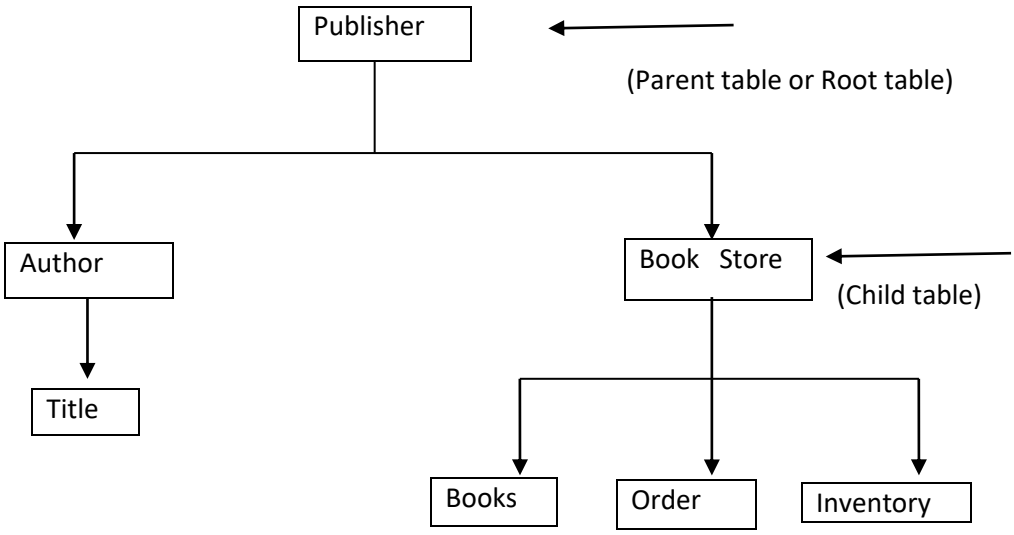
❖ What is Data Model?

- "Data model shows actual picture of Data".
- In Data model we describe what data to be stored and what is relationship between them.

    - There are three type of data model.
        - **1)** Hierarchical model
        - **2)** Network model
        - **3)** Relational model

❖ Discuss about Hierarchical Model in details.



- Data in hierarchical model represented by link between relation or record.
- In hierarchical records are organized in tree fashion.
- Architecture of hierarchical model is based on concept of parent child relationship.
- In this model parent table stand at the top of the architecture which is link with child table.
- Data in parent table access by all child tables.

- Hierarchical model work on to many patterns.
- Every hierarchical model has only one parent table (Root table).
- Parent table have number of child but child table have only one parent.

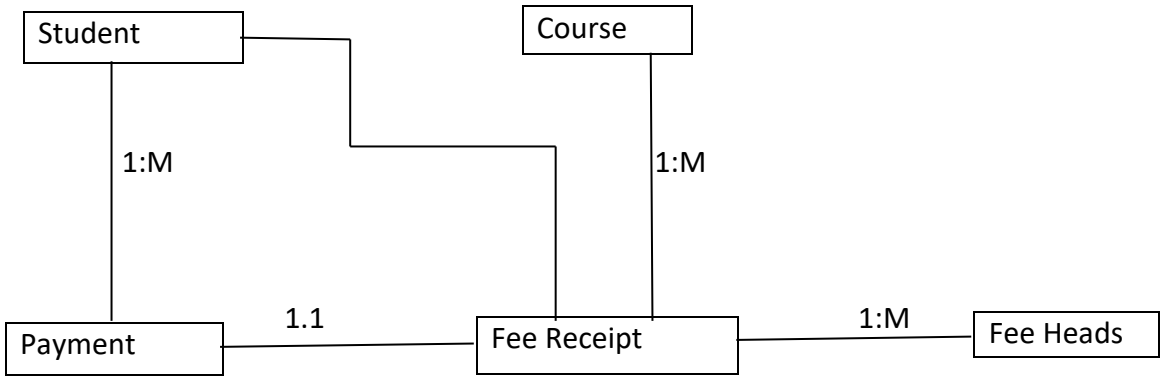
❖ Advantages:-

- Data can be retrieve quick from this model.
- Data integrity is easy to manage in hierarchical model.
- Data sharing, data security, and data integrity will provide by hierarchical.

❖ Disadvantages:-

- Duplicate Data can be shared.
- It's complex to implement on system.
- User must familiar with structure.

❖ Discuss about network model in details.



- Network model represents data in more than one parent par child relationship.
- It's mean in network model a child table has relationship with number of parent table.
- All boxes represent records type.

- It can be see that receipt is own by student, course payment, fee-head.
- In network model each link between two records represent one to many relationship and fee receipt link with payment by one to one relationship.
- Network model support multiple parent to the same records so its avoid data redundancy.

❖ Advantages:-

- It provide easy to data access.
- Data integrity provide by network model.
- Its provide conceptual simple.
- Its include DDL(Data Definition Language) ,DML(Data Manipulation Language), in DBMS.

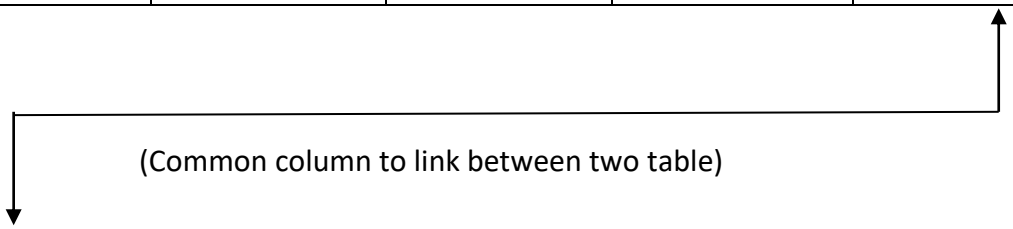
❖ Disadvantages:-

- Its generate system complexity.
- It has absent of structure independence.

❖ Discuss About Relational Modal in Details:-

- In this model user view the database by using simple tables instead of more complex hierarchical or network model.
- In Relational data model a database represented by collection of table and provide relationship between those tables.
- It represents data in raw or column represent data field.

Cust_id	Cust_name	Cust_city	Cust_ph	Agent_id
1001	Paresh	Idar	9898200010	3001
1002	Mahesh	hmt	7874765210	3002



(Common column to link between two table)

Agent_id	Agent_name	Agent_city	Agent_ph	Agent_salary
3001	Mohan	Surat	7840201002	40000
3002	Roshan	baroda	9898204520	10000

- Figure shows customer table & agent table.
- In above example there two tables have common data filed and with the help of this common data filed the two table connect with each other.
- With the help of this relationship user can share or retrieve data from both tables.

❖ Advantages:-

- Easy to use:-
  - The retrieving of any information is faster and easy therefore even first time user find result accurately.
- Flexibility:-
  - Information is easily derived from different kind of tables.
- Security:-
  - Security control and authorization can also be implementation more easily on a given table to control data access.
- Data Independence:-
  - Data independence achieved with the help normalization which avoid data redundancy problem.