E-R MODEL

Entity Relationship Model:

E-R model or diagram is a graphical representation of any database. It is used to create a blue print of any upcoming database, which can help to find out all the requirements and analysis work needs to be done. An E-R diagram can show overall logical structure of any database. An E-R diagram can save a lot of labor and cost when it's come to develop a database.

An E-R diagram consists of 3 parts:

1) **Entity**
2) **Attributes**
3) **Relationship sets**

About Relationship sets we will discuss in upcoming videos.

Entity:

Any real-world object with self-existence considered as entity in computer world. Like car, any person, any book, painting, news, building anything which is available in this world can be considered as entity. An entity can be any independent physical or virtual object. Like if we are discussing about human behaviour, then this is also considered as entity.

Attributes:

Characteristics or specification of any entity known as attributes of that entity. Attributes are physical or virtual properties of entity.

Types of attributes:

1) **Composite attributes**
2) **Simple attributes**
3) **Single valued attributes**
4) **Multi valued attributes**
5) **Derived attributes**
6) **Stored attributes**
7) **Complex attributes**
8) **Key attributes**

1) **Composite attributes:** Those attributes which may have more then one section like name can be sub divided in First, Middle, last name. Composite attributes can be filled in sub sections but always show as a single attribute. Like you can enter name in three sections but the display will be combined. These brackets "()" are used to represent composite attributes.

2) **Simple attributes:** Those attributes which cannot be divided further like age of any person.

3) **Single valued attributes:** Those attributes whose values are always remain same like name of any person.

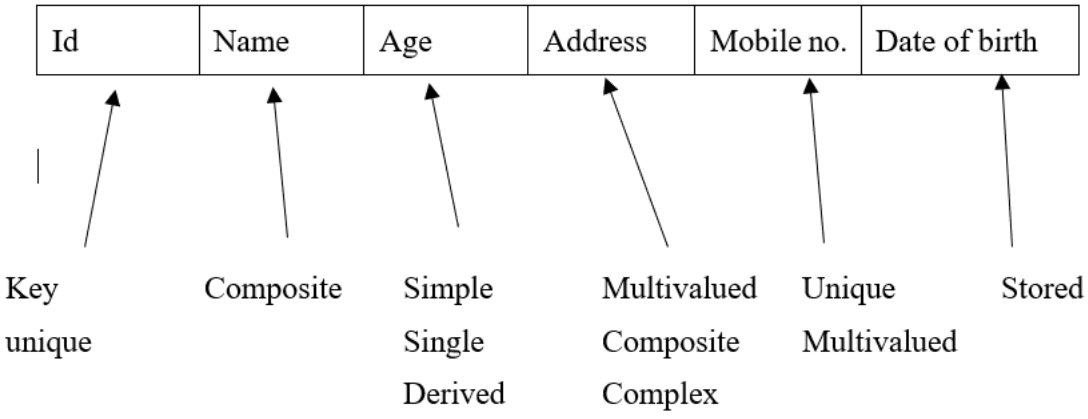
4) **Multi valued attributes**: Those attributes whose values have more than one entry like a person's name is single valued but his/her number of degrees can be more then one. Like Under graduation and post-graduation. These brackets "{}" are used to represent multivalued attributes.

5) **Derived attributes:** Those attributes whose value can be derived from other attributes like from date of birth we can derived age of a person.

6) **Stored attributes:** Those attributes which value remain constant known as stored attributes. Derived attributes are derived from stored attributes.

7) **Complex attributes:** It is a combination of Multivalued and Composite attribute. These kinds of attributes have many sub sections in their values. Like Degree of any person can be dived in graduation and Masters. These degrees are also sub divided in further details like name of degree, institute, year of passing etc.

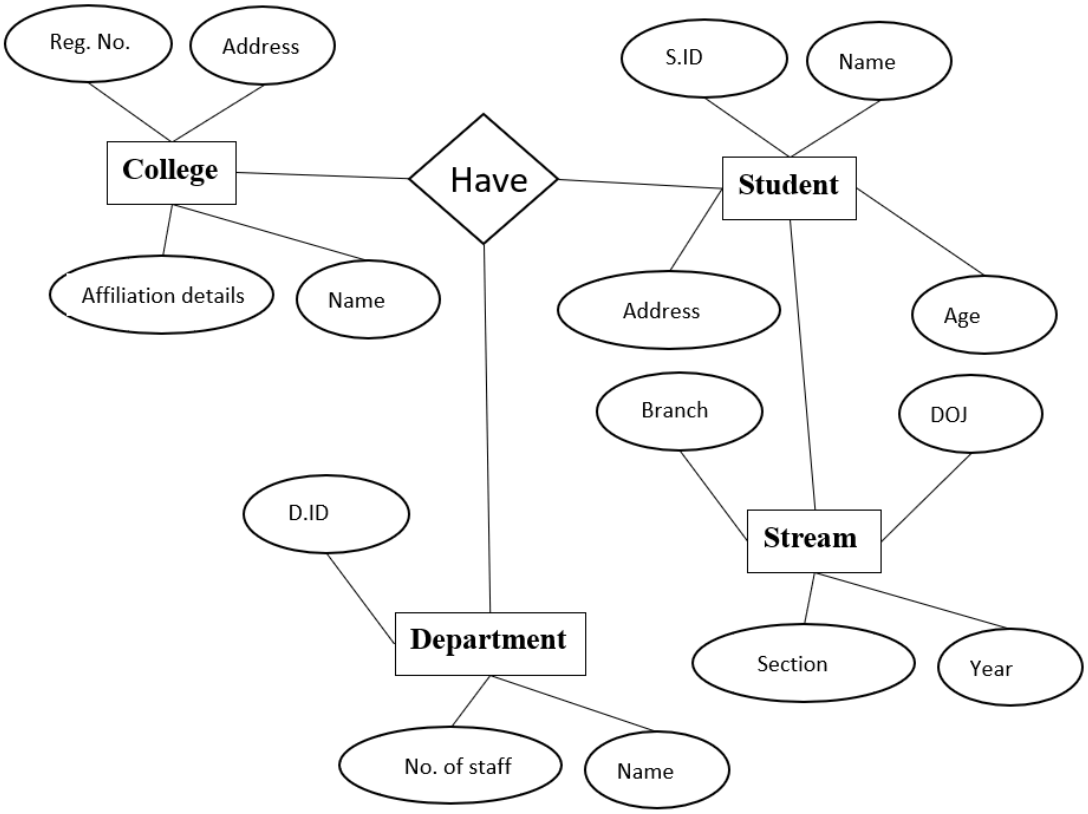
8) **Key attributes:** Those attributes whose value is unique for that entity. Like registration number of any student or chassis number of any vehicle etc. These types of key attributes are used to create different kind of keys in relational data models.



Steps to create an E-R diagram:

1) First chose a topic or subject for which you wanted to create a database. Like college management.
2) Split it in Entities. Like College, student, staff, teachers, transportation, building, subjects, sections, departments etc. Remember all entities should have individual existence.
3) Write down all entities in separate rectangle boxes.
4) Find each and every possible attribute of an entity, like name, registration number, location, address, communication options of entity "College".
5) Repeat the last stage for every entity you need in your E-R diagram.

6) Now remove Entities and attributes which you don't want to make part of the E-R diagram.
7) Write down attributes in ovals and connect these ovels with their respective entity using lines.
8) Find relation between two entities and connect them with proper relationship.



Entity Relationship Diagram of College Management Database