- 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.
- Integrate the information system into its environment and install the new system.

## Maintenance/Support

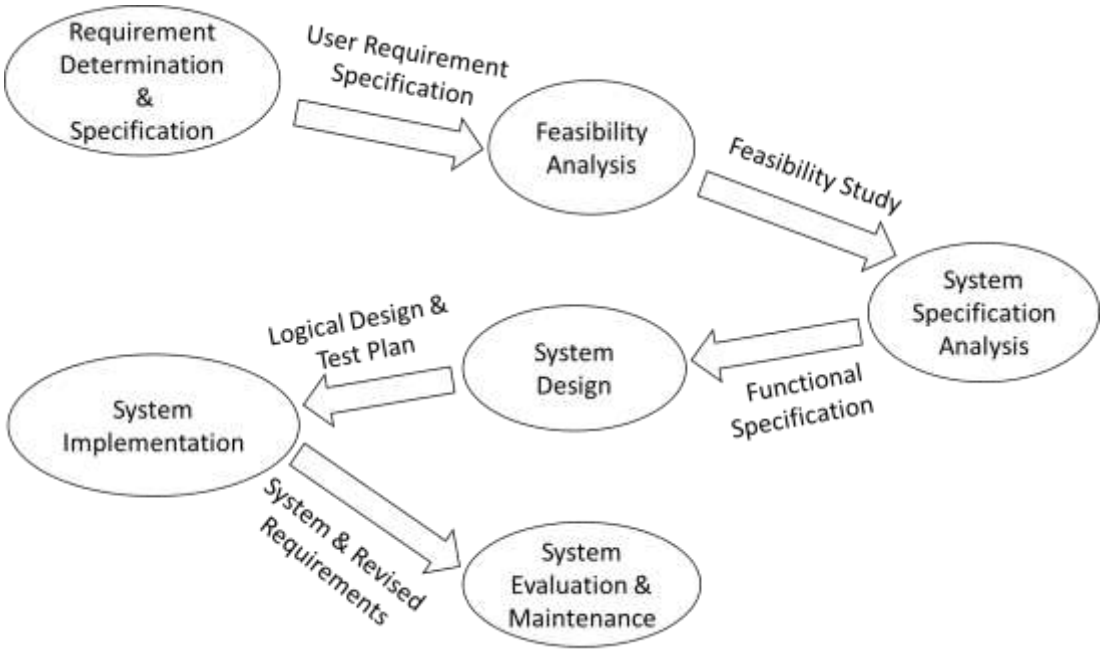
- Include all the activities such as phone support or physical on-site support for users that is required once the system is installing.
- Implement the changes that software might undergo over a period of time, or implement any new requirements after the software is deployed at the customer location.
- 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.



tutorialspoint
SIMPLYEASYLEARNING

## Life Cycle of System Analysis and Design

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




## Role of System Analyst

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.

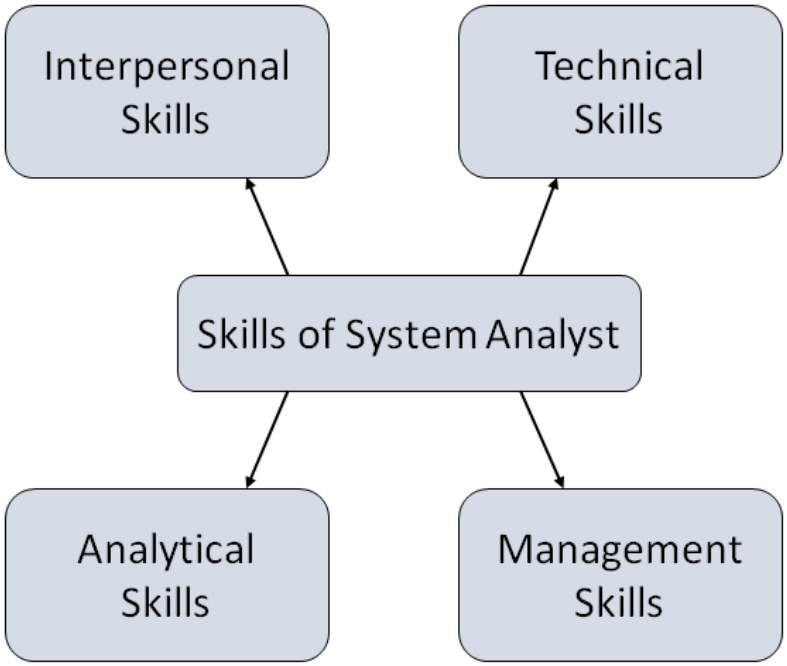
### Main Roles

- 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

- Understand users jargon and practices.
- 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.

# 3. System Planning

## What is Requirements Determination?

A requirement is a vital feature of a new system which may include processing or capturing of data, controlling the activities of business, producing information and supporting the management.

Requirements determination involves studying the existing system and gathering details to find out what are the requirements, how it works, and where improvements should be made.

## Major Activities in requirement Determination

### Requirements Anticipation

- It predicts the characteristics of system based on previous experience which include certain problems or features and requirements for a new system.
- It can lead to analysis of areas that would otherwise go unnoticed by inexperienced analyst. But if shortcuts are taken and bias is introduced in conducting the investigation, then requirement Anticipation can be half-baked.

### Requirements Investigation

- It is studying the current system and documenting its features for further analysis.
- It is at the heart of system analysis where analyst documenting and describing system features using fact-finding techniques, prototyping, and computer assisted tools.

### Requirements Specifications

- It includes the analysis of data which determine the requirement specification, description of features for new system, and specifying what information requirements will be provided.
- It includes analysis of factual data, identification of essential requirements, and selection of Requirement-fulfillment strategies.

## Information Gathering Techniques

The main aim of fact finding techniques is to determine the information requirements of an organization used by analysts to prepare a precise SRS understood by user.

Ideal SRS Document should:

- be complete, Unambiguous, and Jargon-free.
- specify operational, tactical, and strategic information requirements.



tutorialspoint
SIMPLYEASYLEARNING