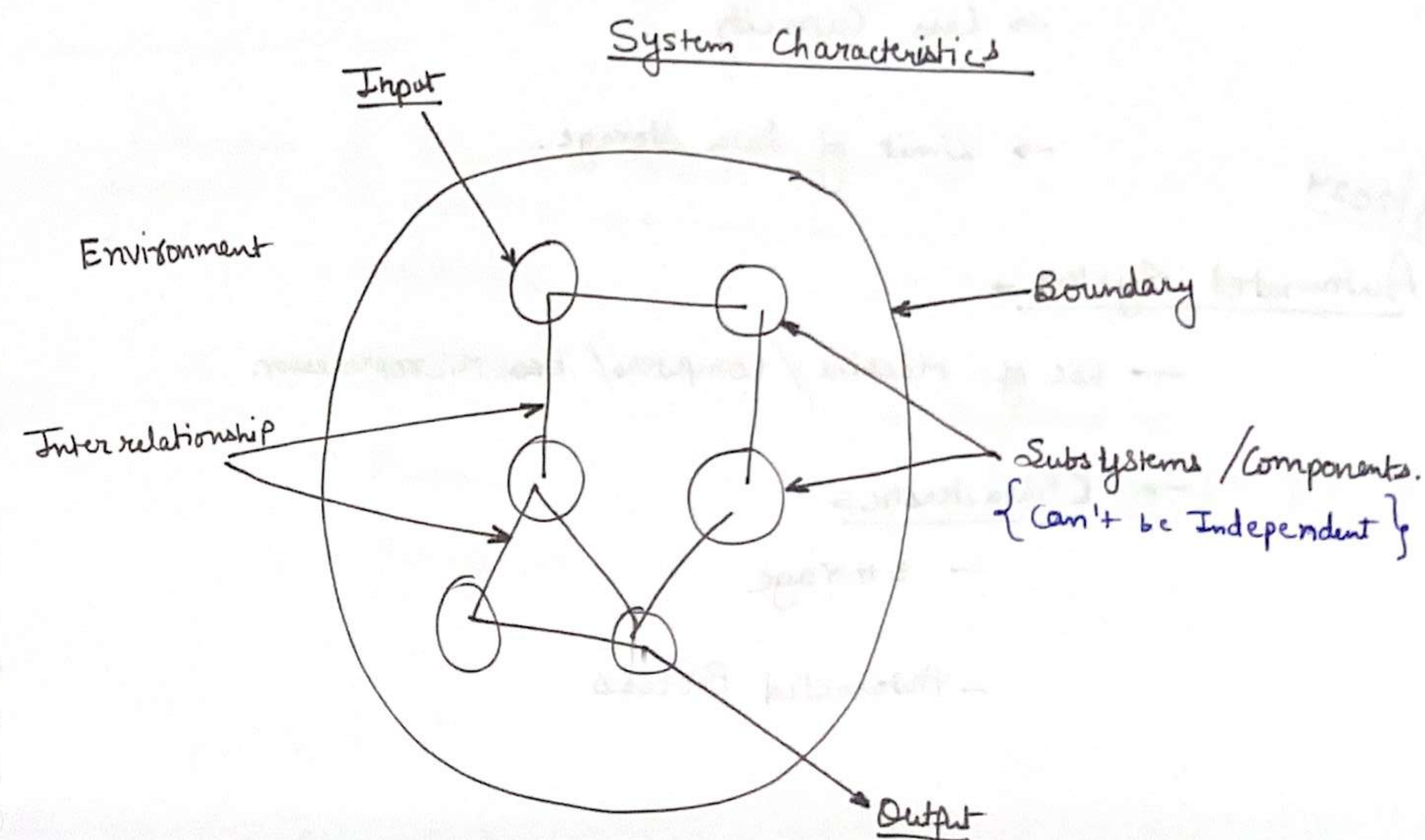


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SAD

# { System Analysis & Design }

System → Group of interrelated components to achieve a specific goal.



- All systems have pre-determined objectives.
- All components are interdependent and interrelated.
- A system can further be subdivided in sub-system, sub-systems can also be further divided.
- Each sub-system interacts with other subsystem, to achieve common objective.



## Sub-Systems

### → Manual System

#### → Disadvantage:-

- get tired easily
- Not reliable.
- Less Capacity
- Limit of data storage.

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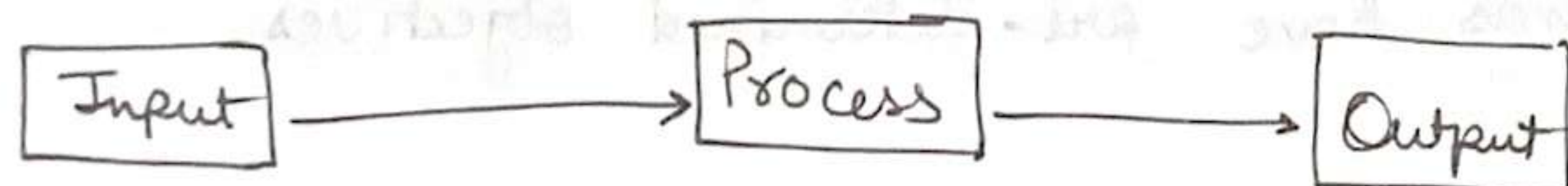
### → Automated System →

→ use of Machine / Computers / ~~Proc~~ Microprocessor.

#### → Characteristics

- Storage
- Automated Process

## General System



→ Apart from these three core components there are 2 more main components of a system.

→ Control

→ Feedback.

Control → A system is guided by the Control.

### Feedback →

- Define acceptable performance
- A method for measuring performance
- A method for feedback

## Elements of Computer-Based System →

- Hardware
- Software
- People
- Procedure
- Data
- Information.  
(Meaningful form of data)

## Types of Systems →

- Physical System
- Abstract System
- Open System
- Close System
- Probabilistic System
- Deterministic System
- Information System

### ① Physical System

- Tangible & visible  
(Can touch)



## ② Abstract System

- Intangible & Invisible
- Mainly based on Concepts  
eg → Algorithm, Software
- Abstract system helps physical system <sup>in</sup> working.

## ③ Open system

- Can freely interact with Environment
- is changed by environment or with the feedback of environment.  
OR
- also takes input from environment.

## ④ Close system {only theoretical concept}

- <sup>Can't be</sup> ~~doesn't~~ change by environment

## ⑤ Probabilistic & Deterministic System →

Includes Probability in Output

## ⑥ Information System →

→ Completely dependent upon information

## ⑦ Real time System

- Time Bounded.

## ⑧ Distributed Computing System →

whole  
→ system distributed over various machines.

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## Basic Principles for Successful System →

- ① It should fulfill user's requirements.
- ② Should be implemented well in time.
- ③ Should give visible benefits
- ④ Maintainable
- ⑤ Well documented.

## SDLC {System Development Life Cycle}

→ Structured System Development Life Cycle

→ 3 phases & 8 stages

### Phases

#### ① Feasibility Study → have 2 stages

- Problem definition
- Project Identification.



## ② System Analysis - have 3 stages

- Operations & Current problem analysis
- Requirement Specification
- Selection of technical solution.

## ③ System Design → have 3 stages

- data design {DBMS}
- Process design {DFD, flow charts}
- Physical design. {Actual Coding}

### System Analyst

- Defining IT requirements in the organisation.
- Setting Priorities.
- Gathering data & facts.
- Analysing & Evaluation.
- Problem Solving
- Evaluation

### Attributes of a System Analyst

- Knowledge of the organization
- Knowledge of Computer System & <sup>software</sup> package. (Existing)
- Good Inter-personal relations.
- Ability to communicate
- Analytical Mind
- Qualifications & responsibility.

### System Development Life Cycle

#### Activities →

- ① - Preliminary Investigation
- ② - Feasibility Study
- ③ - System Analysis
- ④ - System Design
- ⑤ - Development of Software
- ⑥ - Testing
- ⑦ - Implementation & Evaluation
- ⑧ - Maintenance



### Preliminary Investigation →

- Pinpointing the problem
- Setting proper Goals
- Determining boundaries of the system.

### Feasibility Study →

- Technical feasibility
- Economic feasibility
- Operational Feasibility / Behavior Feasibility

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### System Analysis →

- What is being done in the organisation
- How it is being done.
- What is volume of transaction.
- How frequently the transaction occurs.
- What are problems that can arise? then How it will be resolved.
- What could be the cause of problem.

### Prototypes →

#### Types

- Throwaway Prototype / Paper Prototype
- Working Prototype

### System Design →

How?

#### Categories

- Logical Design
- Physical Design
- Data Design
- Procedural Design
- Interface Design.

### Development of the Software →

#### Testing

#### Implementation & Evaluation