Database Design
3-1: Identifying Relationships
Practice Activities

Objectives

- Interpret and describe relationship optionality
- Interpret and describe relationship cardinality
- Relate entities by applying the rules of cardinality and optionality

Vocabulary

Identify the vocabulary word for each definition below.

	A property of an end of a relationship between X and Y that describes how many of X is related to Y.
	A connection or association between objects.
	A property of an end of a relationship between X and Y that describes whether X must be or may be related to Y.

Try It / Solve It

1. Read the given business scenario. Name the relationships between EMPLOYEE and JOB. Include appropriate optionality and cardinality.

   "We have a lot of employees who handle one or more different jobs. We'd like to keep track of who is working on which job. Although employees can help each other, a job is assigned to one employee and is the ultimate responsibility of that employee. All of our employees have at least one job. However, jobs exist that are not yet assigned to anyone."

2. Read the given business scenario. Name the relationships between ORDER and WAITER. Include the appropriate optionality and cardinality.

   "We assign our waiters to certain areas, except for our trainees who just observe and are not responsible for taking any orders yet. A waiter takes the orders for the tables in his area. All areas have one assigned waiter. A customer places an order with a waiter. If the customer has a question or wants to make a change to the order, he needs to request this with the assigned waiter."

3. Read the given business scenario. Name the relationships between PARENT and CHILD. Include the appropriate optionality and cardinality.

   “At the end of each day, parents need to pick up their children at our day-care center. All children must be picked up by 6 p.m. A child may have two parents, but we need only one of them to come and pick up the child. We cannot release a child to anyone but that child’s parent.”

4. Read the given business scenario. Name the relationships between TEACHER and STUDENT. Include the appropriate optionality and cardinality.

   “Some students request remedial help in certain subjects, such as math. We can assign a tutor who can work with the student after class. Some of our teachers agree to be tutors. If several students need tutoring in one subject, then we assign them to the same teacher. If a student needs tutoring in several subjects, then he will probably be assigned to several different tutors.”

5. Draw two entities that you are familiar with from your own experience (use colored pens and markers on hand). Write down the relationships between these two entities, including cardinality and optionality. Share your entities with the class.