Session 3-3 Transforming ERD to Relational Model 2

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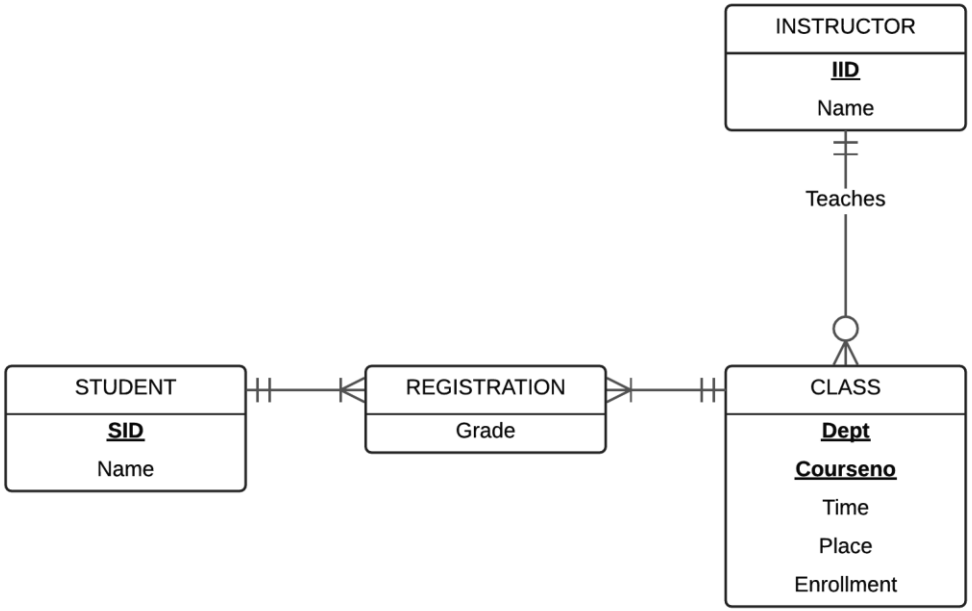
[LC12] Course Registration

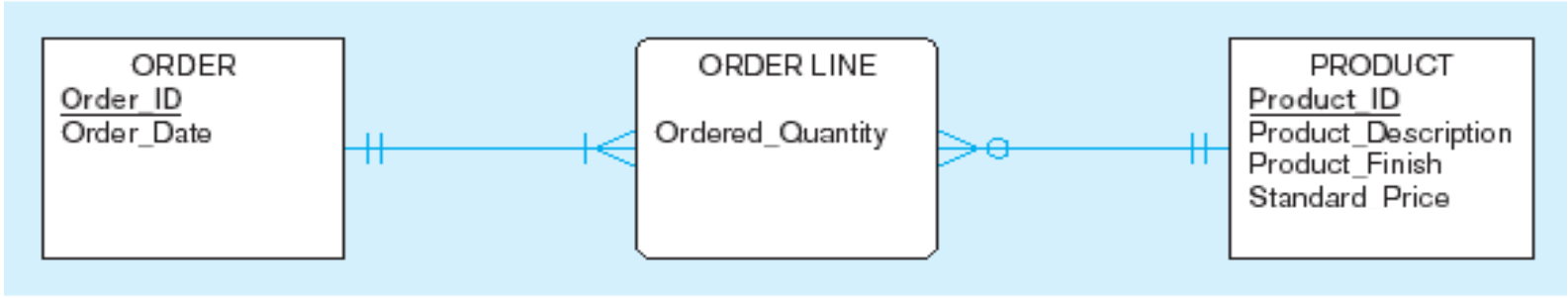


Transforming EER Diagrams into Relations - Relationships

Mapping associative entities

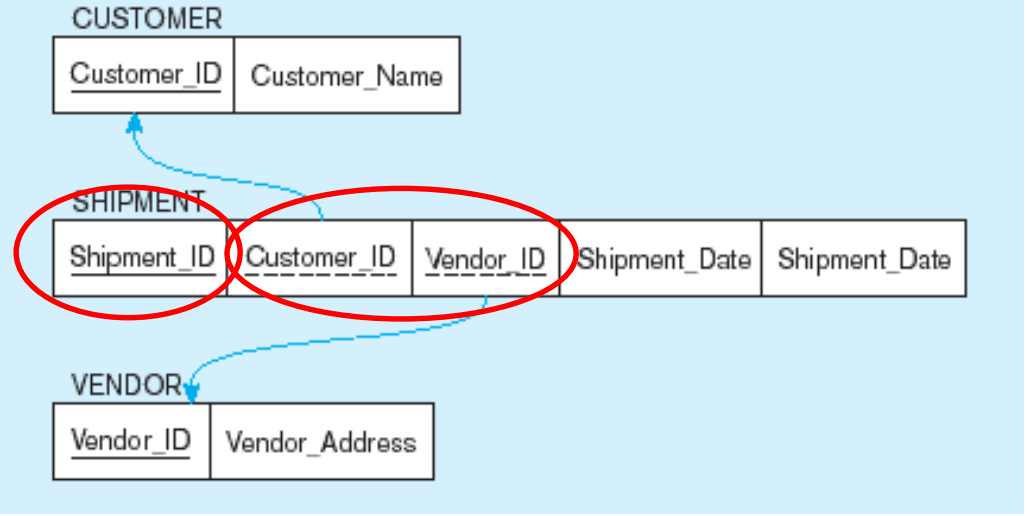
1. Identifier Not Assigned
   - Default primary key for the association relation is composed of the primary keys of the two entities (as in M:N relationship)
2. Identifier Assigned
   - When it is natural and familiar to end-users
   - When the default identifier may not be unique

Example of Mapping an Associative Entity



Example of Mapping an Associative Entity with an Identifier

The primary key differs from the foreign keys



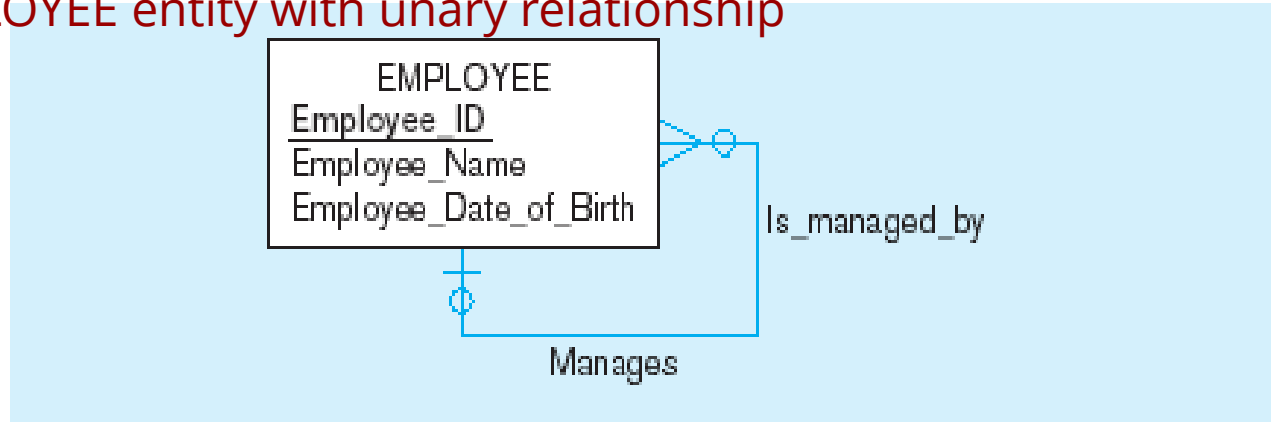
Transforming EER Diagrams into Relations - Relationships

Mapping unary relationships

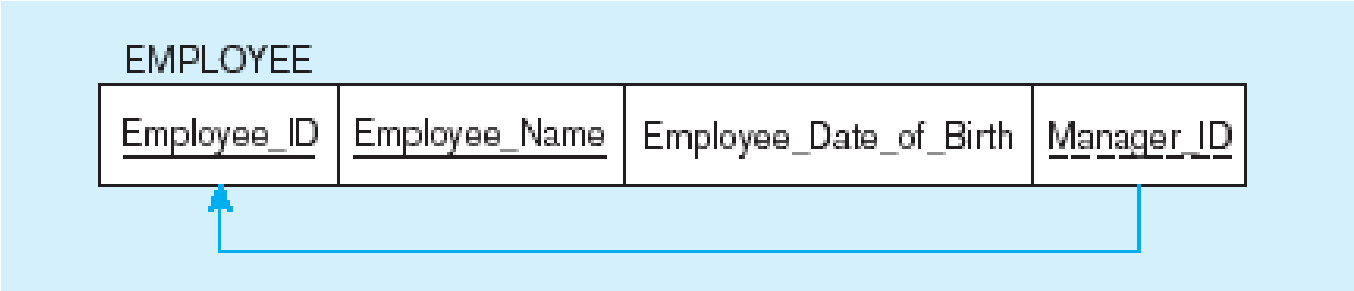
- One-to-Many => Recursive foreign key in the same relation
- Many-to-Many => Two relations:
  - One for the entity type
  - One for an associative relation in which the primary key has two attributes, both taken from the primary key of the entity

Mapping a Unary 1:N Relationship

(a) EMPLOYEE entity with unary relationship

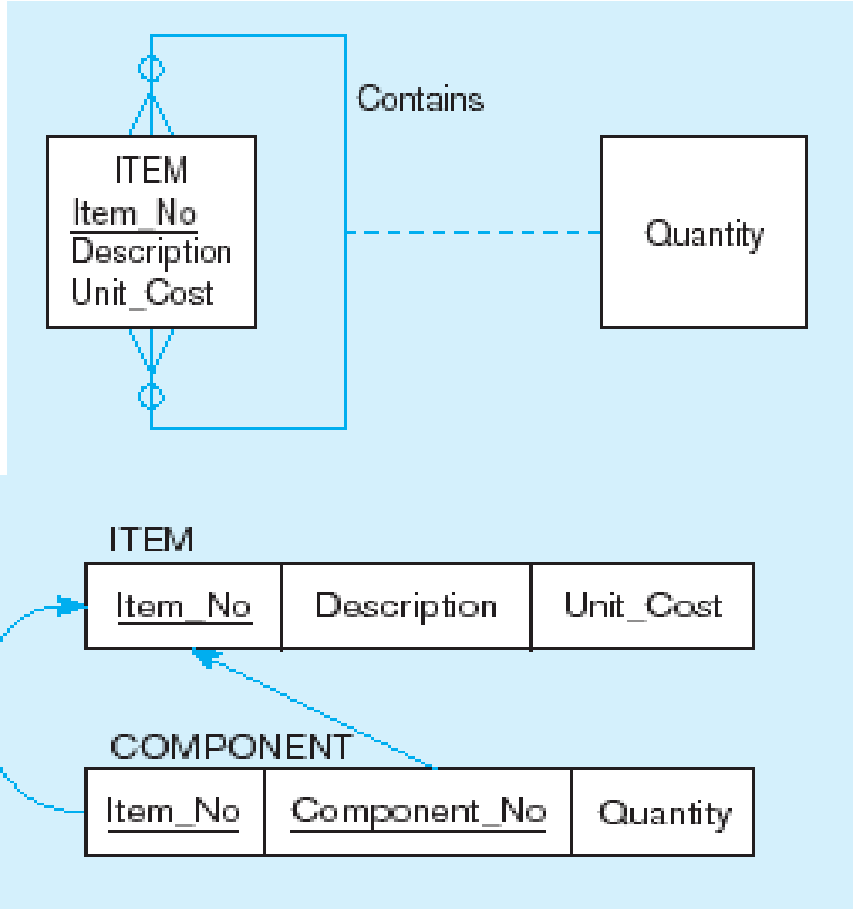


(b) EMPLOYEE relation with recursive foreign key



Mapping a Unary M:N Relationship

(a) Bill-of-materials relationships (M:N)



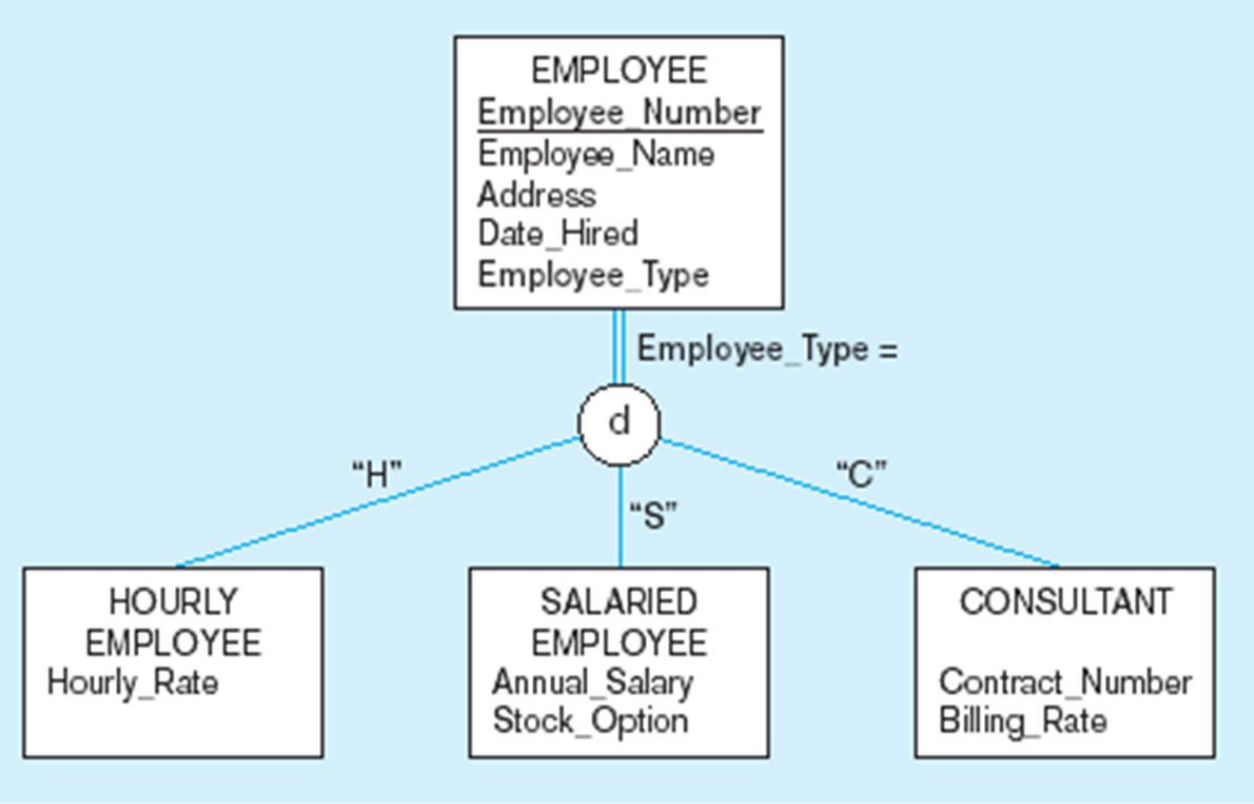
(b) ITEM and COMPONENT relations

Transforming EER Diagrams into Relations – Supertype/Subtype

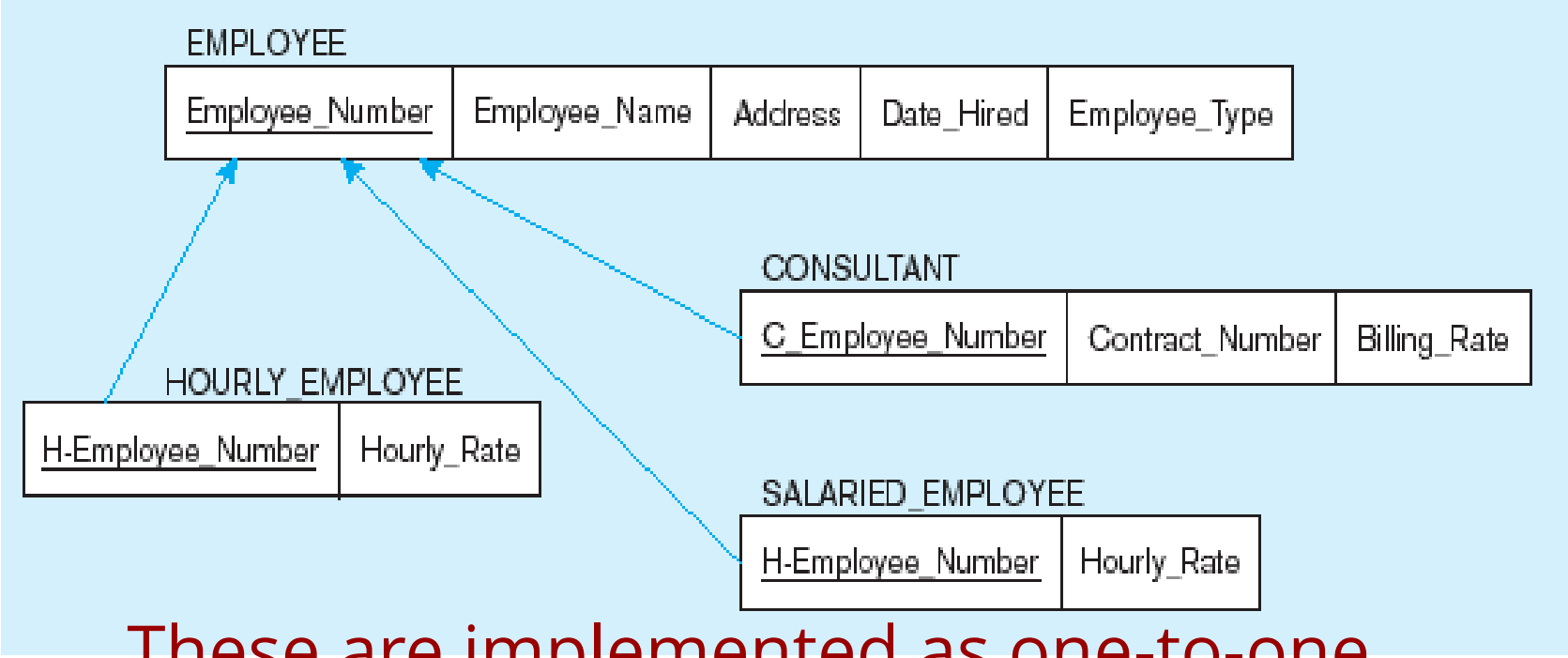
Mapping Supertype/Subtype Relationships:

- One relation for supertype and for each subtype
- Supertype attributes (including identifier and subtype discriminator) go into supertype relation
- Subtype attributes go into each subtype; primary key of supertype relation also becomes primary key of subtype relation
- 1:1 relationship established between supertype and each subtype, with supertype as primary table

Supertype/Subtype Relationships



Mapping Supertype/Subtype Relationships to Relations



These are implemented as one-to-one relationships

Wrap-up

- Transforming ERD to relation
  - Associative entities
  - Unary Relationships
  - Supertype/subtype entities