
- Analysis
- Design
- Implementation
- Maintenance

Phases of SDLC



Phases of SDLC



Which skill is favored over the other in the stages: Feasibility study, Design, Implementation, Maintenance.

i. Feasibility Study: Interpersonal skill is favored over technical skill in this stage.
ii. Design: Technical skill is favored over interpersonal skill in this stage.
iii. Implementation: Technical skill is favored over interpersonal skill in this stage. In this step technical and interpersonal skills converge.
iv. Maintenance: During the maintenance stage the role of the analyst drops off, except when unanticipated problems develop.

Impetus for system change

- What internal and external factors influence the system change?
- Internal Factors:
  i. Organization
  ii. Top Management
  iii. User
  iv. Systems Analyst
- External Factors:
  i. Government Rules & Regulations
  ii. Consumers
  iii. Union

Feasibility Study or Planning

- Define the problem and scope of existing system.
- Overview the new system and determine its objectives.
- Confirm project feasibility and produce the project Schedule.
- During this phase, threats, constraints, integration and security of system are also considered.
- A feasibility report for the entire project is created at the end of this phase

Analysis and Specification

- Gather, analyze, and validate the information.
- Define the requirements and prototypes for new system.
- Evaluate the alternatives and prioritize the requirements.
- Examine the information needs of end-user and enhances the system goal.
- A Software Requirement Specification (SRS) document, which specifies the software, hardware, functional, and network requirements of the system, is to be prepared at the end of this phase.

- What are the technical and interpersonal skills required of systems analysts?
- Technical Skills:
  1. Communication
  2. Understanding
  3. Teaching
  4. Selling
- Interpersonal Skills:
  1. Creativity
  2. Problem Solving
  3. Project Management
  4. Dynamic Interface
  5. Questioning Attitude
  6. Knowledge of Computer

System Design

- Includes the design of application, network, databases, user interfaces, and system interfaces.
- Transform the SRS document into logical structure, which contains detailed and complete set of specifications that can be implemented in a programming language.
- Create a contingency, training, maintenance, and operation plan.
- Review the proposed design. Ensure that the final design must meet the requirements

stated in SRS document.

- Finally, prepare a design document which will be used during next phases.

Implementation

- Implement the design into source code through coding.
- Combine all the modules together into training environment that detects errors and defects.
- A test report which contains errors is prepared through test plan that includes test related tasks such as test case generation, testing criteria, and resource allocation for testing.
- Integrate the information system into its environment and install the new system.

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What do you mean by candidate system?

- Depending on user request system analyst need to initial investigation. After initial investigation a system analyst or a system analyst team build a demo system. Different system analyst can form different

- What are the considerations that act as important factors in deciding a candidate system?
- **Considerations for candidate system:**
  - Operations of existing systems.
  - Maintenance that focuses on “patching” programs.
  - Enhancements that involve major modifications in program structure or equipment.
  - Requests for candidate systems.
- On the human side, the computer department has to provide the following:
  - Computer operators to run equipment.
  - Data entry personnel.
  - Systems analysts to define and design specifications.
  - Application programmers to convert system specifications to computer programs.
  - Maintenance programmers to repair errors.
  - Supervisors, project leaders and managers to coordinate the jobs with the users.

What is the concept of prototyping?

- An alternative to “paralysis by analisis” is an advanceed technique called prototyping. Prototyping recognizes problems of cognitive style and uses advanced computer technology. It advocates building a simple system through trial and error and refining it through an iterative process.

Thank you