Foundation University

Rawalpindi Campus

Introduction to Database Systems – CSC - 221

A Presentation by

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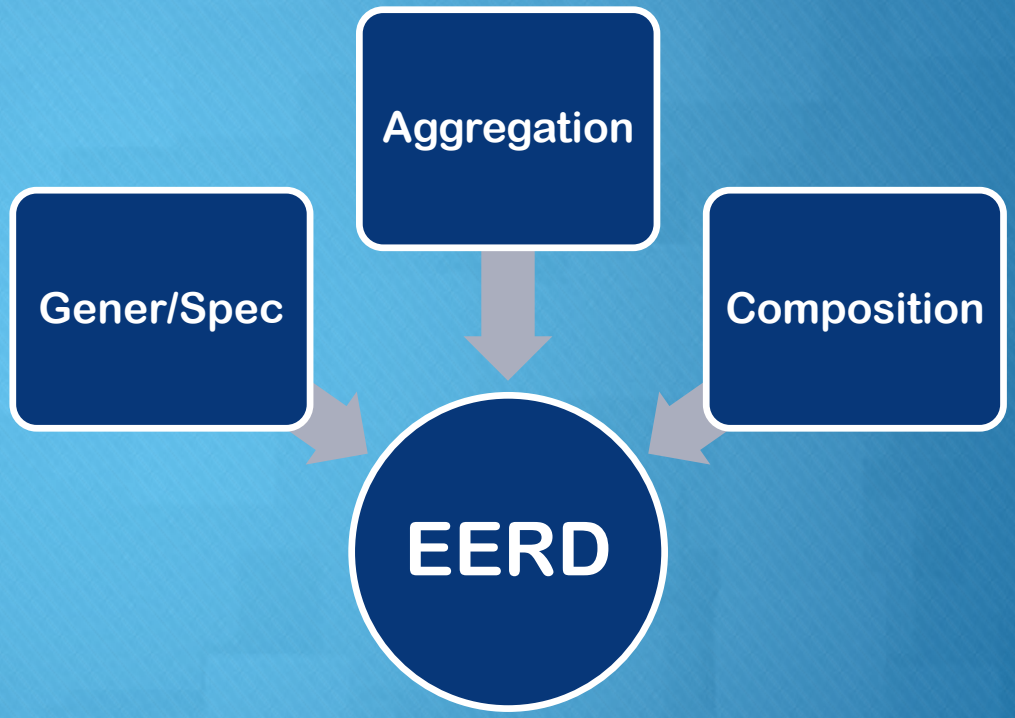
RECAP

- MY NAME IS……
- I REMEMBER……

Objectives of Today's Lecture



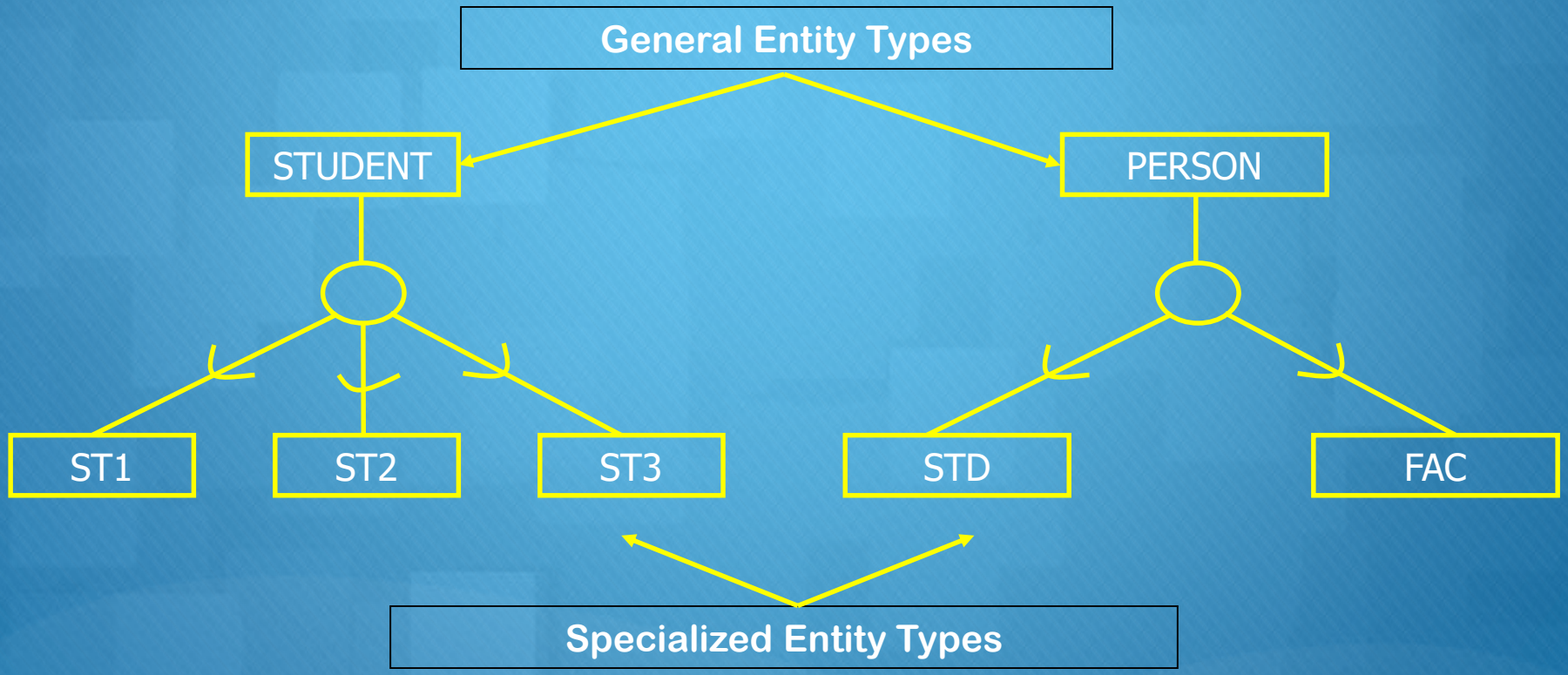
Enhanced Entity Relationship Data Model

- Different proposals
- Most common feature is representation of supertypes and subtypes
- A popular feature of Object Oriented paradigm

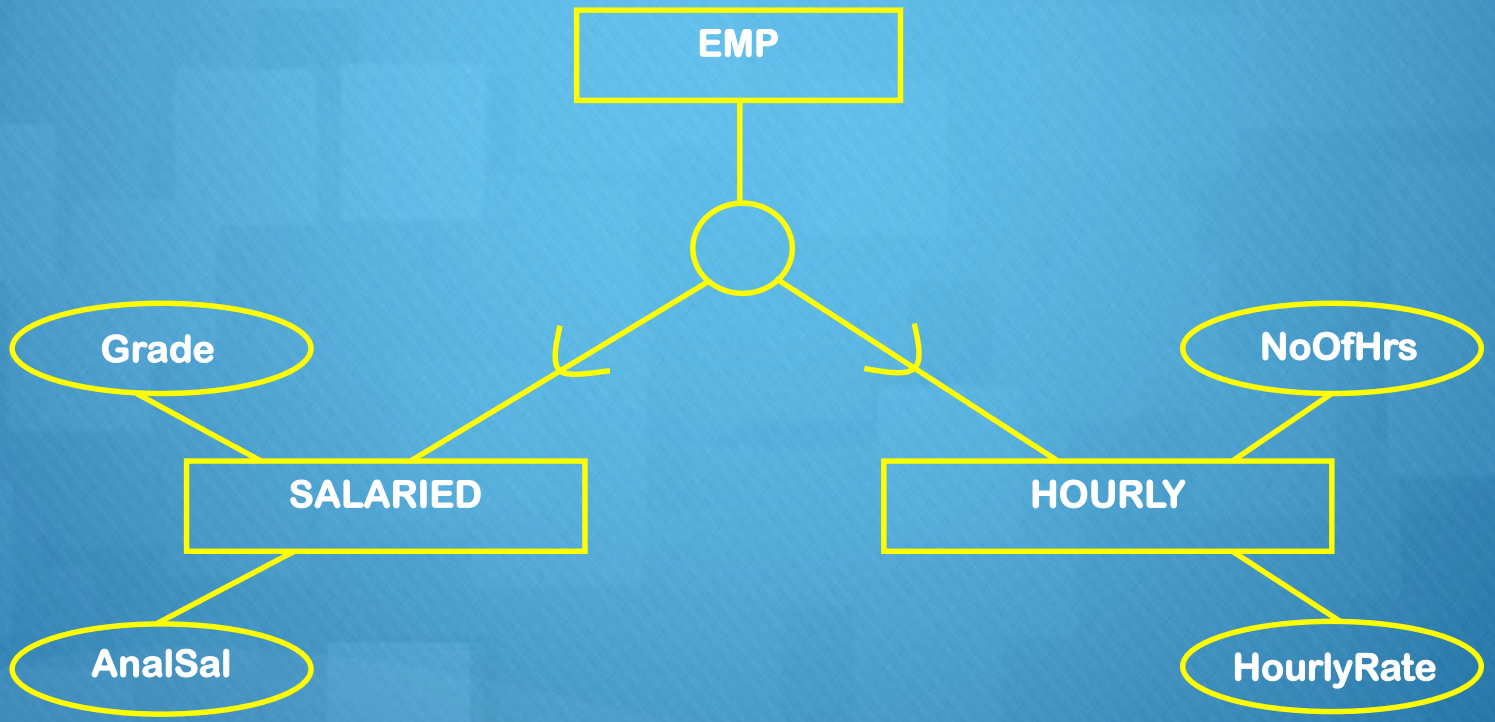
Super/Sub types

- Also called generalization/ specialization
- Supertype is called a General Entity type whereas subtypes are the specializations/Specific Entity type.
- It is also known as IS-A relationship.

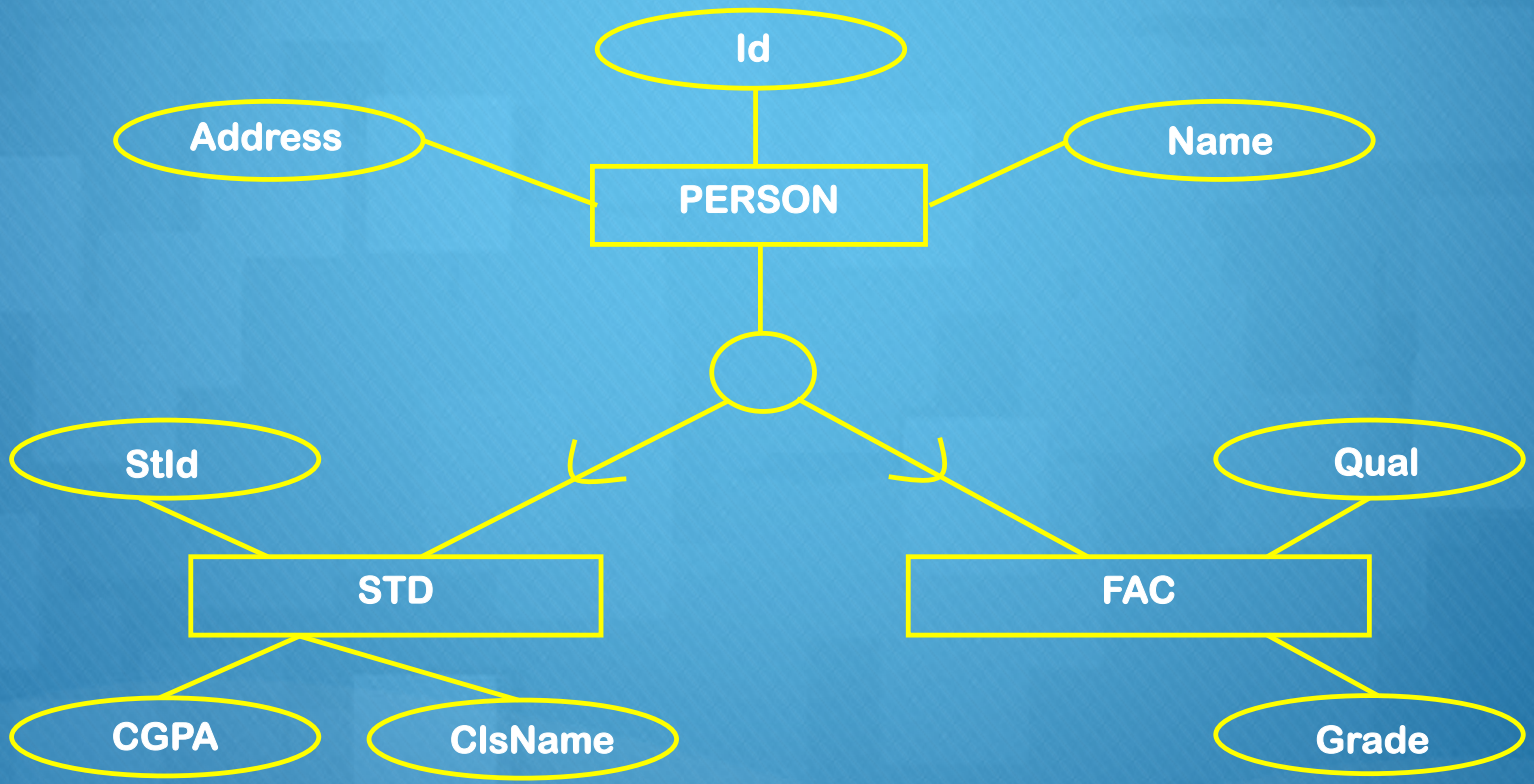
Super/Subtypes



Super/Subtypes



Super/Subtypes



Inheritance

- Generalization/Specialization relationship results inheritance between supertype and subtypes.
- Subtypes inherit or get all the attributes of supertype.

Super/Subtype Relationship

- Use/Advantage
- How to identify
  - General knowledge
  - Based on the attributes

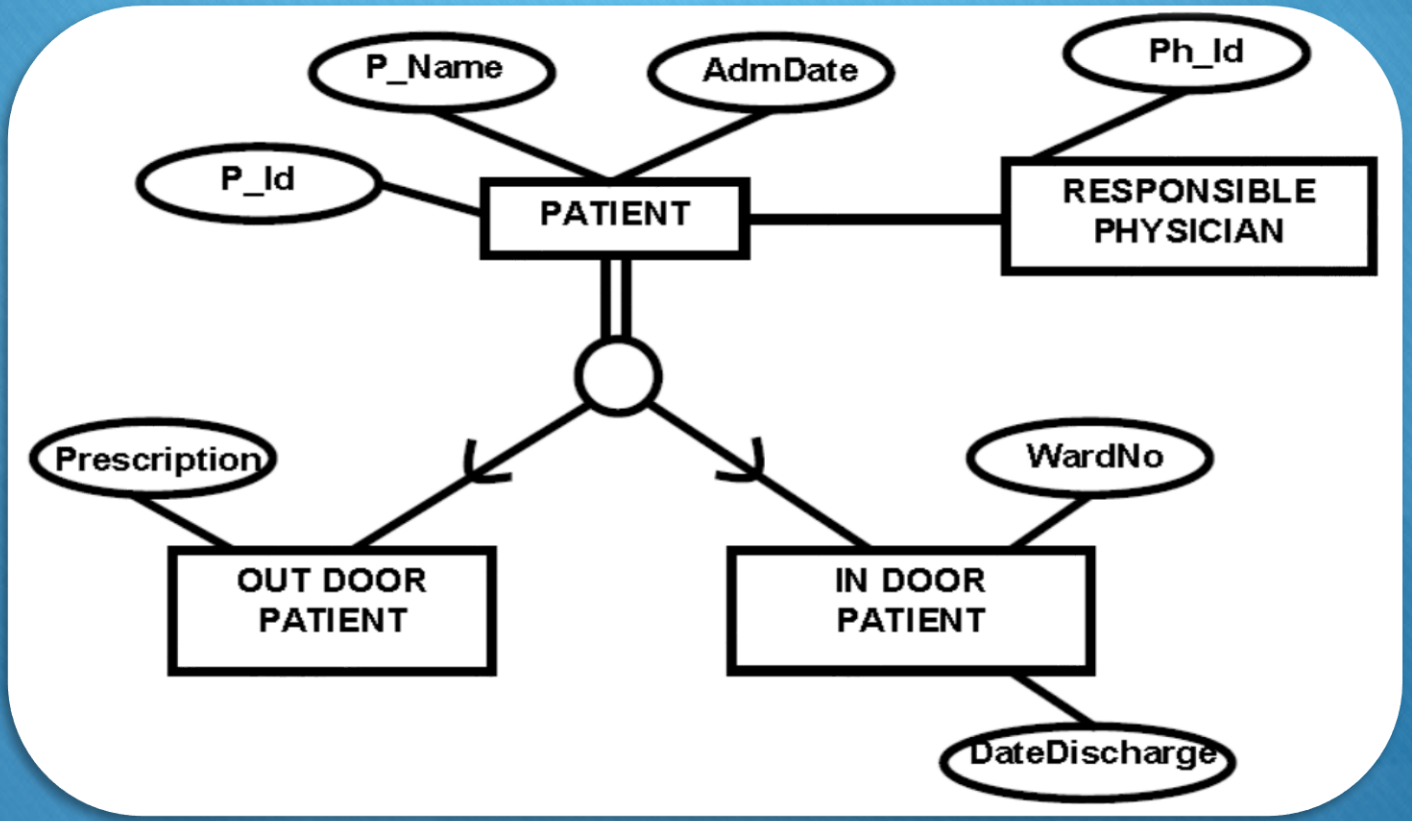
Specifying Constraints

- Completeness constraint
  - Total specialization rule
  - Partial specialization rule
- Disjointness constraint
  - Disjoint rule
  - Overlap rule

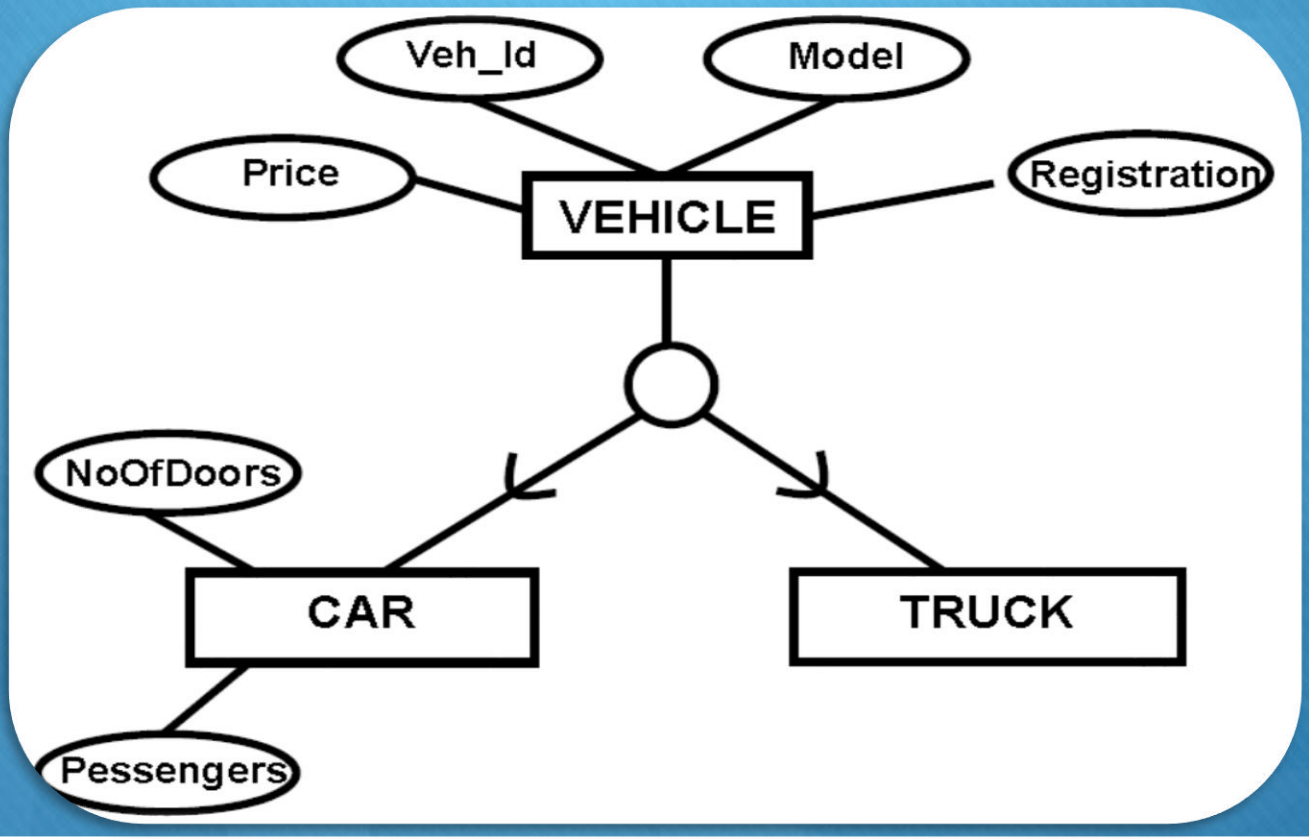
Completeness constraint

- **Total Specialization Rule**
  - All the instances of the supertype entity must be present in at one of the subtype entities, i.e.—there should be not an instance of the supertype entity which does not belong to any of the subtype entity.
- **Partial Specialization Rule**
  - it is not necessary for any supertype entity to have its entire instance set to be associated with any of the subtype entity

Total Completeness Rule



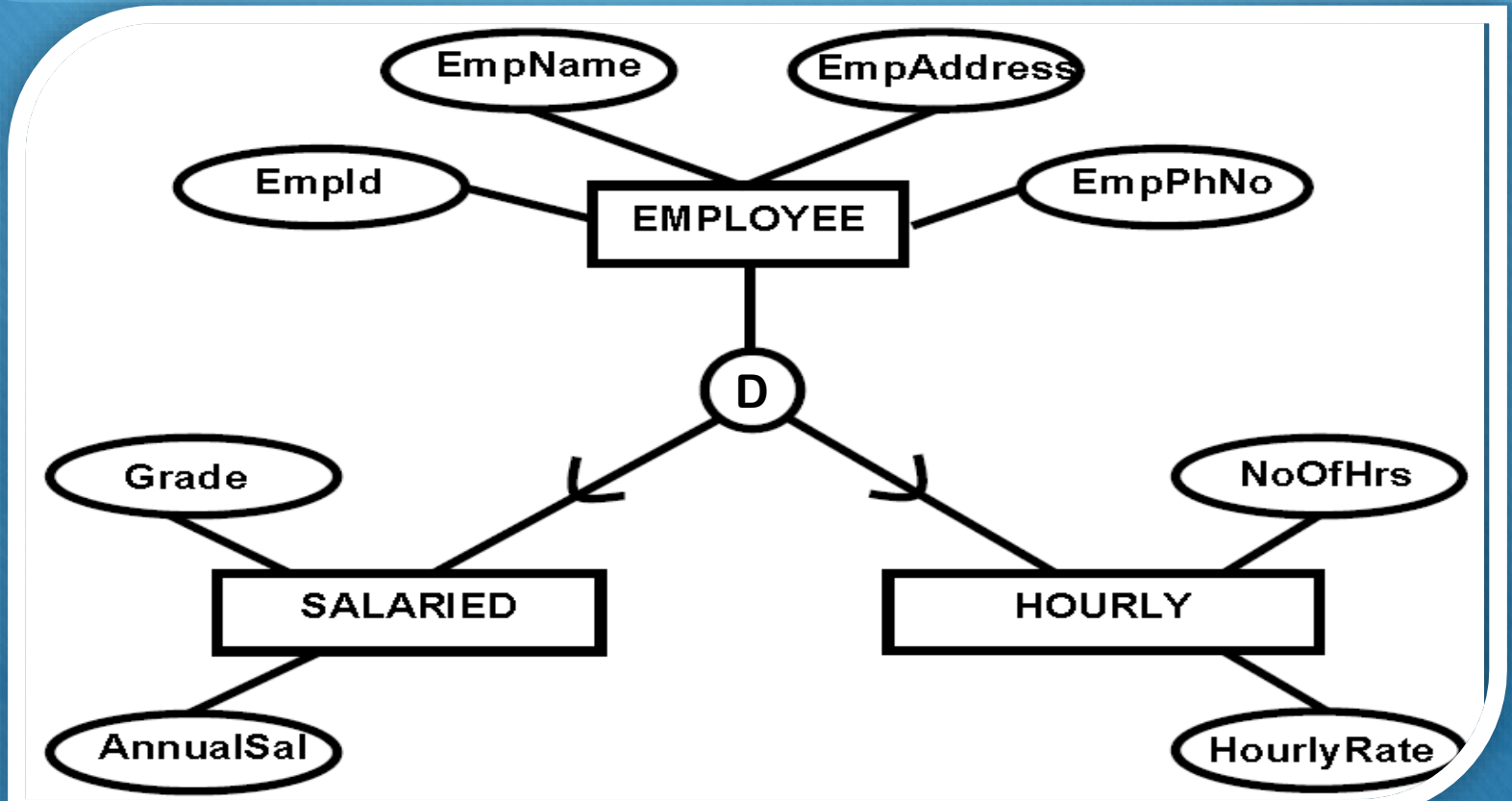
Partial Completeness Rule



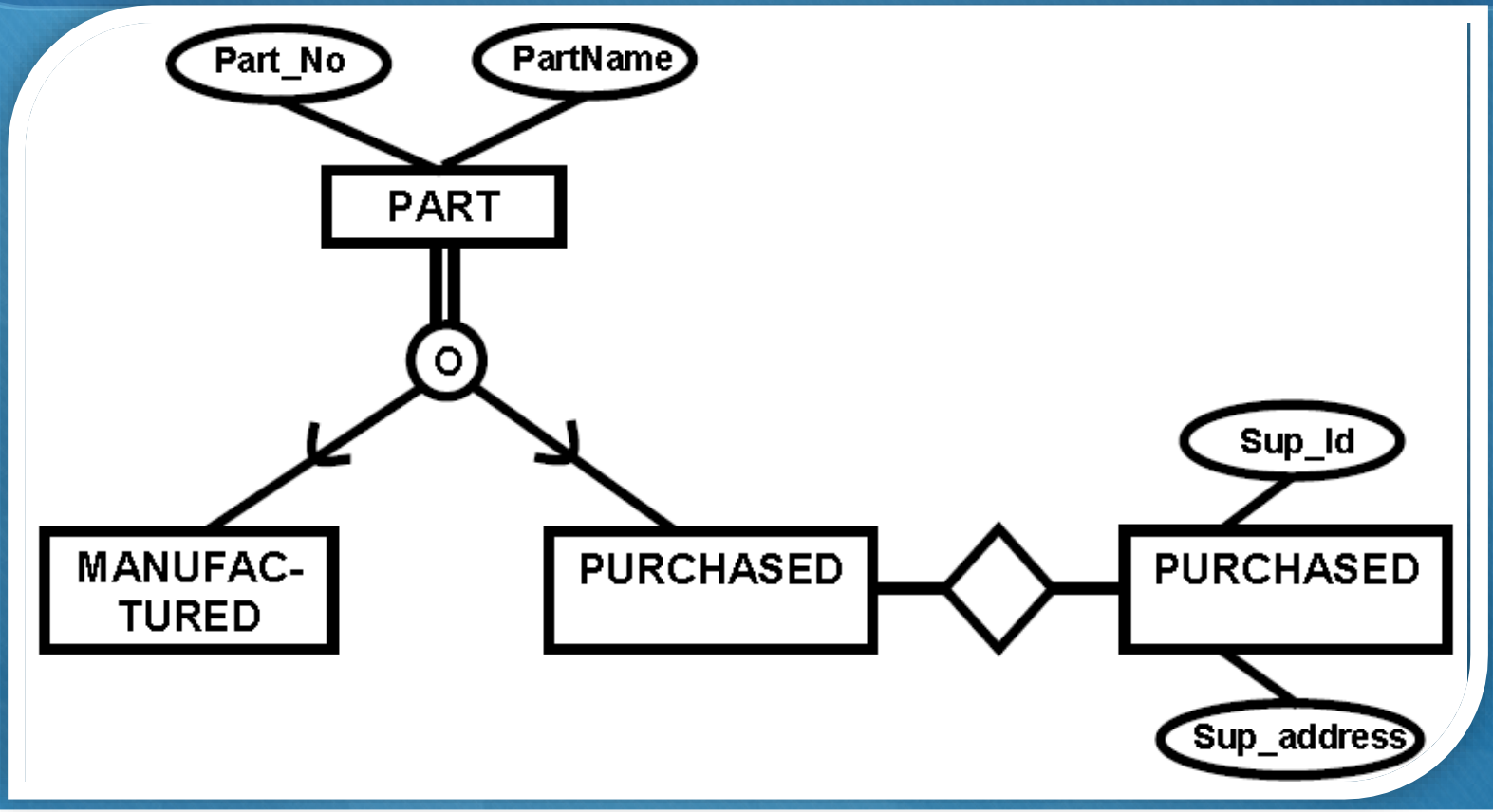
Disjointness Constraints

- Disjoint Constraint/Rule
  - Restricts the existence of one instance of any supertype entity to exactly one instance of any of the subtype entities.
- Overlap Rule
  - For one instance of any supertype entity there can be multiple instances existences of the of the instance for more then one subtype entities

Disjoint Rule



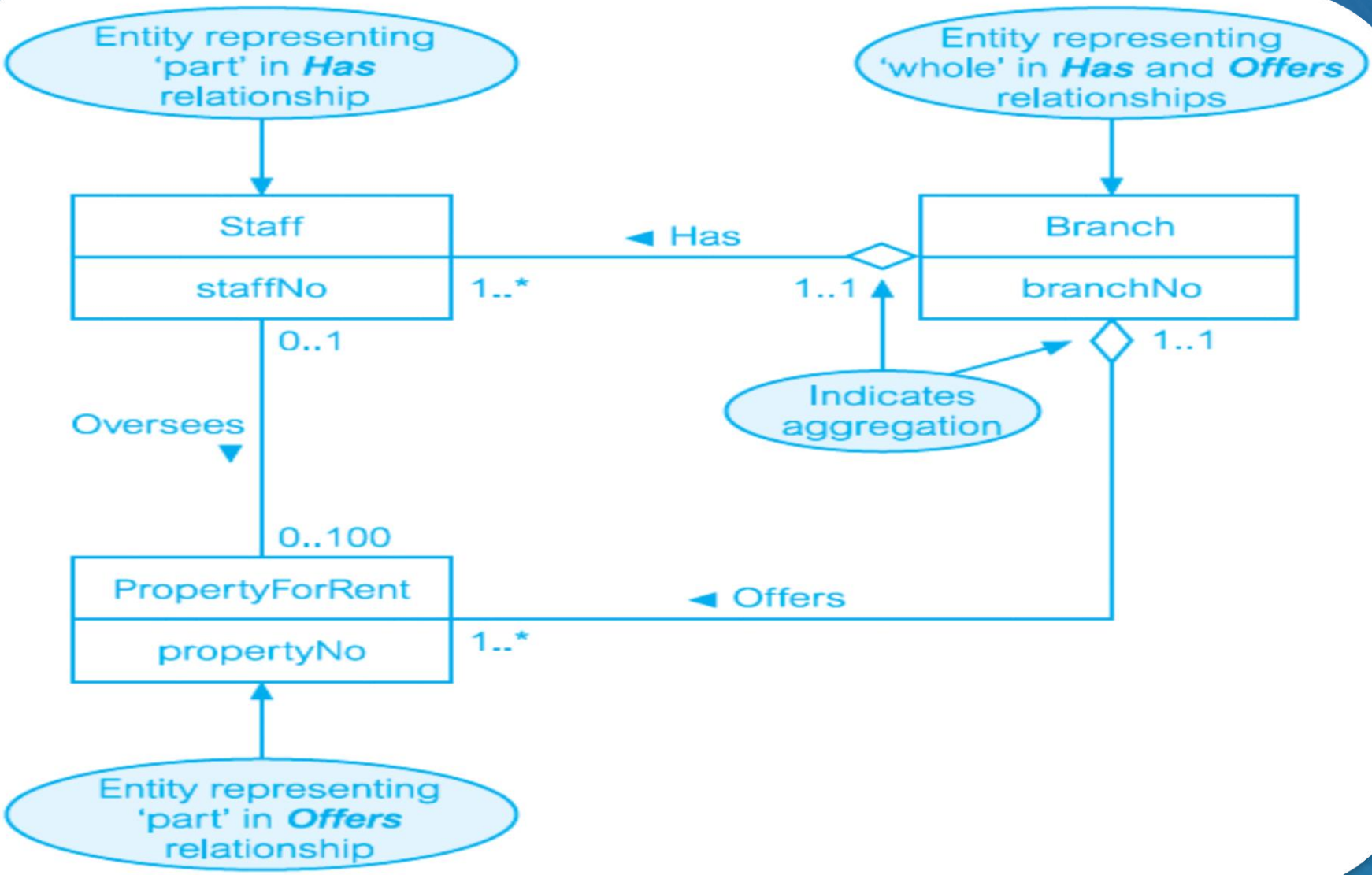
Overlap Rule



Aggregation

- Represents a **'has-a'** or **'is-part-of'** relationship between entity types, where one represents the 'whole' and the other the 'part'.
- Sometimes we want to model a 'has-a' or 'is-part-of' relationship, in which one entity represents a larger entity (the **'whole'**), consisting of smaller entities (the **'parts'**). This special kind of relationship is called an **aggregation.**
- An example of an aggregation is the ***Has*** relationship, which relates the **Branch** entity (the 'whole') to the **Staff** entity (the 'part').

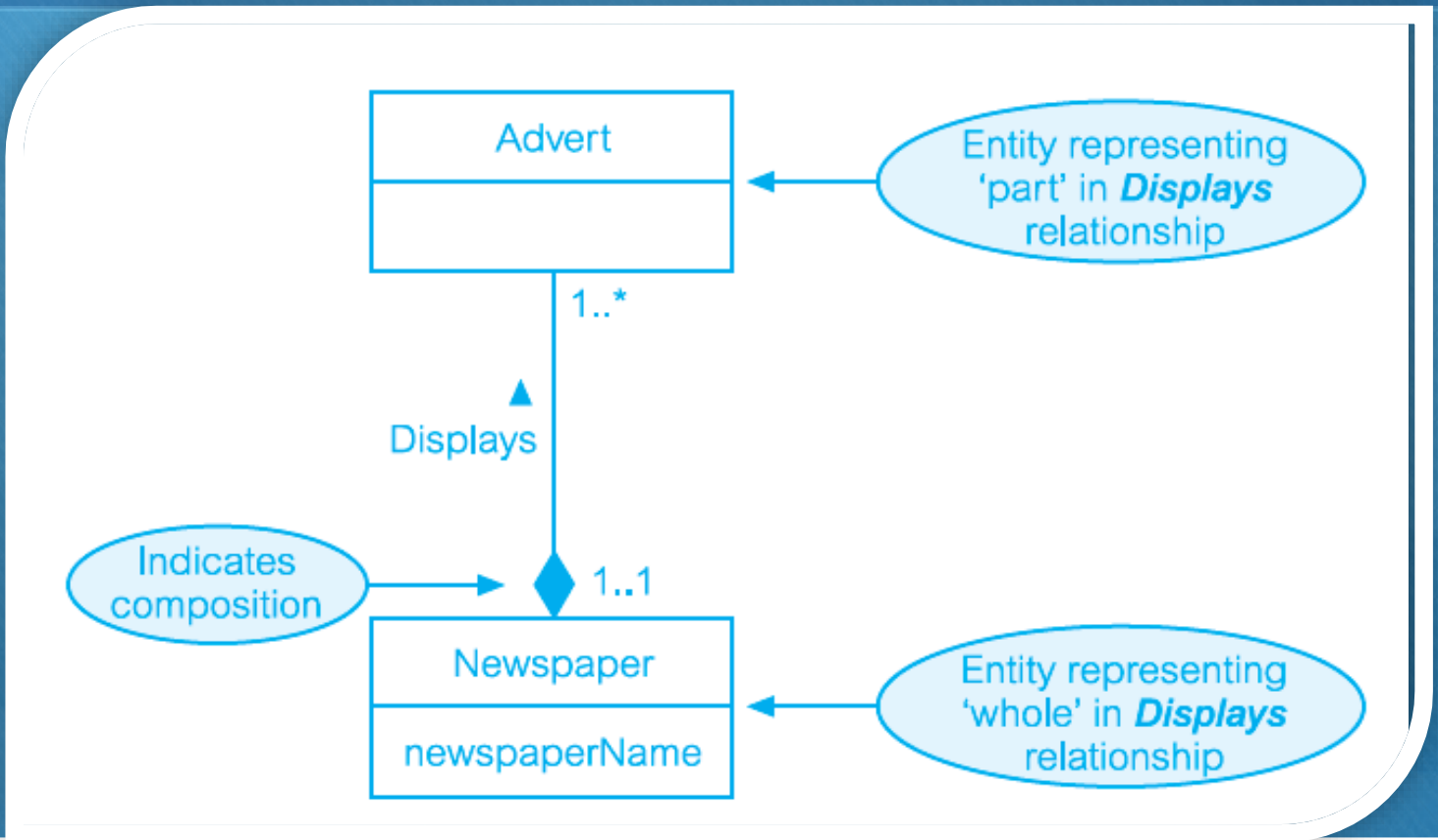
Aggregation – Whole & Part



Composition

- A specific form of aggregation that represents an association between entities, where there is a **strong ownership** and **coincidental lifetime** between the **'whole' and the 'part'**.
- Example of a composition, namely the *Displays* relationship, which relates the Newspaper entity to the Advert entity. As a composition, this emphasizes the fact that an Advert entity (the 'part') belongs to exactly one Newspaper entity (the 'whole').

Composition



CHHUTTI

AND THAT IS FAREWELL TO DAY 13-14 ☺