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# System Development Life Cycle

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An effective System Development Life Cycle (SDLC) should result in a high quality system that meets customer expectations, reaches completion within time and cost evaluations, and works effectively and efficiently in the current and planned Information Technology infrastructure.

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

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

- requirements

- design

- implementation

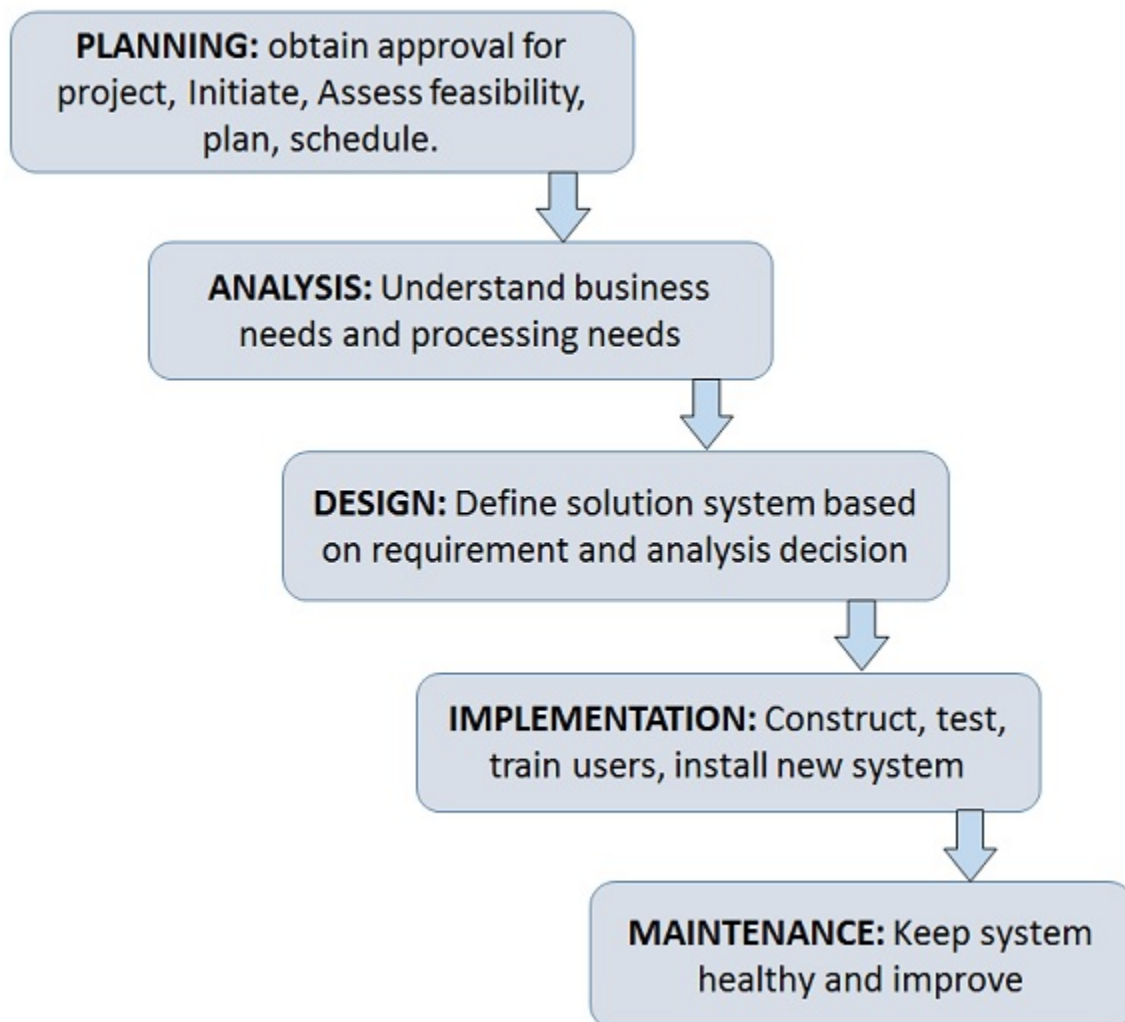
- testing

- deployment

- operations

- maintenance

Systems Development Life Cycle is a systematic approach which explicitly breaks down the work into phases that are required to implement either new or modified Information System.



## 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.

## 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 prepared at the end of this phase.

## 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.

## Maintenance/Support

Include all the activities such as phone support or physical on-site support for users that is required once the system is installing.

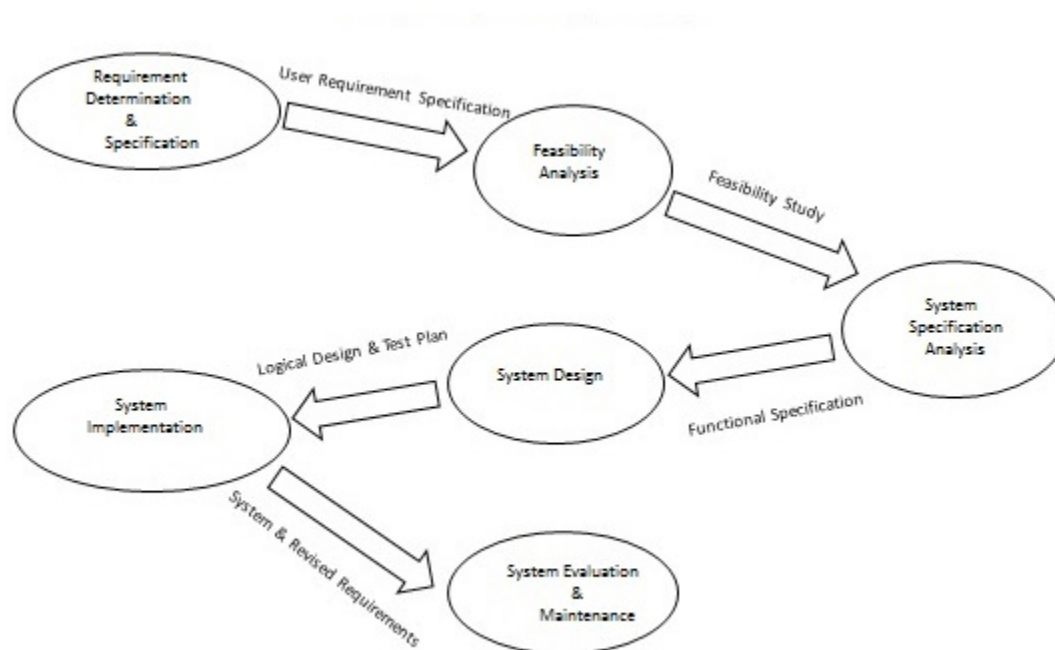
Implement the changes that software might undergo over a period of time, or implement any new requirements after the software is deployed at the customer location.

It also includes handling the residual errors and resolve any issues that may exist in the system even after the testing phase.

Maintenance and support may be needed for a longer time for large systems and for a short time for smaller systems.

## Life Cycle of System Analysis and Design

The following diagram shows the complete life cycle of the system during analysis and design phase.



The system analyst is a person who is thoroughly aware of the system and guides the system development project by giving proper directions. He is an expert having technical and interpersonal skills to carry out development tasks required at each phase.

He pursues to match the objectives of information system with the organization goal.

## Main Roles

Defining and understanding the requirement of user through various Fact finding techniques.

Prioritizing the requirements by obtaining user consensus.

Gathering the facts or information and acquires the opinions of users.

Maintains analysis and evaluation to arrive at appropriate system which is more user friendly.

Suggests many flexible alternative solutions, pick the best solution, and quantify cost and benefits.

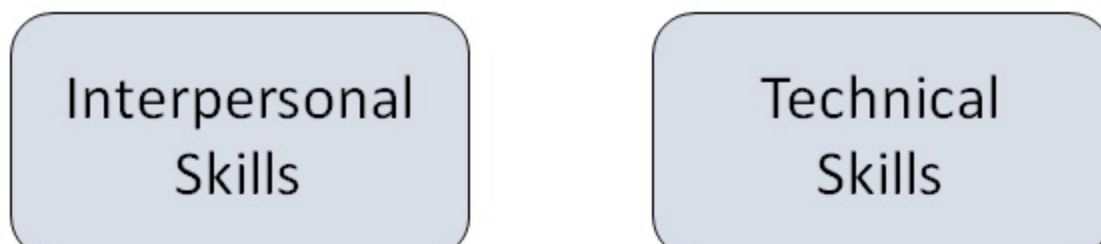
Draw certain specifications which are easily understood by users and programmer in precise and detailed form.

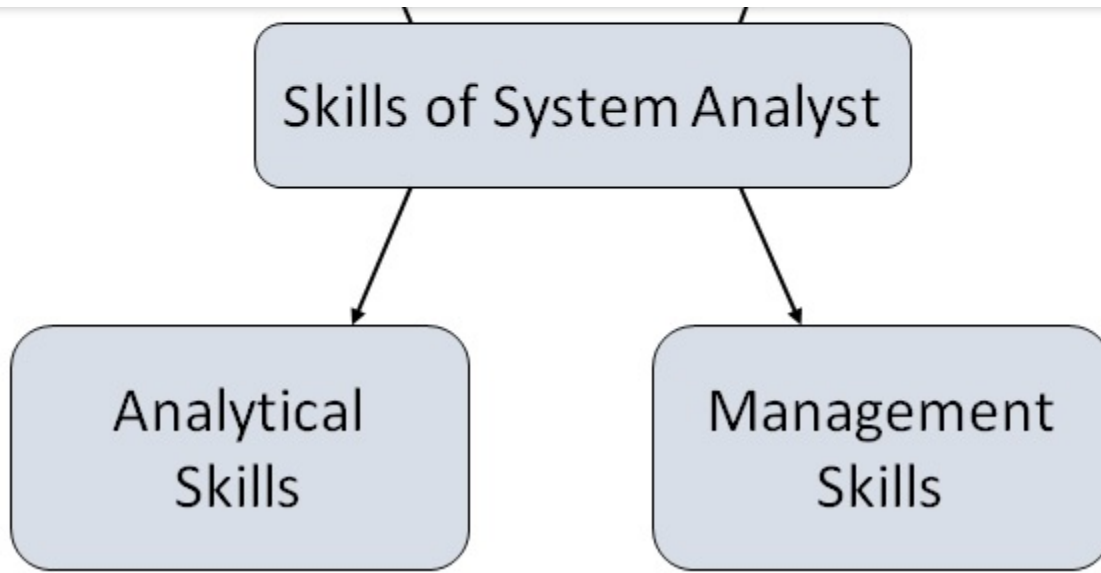
Implemented the logical design of system which must be modular.

Plan the periodicity for evaluation after it has been used for some time, and modify the system as needed.

## Attributes of a Systems Analyst

The following figure shows the attributes a systems analyst should possess –





## Interpersonal Skills

Interface with users and programmer.

Facilitate groups and lead smaller teams.

Managing expectations.

Good understanding, communication, selling and teaching abilities.

Motivator having the confidence to solve queries.

## Analytical Skills

System study and organizational knowledge

Problem identification, problem analysis, and problem solving

Sound commonsense

Ability to access trade-off

Curiosity to learn about new organization

## Management Skills

Resource & project management.

Change & risk management.

Understand the management functions thoroughly.

## Technical Skills

Knowledge of computers and software.

Keep abreast of modern development.

Know of system design tools.

Breadth knowledge about new technologies.

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