//Day 4 of learning DBMS

**Basic ER Features** studied in the **LEC-3,** can be used to model most DB features but when complexity increases, it is

better to use some Extended ER features to model the DB Schema.

**2. Specialisation**

**1.** In ER model, we may require to subgroup an entity set into other entity sets that are distinct in some way with other

entity sets.

**2. Specialisation** is **splitting** up the entity set into further **sub entity sets** on the basis of their **functionalities**,

**specialities** and **features**.

**3.** It is a **Top-Down** approach.

**4.** e.g., **Person** entity set can be divided into **customer**, **student**, **employee**. Person is **superclass** and other specialised

entity sets are **subclasses**.

**1.** We have **“is-a”** relationship between superclass and subclass.

**2.** Depicted by **triangle** component.

**5. Why** Specialisation?

**1.** Certain attributes may only be applicable to a few entities of

the parent entity set.

**2.** DB designer can show the distinctive features of the sub entities.

**3.** To group such entities we apply Specialisation, to overall **refine** the DB blueprint.

**3. Generalisation**

**1.** It is just a **reverse** of Specialisation.

**2.** DB Designer, may encounter certain properties of two entities are overlapping. Designer may consider to make a

new generalised entity set. That generalised entity set will be a super class.

**3. “is-a”** relationship is present between subclass and super class.

**4.** e.g., **Car**, **Jeep** and **Bus** all have some common attributes, to avoid data repetition for the common attributes. DB

designer may consider to Generalise to a new entity set “**Vehicle**”.

**5.** It is a **Bottom-up** approach.

**6. Why** Generalisation?

**1.** Makes DB more **refined** and **simpler**.

**2.** Common attributes are not **repeated**.

**4. Attribute Inheritance**

1. **Both** Specialisation and Generalisation, has attribute inheritance.

2. The attributes of higher level entity sets are inherited by lower level entity sets.

3. E.g., **Customer & Employee** inherit the attributes of **Person**.

**5. Participation Inheritance**

1. If a parent entity set participates in a relationship then its child entity sets will also participate in that relationship.

**6. Aggregation**

1. **How to show relationships among relationships?** - Aggregation is the technique.

2. **Abstraction** is applied to treat relationships as higher-level entities. We can call it Abstract entity.

3. **Avoid redundancy** by aggregating relationship as an entity set itself.