SYSTEM ANALYSIS AND DESIGN

UNIT – 1

System Study and System Development Life Cycle

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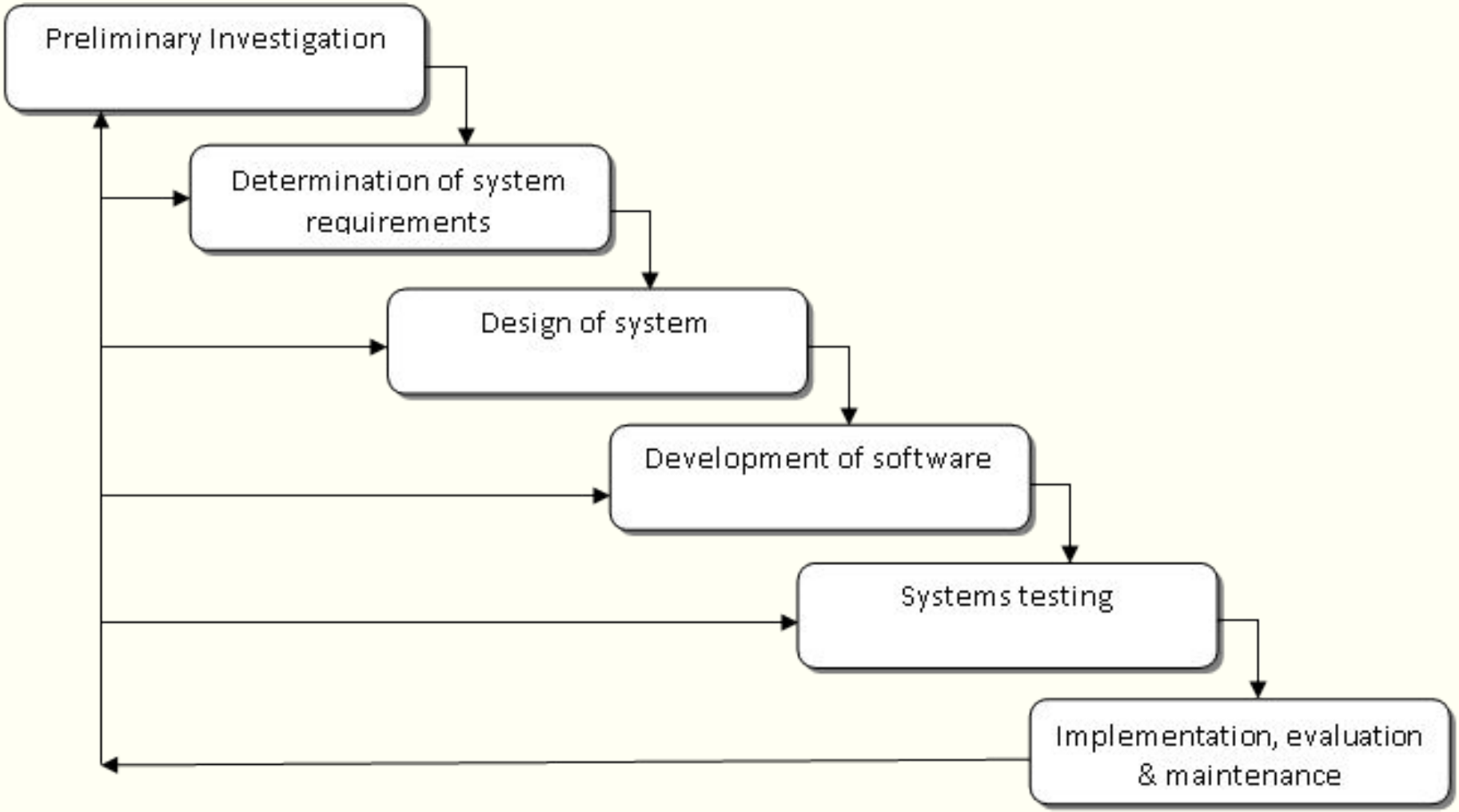
System Development Life Cycle (Activities and Outcomes of Each Phase)



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Preliminary Investigation

- Request Clarification
- Feasibility study
  1. Technical feasibility
  2. Operational feasibility
  3. Economic feasibility
  4. Social feasibility
  5. Management feasibility
  6. Legal feasibility
  7. Time feasibility
- Request Approval

Determination of System Requirements

- Systems analysts discuss with different category of persons to collect the facts and to study about the business process.
- Data are collected **using fact finding techniques** like, interviews, on-site observations and questionnaires.
- Mainly data specific information can be obtained first from documentation (manuals or reports).

Questions can be asked while determination of system Requirements so that necessary actions like modifying or adding of any operations can be performed.

- What is being done?
- How is it being done?
- How frequently does it occur?
- How great is the volume of transactions or decisions?
- How well is the task being performed?
- Does a problem exist?
- If a problem exists, how serious is it? What is the underlying cause?

Design of System

High ?Level Design or System Desig (HLD)

High ? level Design gives the overall System Design in terms of **Functional Architecture and Database design**. This is very useful for the developers to understand the flow of the system. In this phase design team, review team (testers) and customers plays a major role. For this the entry criteria are the requirement document that is SRS. And the exit criteria will be HLD, projects standards, the functional design documents, and the database design document.

Low ? Level Design (LLD)

During the detailed phase, the view of the application developed during the high level design is broken down into modules and programs. Logic design is done for every program and then documented as **program specifications**. For every program, a **unit test** plan is created.

The entry criteria for this will be the HLD document. And the exit criteria will the program specification and unit test plan (LLD)

Development of Software

- This is also known as physical design. Software is the set of related programs. Programmers can write programs using current or required technology and languages. There are options of ready-made software, custom-made software, in-house development of system. The decision depends on available time, money and software specification. In some software development company outsourcing is also one of the options. Programmers also prepare documentation of the program, providing an explanation of how and why certain procedures are coded in specific ways. Documentation used to test the program and carry out maintenance task.

System Testing

- During systems testing, the system is used experimentally to ensure that the software does not fail. In other words, we can say that it will run according to its specifications and in the way users expect. Special test data are input for processing, and the results examined. There are many methods to test software including different levels. These levels are unit testing, integration testing and system testing. There are many methods in each level like white box, black box, alpha, beta, big bang etc. Primary objective is to increase quality of software with validation as per requirement specification document.

Implementation, Evaluation and Maintenance

- **Implementation** is the process of starting work with new software and new equipment. Before we use new software we have to train users, install the new application and construct necessary data files. Training may be followed by test of employees who has participated in training. If implementation carried out by direct way in which on a specific date working on new system started and working on old system stopped. In case of parallel implementation work on both new and old system will continue up to a specific period of time and later working on old one has been stopped. This gives safety from any hazard with new system. In the case of Phase wise implementation working started with new software in a small area of organization, errors or problems are eliminated if occur then software implemented in other area gradually phase by phase.

Evaluation

- Evaluation of the system is performed to certify the system with its strength and weakness.
  - Operational Evaluation
  - Organizational Impact
  - User Manager Assessment
  - Development Performance

Maintenance

- Corrective: - Errors are removed when arise for quality improvement.
- Adaptive: - Externally when we change operating system, or install new device we have to modify our software to adapt these changes.
- Perfective: - To increase profit of the organization or to get additional benefits additional functionalities are added in the requirement specification set.
- Preventive: - This type of modification in software gives ease in above three type of maintenance.