

5 Mar, 19

# System Design

Class: 01

## System Analysis & Design

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### Development life cycle

Systema  $\Rightarrow$  System  
(Greek)

System

- \* An orderly grouping of interdependent components
- \* Linked together according to a plan
- \* to achieve a specific objective

### 3 basic implication:

- (i) Pre determined objective
- (ii) Inter dependence + Interrelationship
- (iii) Subsystem

## Characteristics of system:

- (i) Organization
- (ii) Interaction
- (iii) Integration
- (iv) Central objective
- (v) Interdependence

## Elements of system:

- (i) Input(s), Output(s)
- (ii) Processor(s)
- (iii) Control
- (iv) Feedback
- (v) Environment
- (vi) Boundaries, interface

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Class: 02

## Types of Systems

\* Physical / Abstract

\* Open / Closed



Entropy

Differentiability

Equifinality

Candidate System → ~~system~~ → ~~system~~ Solution

System development life cycle: (SDLC)

(i) Recognition of need

(ii) Feasibility Study

(iii) Analysis

(iv) Design

(v) Post-implementation & Maintenance.

\* Impetus for system change

19 Mar, 19 User report form:

Class: 03

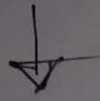
1. User assigned title
- 2.
3. Date of submission
4. Prospective
5. Job objective
6. Benefits
7. I/O description
8. User signature, contact
9. Person approving the report

feasibility report

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Class: 04

Considerations for [Page: 50]

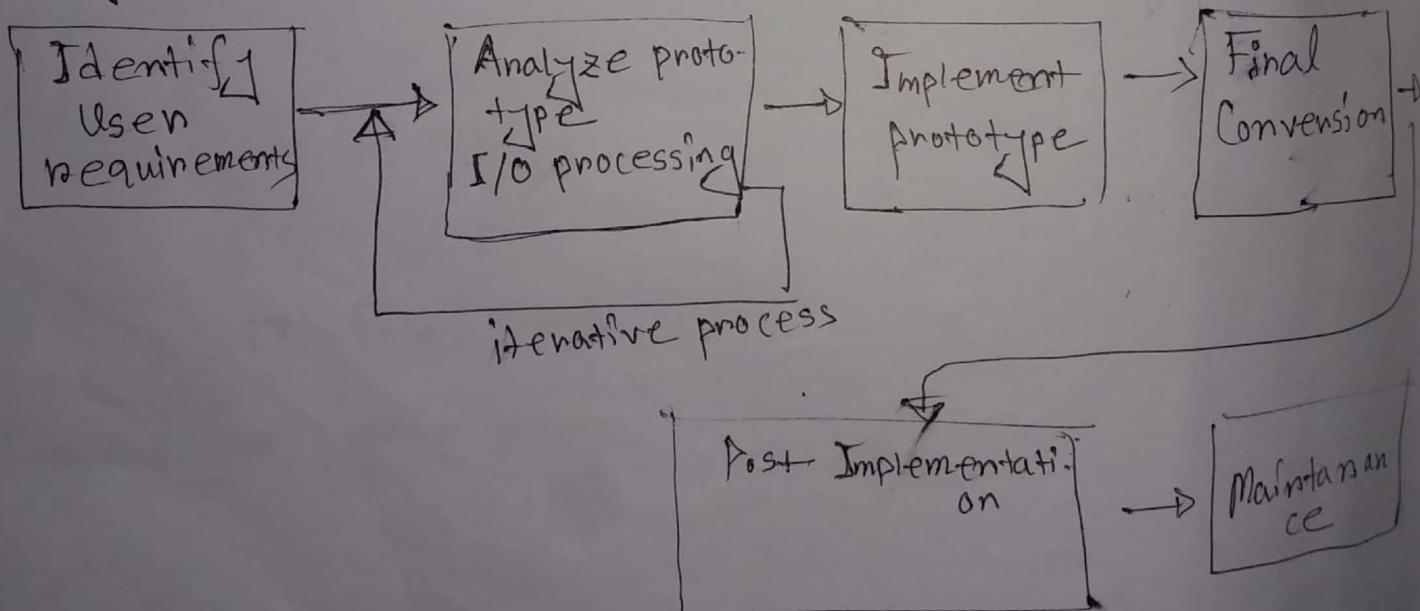


Candidate Systems

- (i) Technical
- (ii) Behavioral
- (iii) Economic
- \* Political

Prototyping:

System development life cycle with prototyping:





## Chapter 3

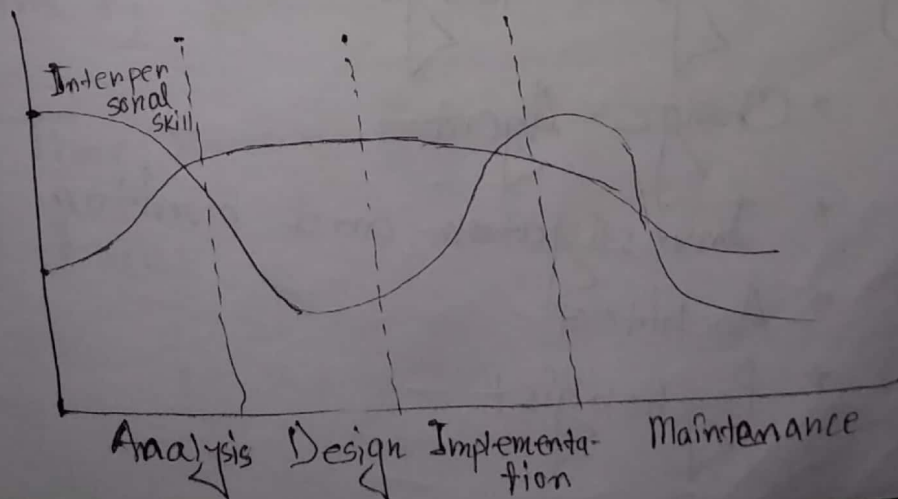
Interpersonal skill: [Page: 64]

- Communication
- Understanding
- Teaching
- Selling

Technical skill:

- Problem solving
- Creativity
- Project management
- Dynamic interface
- Questioning attitude
- Knowledge

\* Implement Interpersonal and Technical skills necessary in system development:



09 April, 19

Class: 05

Academic + personal qualification

(i) A background knowledge in system theory + organization

(ii) Inner knowledge

- \* Financial Accounting

- \* Marketing and Sales

- \* Model building

- \* Production Control

(iii) Knowledge in one or more programming language + database

(iv) Software + hardware specification

\* Roles of System Analyst

- \* Change Agent

- \* Investigator and monitor

- \* Architect

- \* Psychologist

- \* Sales person
- \* Motivation
- \* Political Politician

Analyst - user interface:

- User motivation
- Analyst / User difference
- Political factor

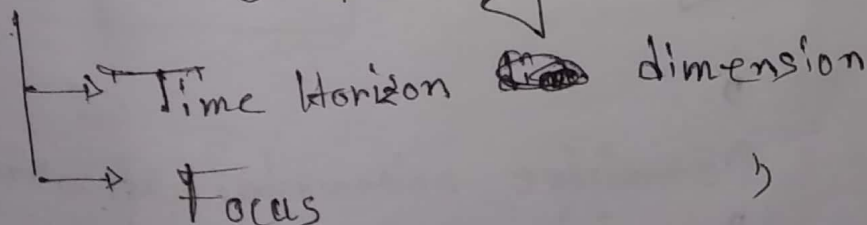
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Class: 06

System Planning

- \* Dimensions of Planning
- \* Conditions dictating strategies

Dimensions of planning:



- Strategic
- Managerial
- Operational



CT: 01 (16 April, 19)

1. Distinguish between (i) Interaction and Intendence  
(ii) Open system and closed system

2. Where do ideas for a proposed system originate?

- \* Initial Investigation
- \* Needs Identification

User requirements

- \* Kitchen Sink Strategy
- \* Smoking
- \* Same thing

Humans have problems

Specifying info requirements

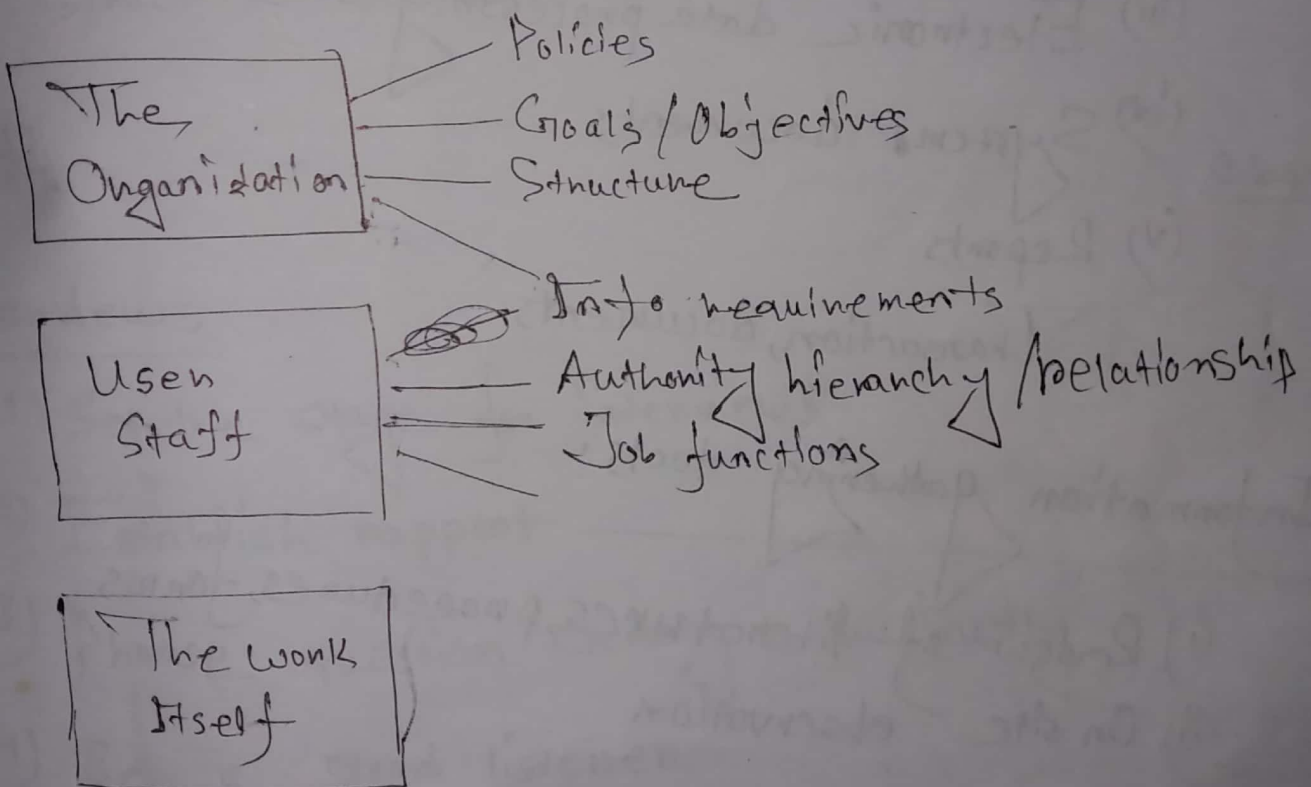
Chapter: 5

Class: 07

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Inf Describing

Kind of Information



Where do information originate?

- (i) External Source
- (ii) Internal Source.

## External Source:

- (i) Vendors
- (ii) Govt documents
- (iii) Newspapers, periodicals

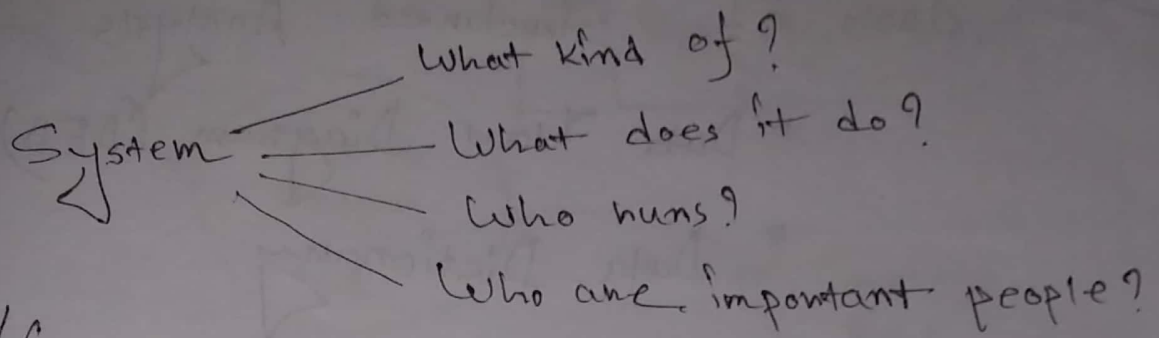
## Internal Source:

- (i) Financial report
- (ii) Users / Personal staff
- (iii) Electronic data processing docs
- (iv) Systems documents
- (v) Reports
- Transaction, documents

## Information gathering tools:

- (i) Review of literatures, procedures, forms
- (ii) On site observation
- (iii) Interviews
- (iv)

## On site observation



- (i) Natural / Concocted
- (ii) Obtrusive / Unobtrusive
- (iii) Direct / Indirect
- (iv) Structured / Unstructured

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Class: 08

## Interviews

- (1) Set the stage for interviews
- (2) Establish rapport
- (3) Phrase question clearly + succinctly
- (4) Be a good listener
- (5) Evaluate the outcome of the interview

## Questionnaires

- \* Open ended
- \* Fill in the blanks
- \* Dichotomous
- \* Ranking scales
- \* Rating
- \* MCQ

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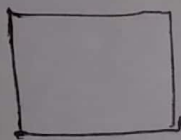
## Chapter: 6

Class: 09

### Tools of Structured Analysis

- \* Data Flow Diagram (DFD)
- \* Data Dictionary
- \* Structured English
- \* Decision tree
- \* Decision table

### Data Flow Diagram



Source / Destination



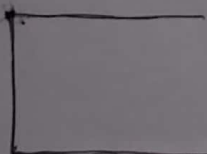
Data Flow



or



Process



Data Store



## Constructing a DFD:

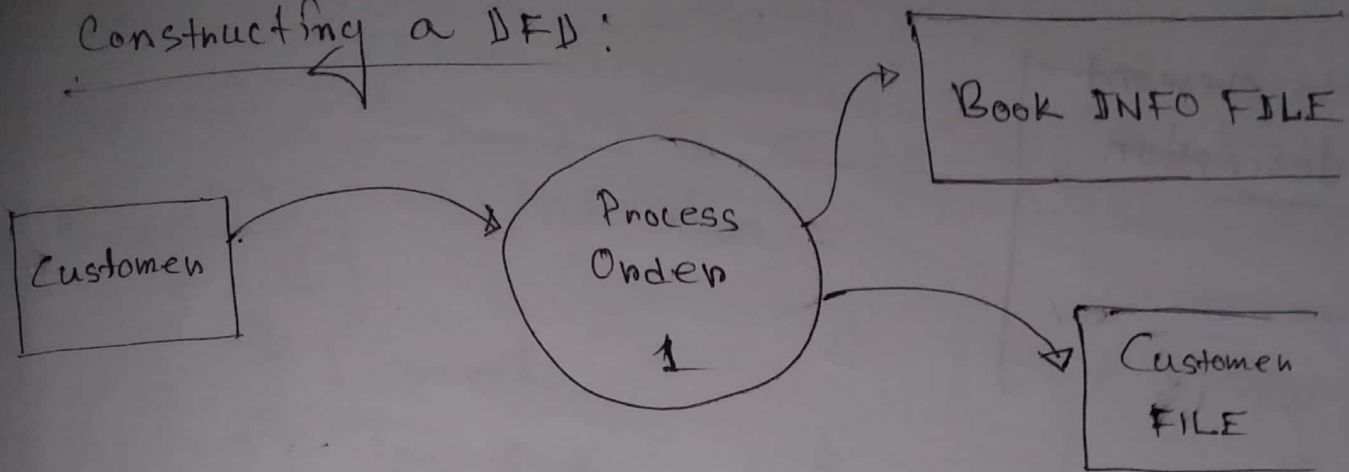


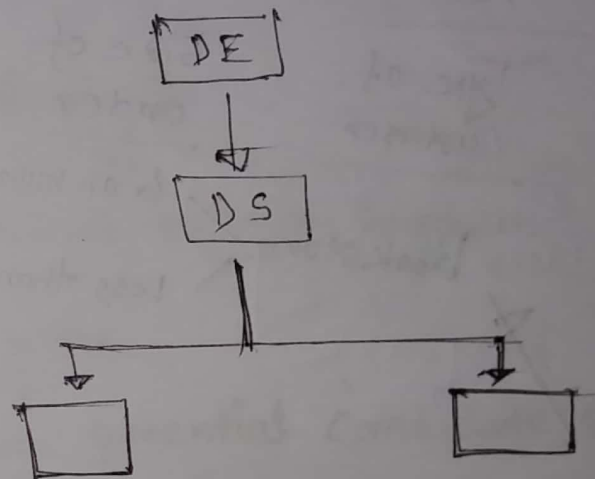
Fig: 6.3, 6.5

## Data Dictionary

Data element

Data structure

Data flow/store



## AUTHOR-NAME

- first
- middle
- last
- alias

Mandatory Optional

## Data Structure - Book DETAILS

Data Elements

AUTHOR-NAME ✓

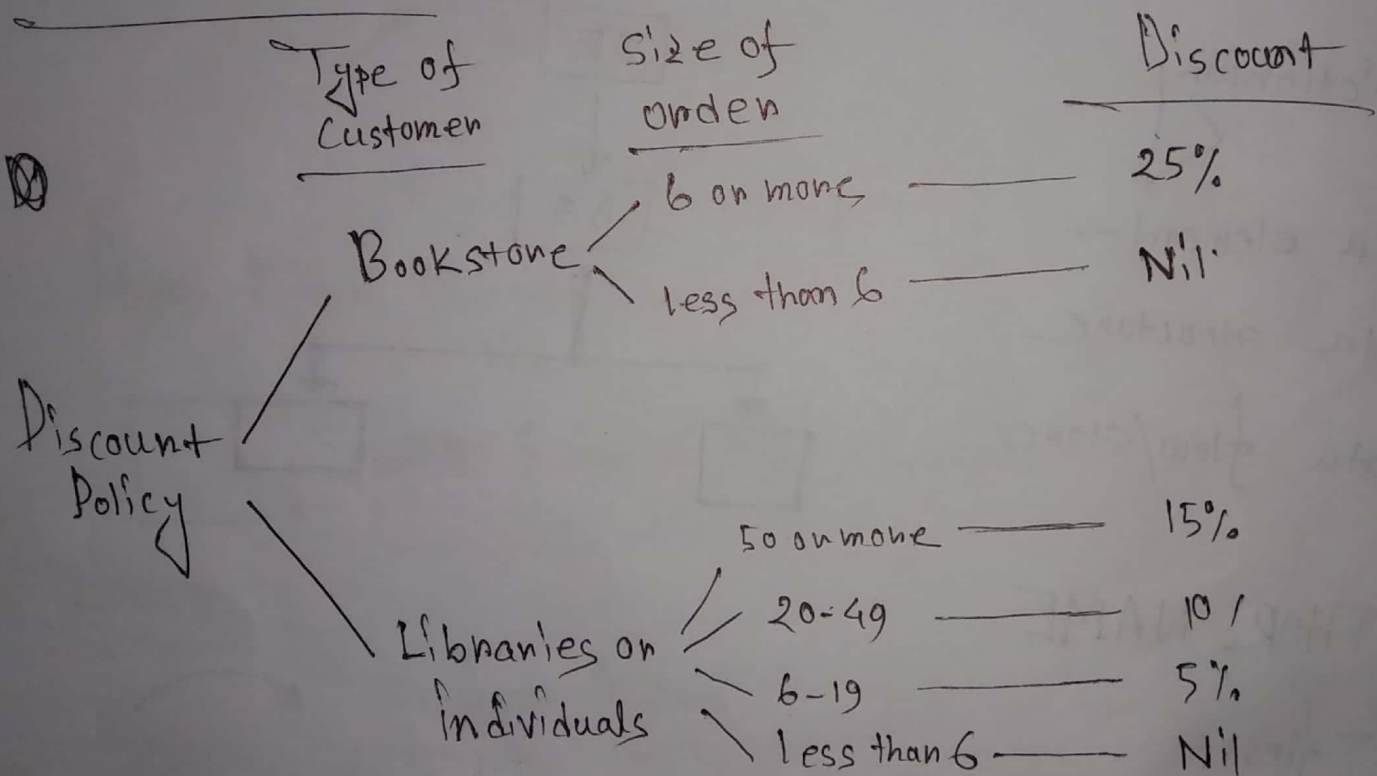
TITLE ✓

EDITION, ✓ ISBN, ✓ LOCN, ✓ PUB-NAME

QUANTITY

Data element  
description

## Decision Tree:



Decision tables [সিঙ্গেল / মাল্টিপল]

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Class: 10

# Ch - 7

## Feasibility Consideration

- (i) Economic
- (ii) Technical
- (iii) Behavioural

## Steps in Feasibility Analysis

- (i) Form a team + project leader
- (ii) Prepare system
- (iii) Enumerate potential candidate system

## Candidate Qualitative Qualitative Evaluation Matrix:

Evaluation Criteria	IBM	HP	APPLE
Performance			
System accuracy	Excellent	Ex...	Ex
Response time	Very good	Good	Good
User friendly	Excellent	Very good	very good
Growth Potential			
Costs			
System development	good	very good	good
User training			
Payback			

Waiting factor		IBM	HP	Apple			
		Rating	Score	Rating	Score	Rating	Score
Performance							
System accuracy	3	5	15	5		5	
Response time	2	4	8				
User friendly	2	5	10				
Growth Potential	4	4	16				

### Costs

System Development	5	3	15
User training	3	5	15
Payback	3	4	12

### Report

- (i) Cover Letter
- (ii) Table of Contents
- (iii) Overview
- (iv) Detailed findings
- (v) Economical justification
- (vi) Recommendations & Conclusion
- (vii) Appendix

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## Cost / Benefit Categories

- (i) Hardware cost
- (ii) Personal
- (iii) Facility
- (iv) Operating
- (v) Supply

## Types:

- (i) Tangible / Intangible
- (ii) Direct / Indirect
- (iii) Fixed / Recurring

## Cost / Benefit Determination