Database Design

5-3
Resolving Many-to-Many Relationships
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.
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.
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