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# Database Design

5-3

## Resolving Many-to-Many Relationships

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# Objectives

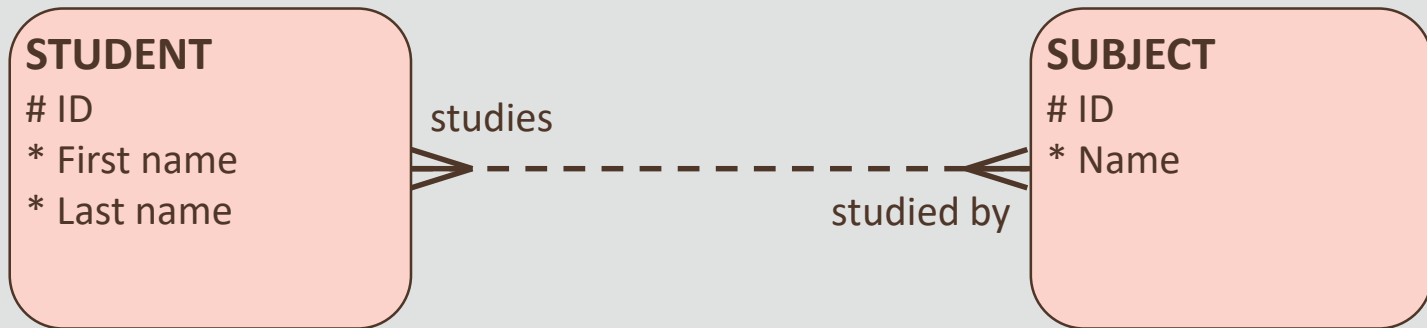
- This lesson covers the following objectives:
  - Identify attributes which belong to many-to-many relationships
  - Demonstrate the steps to resolve a many-to-many relationship using an intersection entity
  - Identify the UID of an intersection entity and represent it in the entity relationship diagram

# Purpose

- This lesson will help you complete your model - you may need to create new entities or new relationships based on the business needs
- It will also help you define the scope of your data model - you only model what is of importance to the business

# Relationship Hiding an Attribute

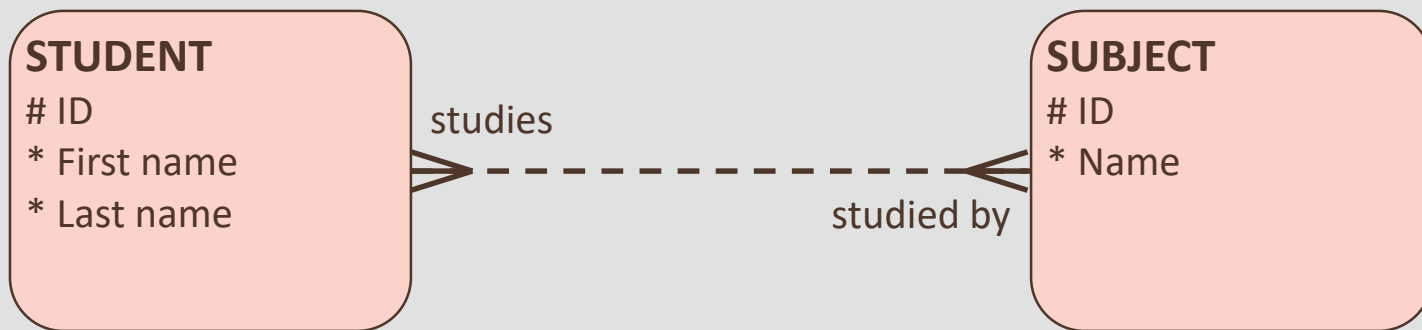
- In a school, a STUDENT may study one or more SUBJECTs
- Each SUBJECT may be studied by one or more STUDENTs



**STUDENT and SUBJECT**

# Relationship Hiding an Attribute

- When a student enrolls for a subject, we want to be able to record the grade they attain for that subject
  - Which entity would the attribute “Grade” belong to?
  - If we put “Grade” in the STUDENT entity, how would we know which SUBJECT it is for?
  - If we put “Grade” in the SUBJECT entity, how would we know which STUDENT got that grade?





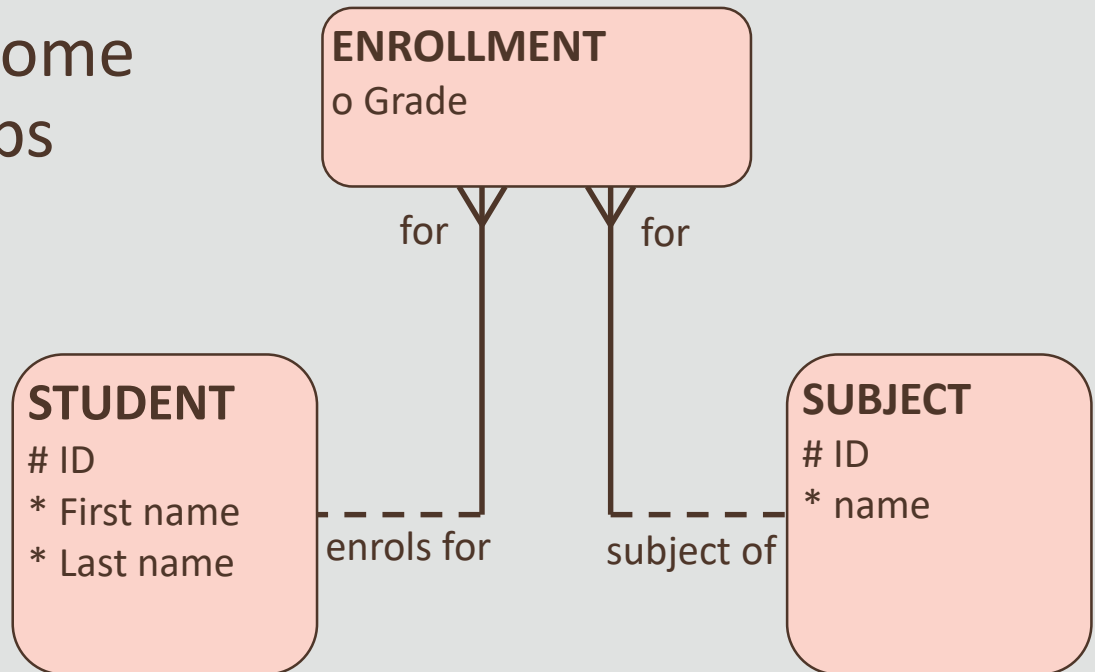
# Resolution of a M:M Relationship

- A third entity is needed to resolve the M:M relationship
- This is called an "intersection" entity



# Intersection Entity

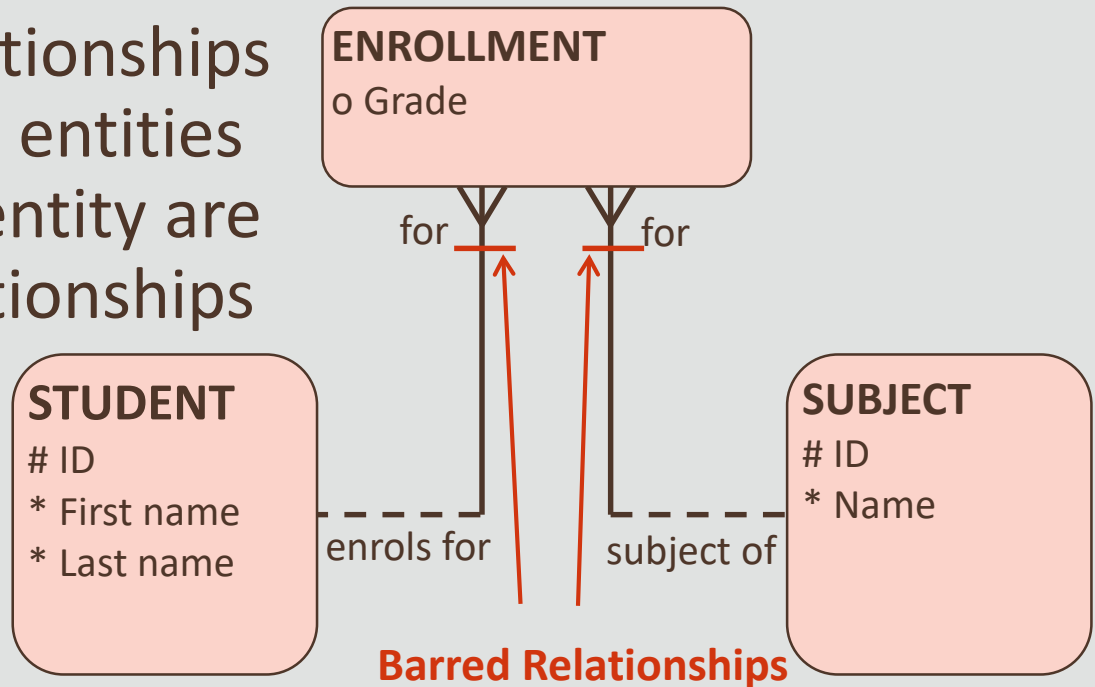
- An intersection entity – ENROLLMENT – has been added, including the “Grade” attribute
- The original M:M relationship has become two 1:M relationships
- What would be the UID of the intersection entity?





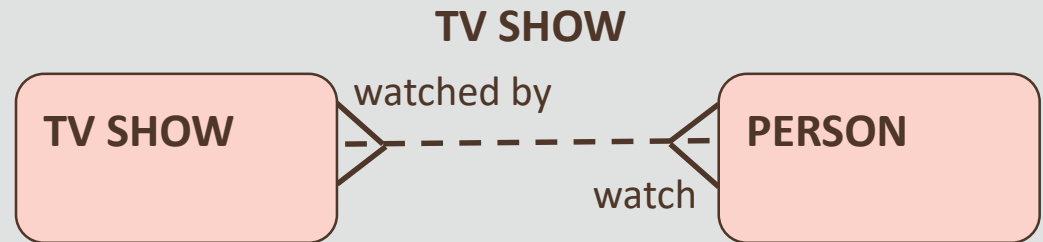
# Barred Relationships

- The unique identifier (UID) of the intersection entity often comes from the originating relationships and is represented by the bars
- In this case, the relationships from the originating entities to the intersection entity are called "barred" relationships

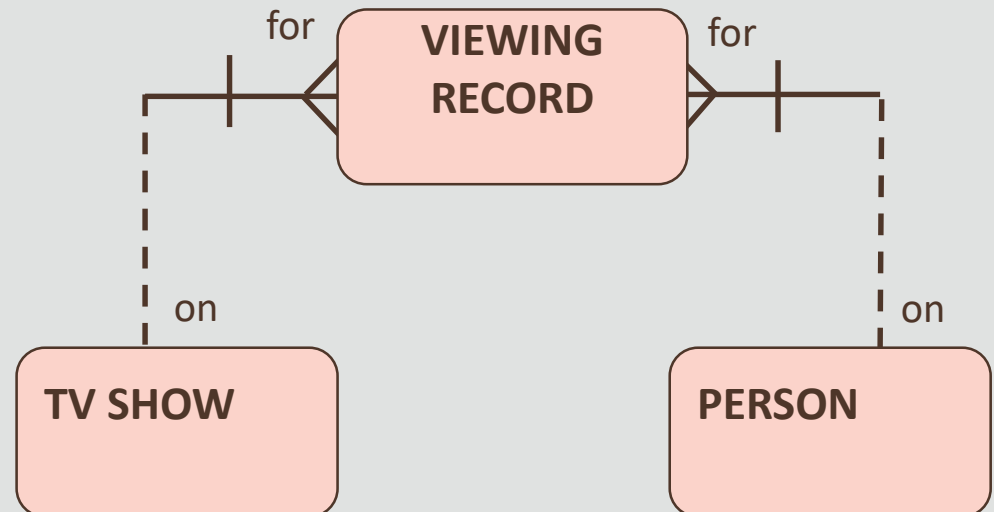


# M:M Resolution Example TV Shows

- Each TV show may be watched by one or more persons
- Each person may watch one or more TV shows

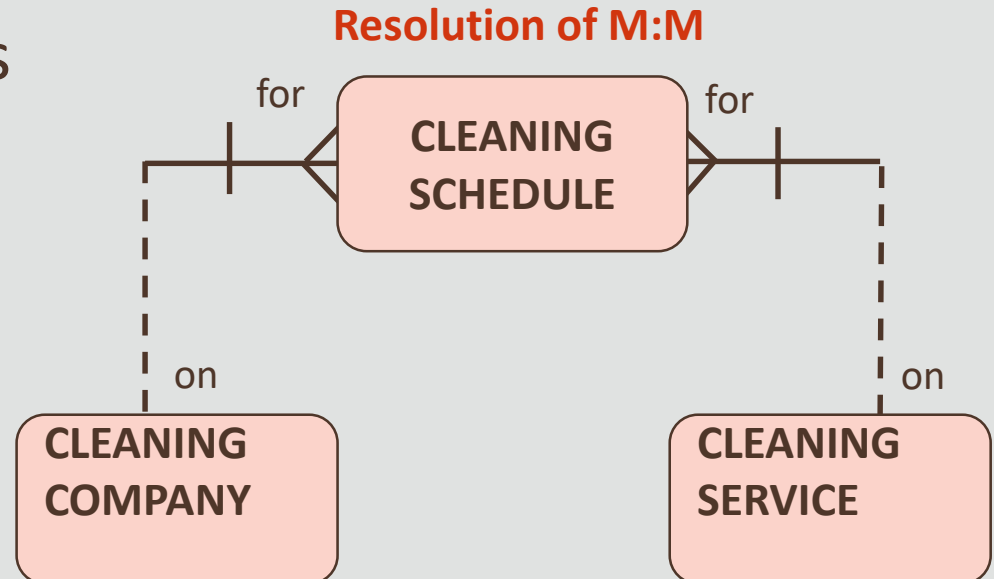


## Resolution of M:M



# M:M Resolution Example Cleaning Services

- Each company may provide one or more cleaning services
- Each cleaning service may be provided by one or more companies



# Terminology

- Key terms used in this lesson included:
  - Barred relationship
  - Intersection entity

# Summary

- In this lesson, you should have learned how to:
  - Identify attributes which belong to many-to-many relationships
  - Demonstrate the steps to resolve a many-to-many relationship using an intersection entity
  - Identify the UID of an intersection entity and represent it in the entity relationship diagram



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