ER Model

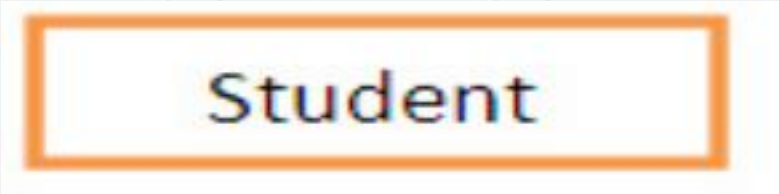
An entity relationship model, also called an entity-relationship (ER) diagram, is a graphical representation of entities (which will become tables) and their relationships to each other.

Components of ER Diagram

- Entity
- Attributes
- Relationship

ER Diagram Component : Entity

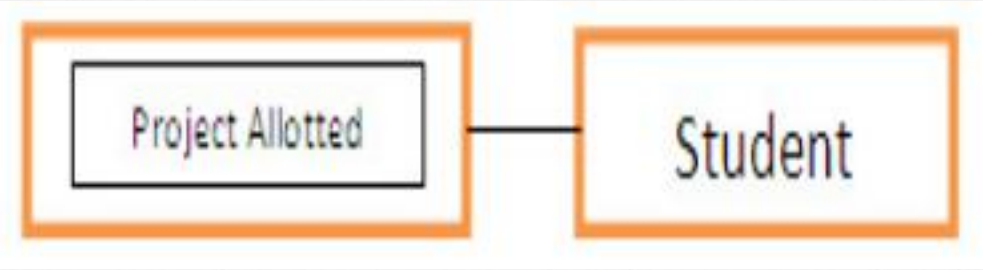
- Any real-world object can be represented as an entity about which data can be stored in a database.
- Any living or non-living objects can be represented by an entity.
- An entity is symbolically represented by a rectangle enclosing its name.



Types of Entity

- **Strong Entity:** A strong entity has a primary key attribute which uniquely identifies each entity.

- **Weak Entity:** A weak entity does not have a primary key attribute and depends on other entity via a foreign key attribute.

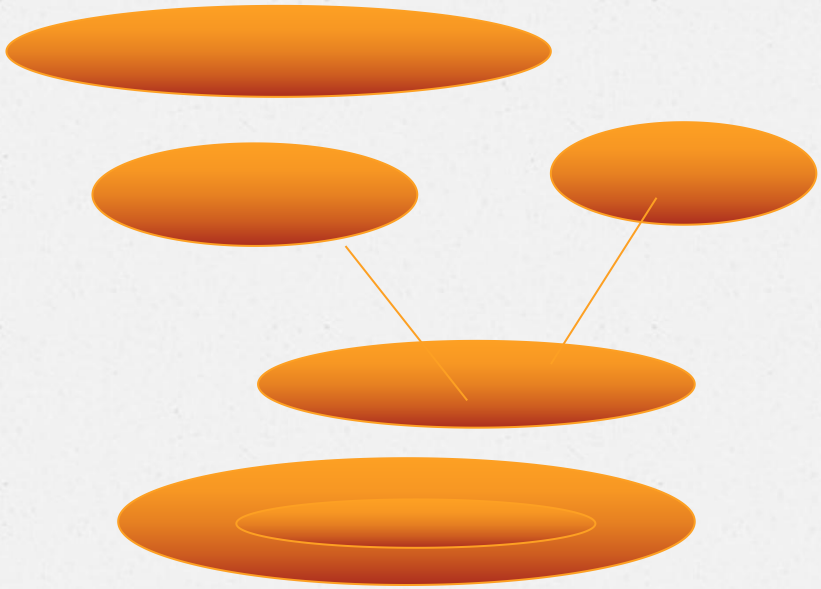


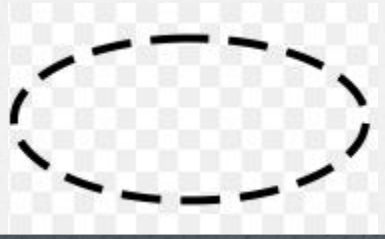
ER Diagram Component : Attribute

- Properties of an entity.
- For example, a car entity would be described by attributes such as price, registration number, model number, color etc.
- Attributes are indicated by ovals in an ER diagram.

Types of Attributes

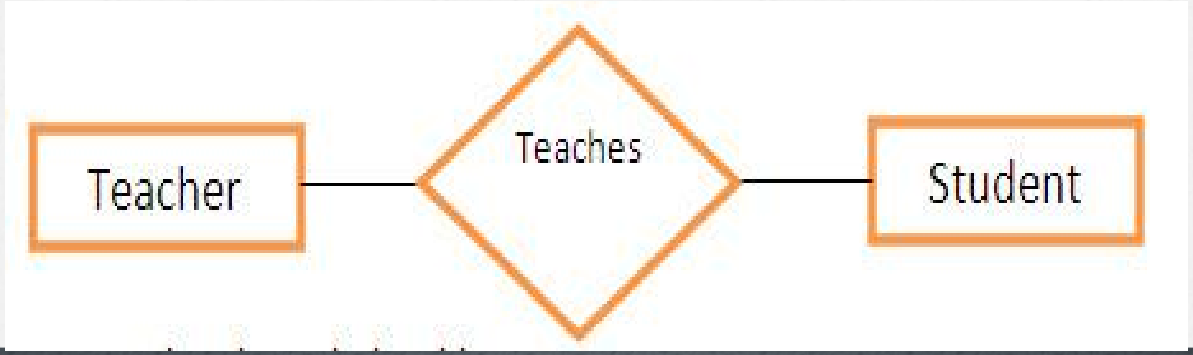
- Simple
- Composite
- Single valued
- Multi valued
- Derived





ER Diagram Component : Relationship

- Association among several entities.
- Normally, a verb in a sentence signifies a relationship.
- A diamond is used to symbolically represent a relationship in the e-r diagram.



Mapping Cardinalities

- Express the number of entities to which another entity can be associated via a relationship.
- Types of Mapping Cardinatlities

1. One to One
2. One to Many
3. Many to One
4. Many to Many

Types of Mapping Cardinalities

- One to One:

- One to Many:

- Many to One:

- Many to Many:

Case Study on ER Diagram

Hospital Management System

Hospital Management System

- Scenario Description
- Identify entities
- Identify attributes
- Identify relationships
- Identify mapping cardinalities
- Draw ER Diagram

Hospital Management System