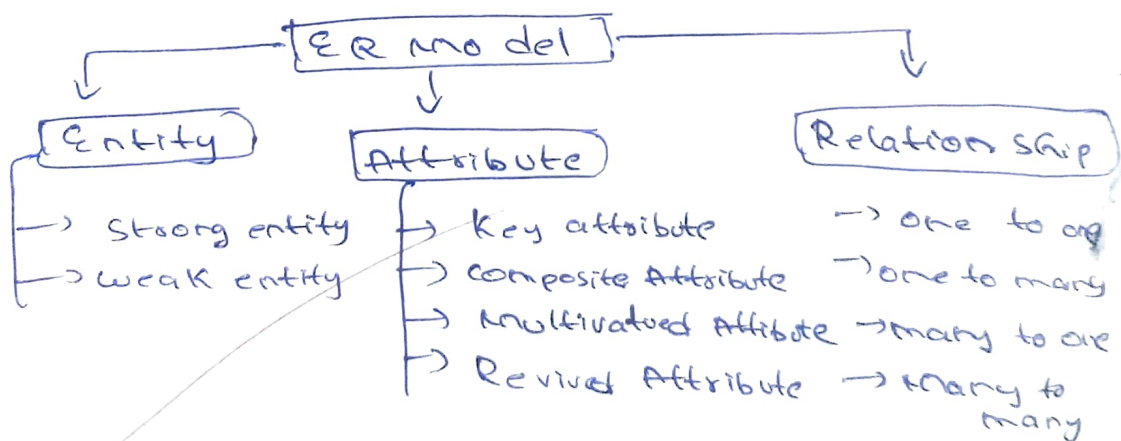## Introduction to ER Model :-

The entity - Relationship model is a concep
tual model for designing a database. This
model represents the logical structures of a
database, including entities, their attributes
and relationship between them

Entity : An object that is stored as data
Such as student, conrce (or) company

- Attribute :- Properties that describes an
entity such as Student ID, course
name (or) Employee Email

- Relationship : A connection b/w entities such
as a student enrolls in a course


```
                    ┌──── ER model ────────────┐
                    │          ↓                ↓
        ┌───────────┴──┐  ┌──────────┐    ┌──────────────┐
        │   Entity     │  │Attribute │    │ Relationship │
        └──────────────┘  └──────────┘    └──────────────┘
         → Strong entity   → Key attribute     → one to one
         → weak entity     → composite Attribute → one to many
                           → Multivalued Attribute → many to one
                           → Revived Attribute → many to
                                                   many
```

·) The graphical representation of this model
is called an Entity - Relation Diagram

ER model in database Design process :-

·) we typically follow the below steps for
designing a database for an application

·) Gather the requirements (functional and data)
to the database uses

Symbols used in ER model

- Rectangles : It represents entities in ER
- Ellipse : It represents attributes in ER
- Diamond : It represents Relationship among

- Lines : Represent Attributes to Entities & Entity sets
- Double Ellipse : Represent Multi-valued attributes
- Double Rectangle : Represents weak Entities, depend on other entities for identification

Rectangle	Entities in ER model
Ellipse	Attributes in ER model
Line	Relationship among Entities
Double Ellipse	Multi-Valued Attributes
Double Rectangle	weak Entity

What is an Entity!

An Entity represents a real-world object concept (or) thing about which data is stored in a database. It act as building block of a database.

Examples of Entity

- Real-world objects : Person, car, Employee etc
- Concepts : course, Event, Reservation
- Things : Product, Document, Device etc

Types of Attributes

1. Key Attribute

The attribute which uniquely identifies each entity in the entity set is called key attribute. For example, Roll No will be unique for each students.

$$Roll-No$$

2. Composite Attribute

An attribute composed of many other attributes is called a composite attribute. For example the address attribute of the Student entity type consists of street, city, street, and country

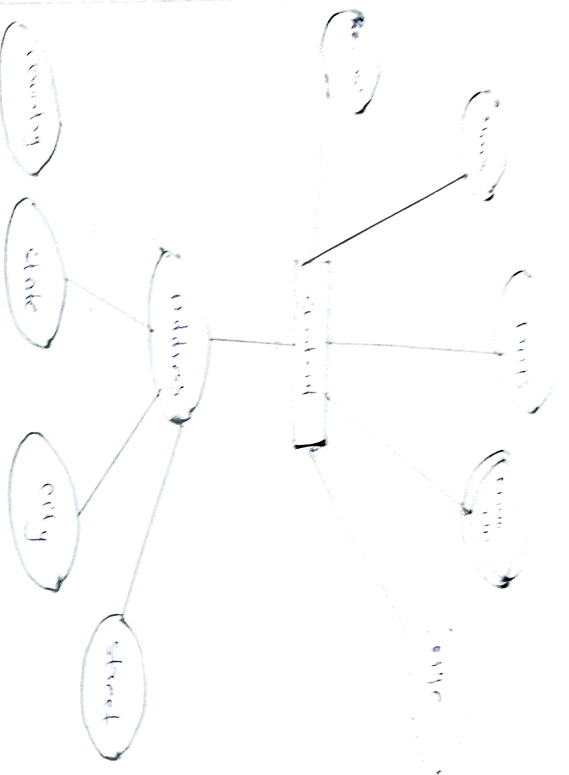| Street	city	state
		country

$$Address$$

3. Multivalued Attribute

An attribute consisting of more than one value for a given entity. For example phone-No can be more than one for a given student

$$Phone - No$$

4. Derived Attribute

An attribute that can be derived from other attributes of the entity type is known as a derived attributes. eg. Age

$$Age$$

Result: This is the ER diagram executes
(by city county) tool Successfully