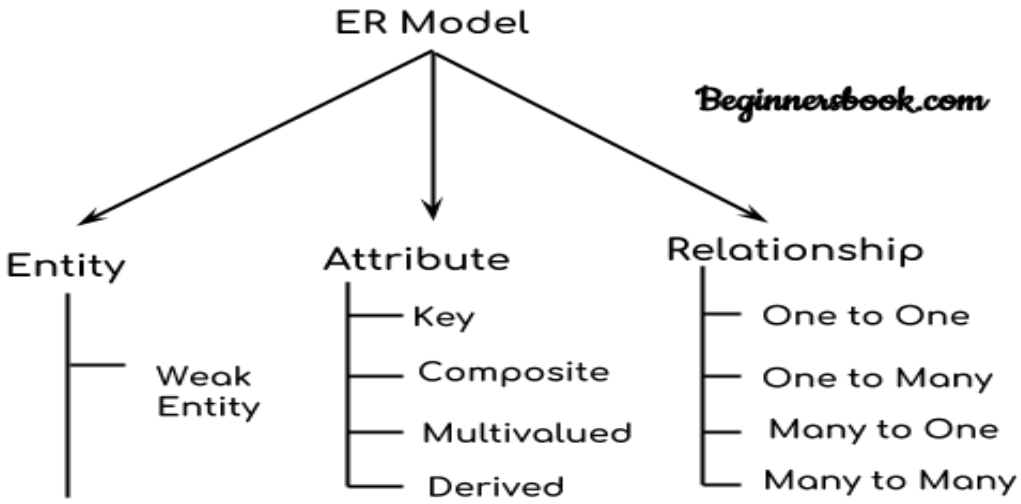
ER diagram

ER diagram or ERD stand for entity relationship diagram. It is a visual representation of different entity within a system and how they related with each other. Here entity set represent is a group of similar objects from real world. It is a layout or blue print of a database. It represents logical structure of a database.

Component of an ER diagram:

There are three main component of an ER diagram

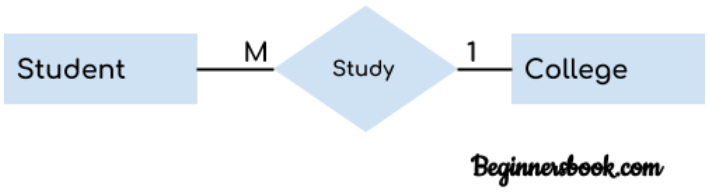
1. Entity
2. Attribute
3. Relationship



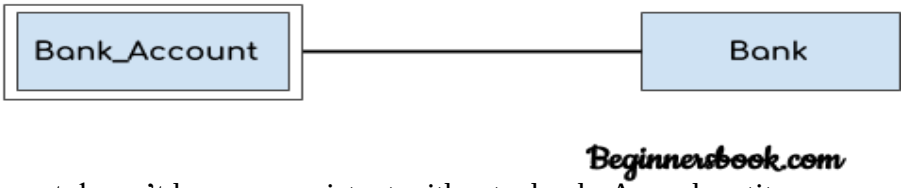
Components of ER Diagram

Entity: in ER diagram entity represent a real world object. Entity can be anything such as person, animals or non-living things which have their own characteristic.

here student and college are two entity.



Weak entity: the entity which doesn't contain any key attribute of its own is known as weak entity. Or an entity which doesn't uniquely identify by its own attribute and depends on other entities is known as weak entity.

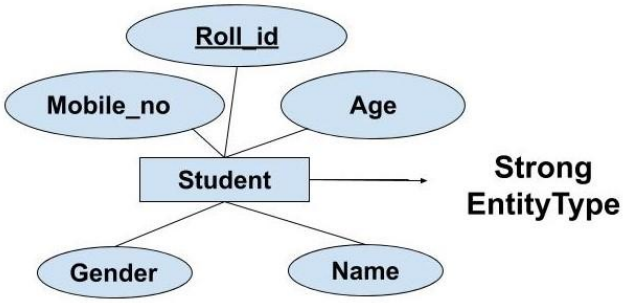


A bank account doesn't have any existent without a bank. A weak entity represent by double rectangle.

Using foreign key we relate a weak entity with another strong entity.

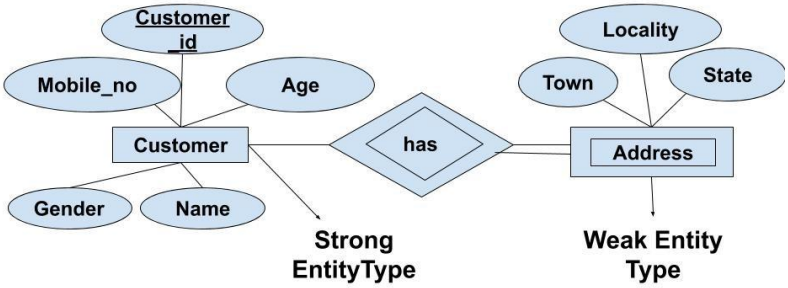
A real life example is child only exist if parents exist. So child depends on parents so child is a weak entity.

Strong entity: strong entity have key attribute. The primary key helps us to identify each entity uniquely. *Strong entity have primary key*

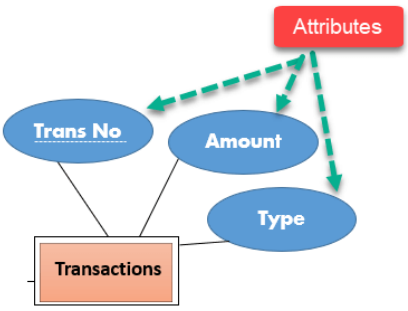


Student entity is uniquely represented by the primary key student_roll no so it is a strong entity.

Example: If we have two tables of Customer(Customer_id, Name, Mobile no, Age, Gender) and Address(Locality, Town, State, Customer_id). Here we cannot identify the address uniquely as there can be many customers from the same locality. So, for this, we need an attribute of Strong Entity Type i.e. 'Customer' here to uniquely identify entities of 'Address' Entity Type



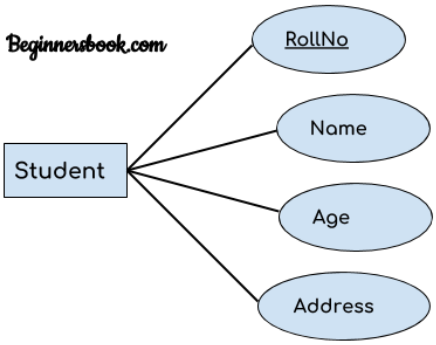
Attribute: attribute describe the characteristics or property of an entity. It represent by an oval in ER diagram.



There are 4 types of attribute:--

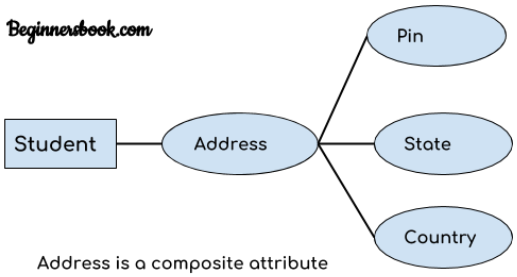
1. Key attribute
   2. Composite attribute
   3. Multivalued attribute
   4. Derived attribute

Key attribute: key attribute represent the main characteristic of an entity. Consider as a primary key which is unique.



Student roll_no uniquely identify a student from sets of students.

Composite attribute: an attribute which is the combination of some other attributes is known as composite attribute



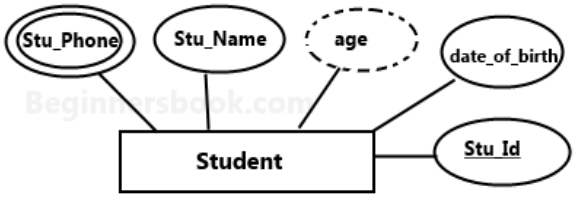
Address attribute is a compose attribute which is combination of attribute such as pin, country, state etc.

Multivalued attribute : multivalve attribute can have more than one value. For example

A student can have more than one phn_no and email address. So Phn_no and email attribute are multivalve attribute.

Derived attribute: a derived attribute is one whose values are dynamic and derived from other attribute. A person age is a derived attribute which changes time to time normally this kind of attribute are not physically include in the database. A person age is derived from his date of birth.

For example, age should not be stored directly. Instead, it should be derived from the DOB of that employee.



Age is derived attribute

Stu_phone is multivalued attribute