## ***Database Model:***

A database model shows the logical structure of a database, including the relationships between objects and constraints that determine how data can be stored and accessed.

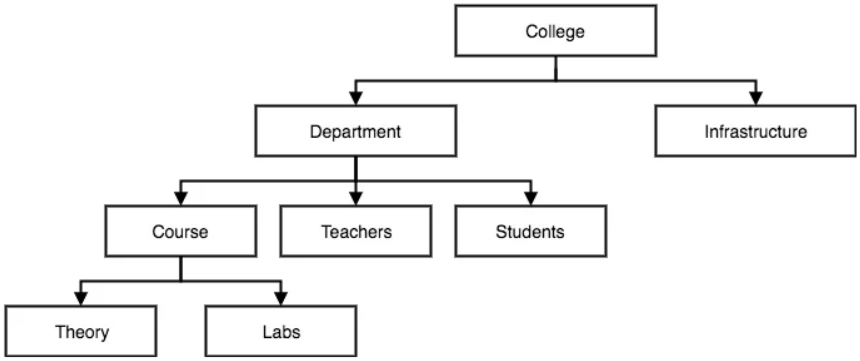
## ***Types of database models:***

There are many kinds of data models. Some of the most common ones include:

- Hierarchical Database Model
- Network Model
- Relational Model
- Object-Oriented Database Model
- Multi-Dimensional Database Model

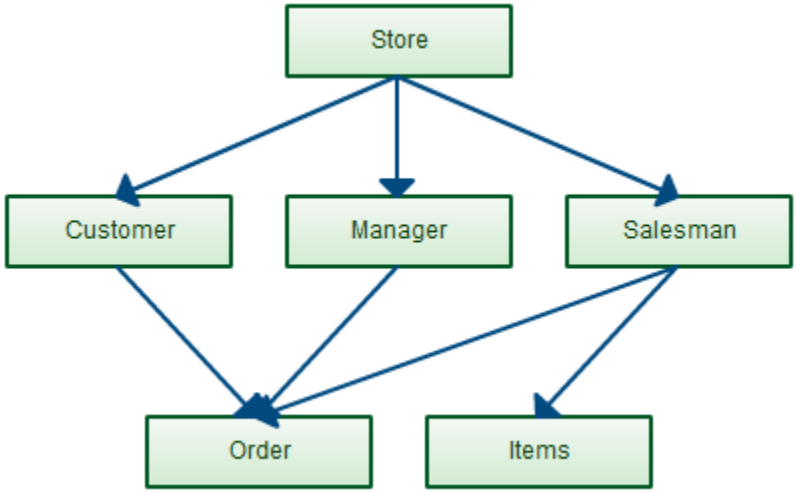
## ***Hierarchical Database Model:***

This database model organizes data into a tree-like-structure, with a single root, to which all the other data is linked. The hierarchy starts from the **Root** data, and expands like a tree, adding child nodes to the parent nodes. In this model, a child node will only have a single parent node. This model efficiently describes many real-world relationships like index of a book, recipes etc. This model was primarily used by IBM's Information Management Systems in the 60s and 70s, but they are rarely seen today.



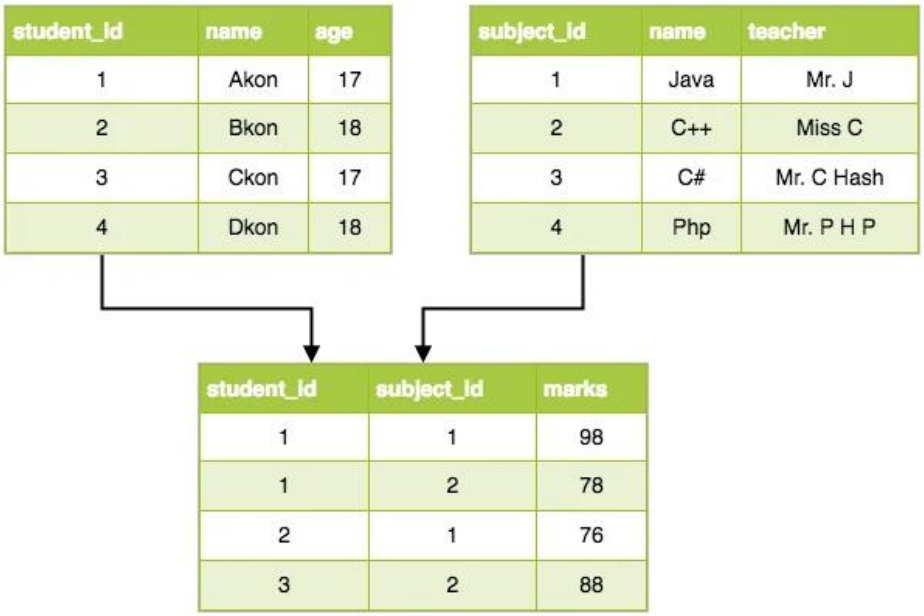
## ***Network Data model:***

This is an extension of the Hierarchical model. In this model data is organized more like a graph, and are allowed to have more than one parent node. In this database model data is more related, hence accessing the data is also easier and fast. This database model was used to map many-to-many data relationships. This was the most widely used database model, before Relational Model was introduced. It was most popular in the 70s after it was formally defined by the Conference on Data Systems Languages (CODASYL).




## ***Relational Data Model:***

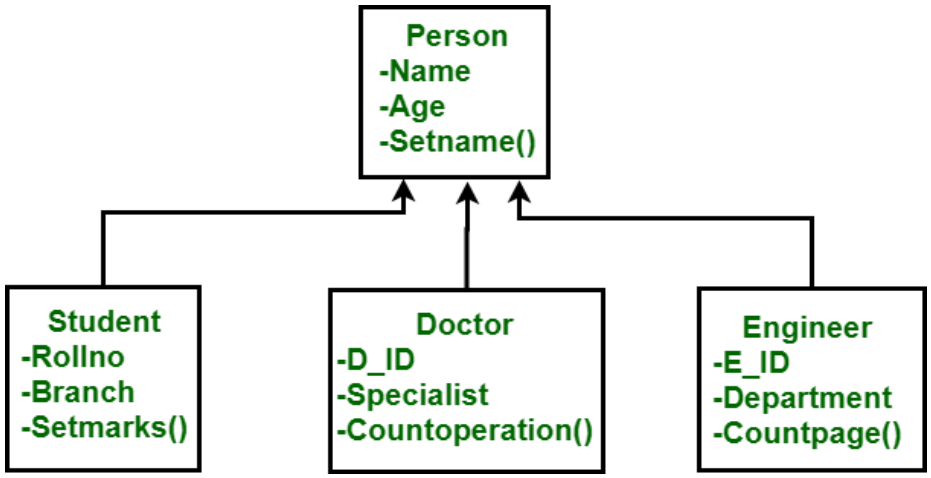
In this model, data is organized in two-dimensional **tables** and the relationship is maintained by storing a common field. The basic structure of data in the relational model is tables. All the information related to a particular type is stored in rows of that table. Hence, tables are also known as **relations** in relational model. This model was introduced by E.F Codd in 1970, and since then it has been the most widely used database model, in fact, we can say the only database model used around the world.




## ***Object Oriented Model:***

To represent the complex real-world problems there was a need for a data model that is closely related to real world. Object Oriented Data Model represents the real-world problems easily.

In Object Oriented Data Model, data and their relationships are contained in a single structure which is referred as object in this data model. In this, real world problems are represented as objects with different attributes. All objects have multiple relationships between them. Basically, it is combination of Object-Oriented programming and Relational Database Model



## ***Multidimensional Data Model:***

The multi-Dimensional Data Model is a method which is used for ordering data in the database along with good arrangement. data warehousing uses multi-dimensional databases. It is used to show multiple dimensions of the data to users. It represents data in the form of data cubes. Data cubes allow to model and view the data from many dimensions and perspectives.