Data models :-

Data model describes how database's logical structure is described.

In DBMS, this data models are essentials by introducing abstraction.

↓

describes how data are linked and how to handle and store the data -> how final system should be.

Types :-

-> Hierarchical model - tree structure to organise the data

-> Network model - Any records can have several parents in the network.

-> Entity Relationship model - Real world problem is depicted in the visual form.

-> Relational model - Data kept in the form of table.

-> Object oriented data model - Data and relationship are contained in same table. This can store audio, video and all types of data. This is not possible in relational model.

-> Object relational model - hybrid of relational and Object oriented.

-> Flat model - all data stored as row & column.

-> Context data model - combination of all model.

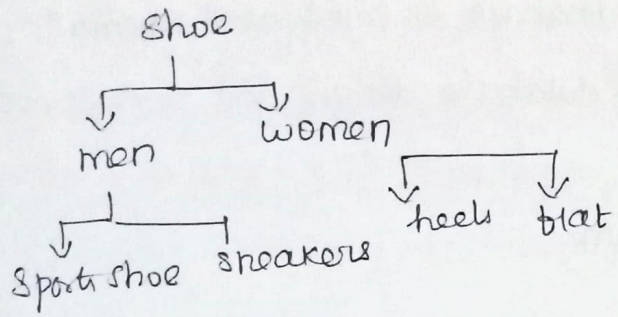
Schema :-

↳ Overall description of any given DB

Instance :-

↳ collection of data, information that DB stored at any particular moment.

Hierarchical model:-



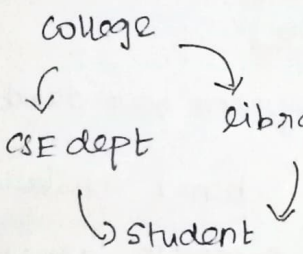
↳ parent child relationship

↳ one to many relationship

↳ deletion problem.

↳ Pointers to connect parent and child.

Network model:-

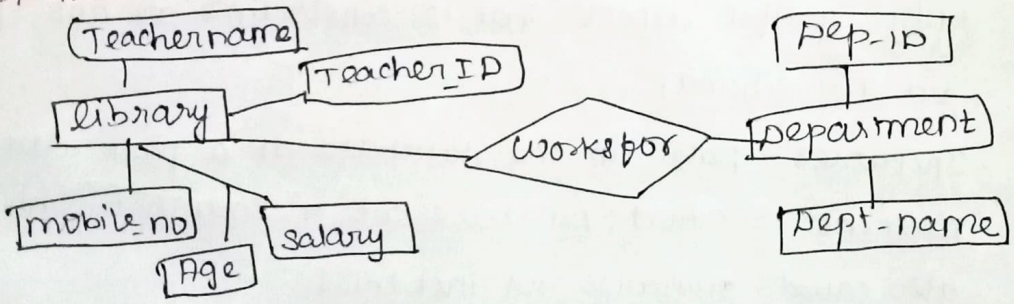


-> multiple path

-> ability to merge

-> circular linked list.

ER model:-



-> simple

-> effective communication model

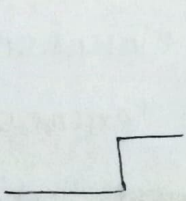
-> easy conversation

Cons

-> hidden informa-tion

-> No standard.

Object Oriented model:-



Employee

Name
Job-title
Ph-no
Dep-ID
Methods

Department

Dep-ID
Dept-name

Methods
change department.

Schemas, Instances and database state.

Description of database is called as "schema". This is specified during database design and it does not change frequently.

schema diagram

Student

Name	stud-no	class	major

Course

Course-name	Course-no	credit-hrs

Prerequisite

course-no	Pre-requisite-no

Fig:- schema diagram for database

here student, course - "schema construct".

Schema - does not provide complete aspect, it provides only specific aspect. That is constraints are not specified in the schema.

Instances - data in the database at a particular moment is called database set or snapshot. This is also called ocurences or instances.

At the definition of database, the instance is empty.

Meta data :-

Description of schema construction and constraints. Data about that data.

"schema" - also called "intension".

"Instance" - also called "extension".

"change in schema is called "schema Evolution"."

[ANSI-SPARC - American National Standard Institute, Standard Planning and Requirement Committee]