Database Design
3-2: ER Diagramming Conventions
Practice Activities

Objectives

- Construct ER diagram components that represent entities and attributes according to diagramming conventions

Vocabulary

Identify the vocabulary word for each definition below.

	A four-sided visual element with rounded corners, used to represent an entity in an ERD.

Try It / Solve It

1. Read the given business scenario. Draw the entities HAIRSTYLIST and CLIENT. List the attributes associated with each entity and specify whether they are mandatory or optional. Identify the UIDs. Write out the relationship in English, including optionality and cardinality. Follow the diagramming conventions discussed.

   “In our salon, we have a number of hairstylists. They are all salaried employees, so we keep a record of their first name, last name, address, phone number, social-security number, and salary. During the course of a day, a hairstylist may see several clients. On a slow day, a hairstylist may not work on anyone at all. We have several walk-in clients, and they each get assigned to one hairstylist. We just ask for their first name. We also have customers who call to make an appointment. When they do this, we ask for their first name, last name, and phone number. We also ask if they would like a specific hairstylist. If they have no preference, we assign one for them. Of course, they are allowed to switch to another hairstylist for their next visit to the salon. We are interested in tracking the daily appointments -- which stylist works on which client during a given day.”

2. Read the given business scenario. Draw the entities BAND and MUSICIAN. List the attributes underneath each entity. Specify whether they are mandatory or optional. Identify the UIDs. Write out the relationship in English, including optionality and cardinality.

   “I am an agent for several musicians and bands. A musician may be a solo performer or may belong to a band. A band will always have one or more musicians in it. Some musicians are a one-man band. However, a musician can belong to only one band. Since I schedule them for concerts and events, I need to keep track of certain information: the musician’s first name, last name, address, phone number, and hourly rate. If it’s a band, I need to know the band name in addition to the information I already keep for the member musicians. I’ve handled bands with the same name, so just to make sure I book the right band, I assign an ID to each one. The hourly rate for a band is the total of the hourly rates of its members.”

3. Read the given business scenario. Draw the entities TEACHER and COURSE and CLASS. List the attributes underneath each entity. Specify whether they are mandatory or optional. Identify the UIDs. Write out the relationship in English, including optionality and cardinality.

   “We have several teachers at our school. A teacher can be assigned up to three classes per semester. If a teacher is on sabbatical, he doesn’t teach that semester. We keep a record of the teacher’s first name, last name, address, phone number, and email address.”

   “Our school offers many courses -- such as Data Modeling, Introduction to SQL, Trigonometry, Physics, and Biology. Each course has a code. For example: Data Modeling would be DM001, Trigonometry would be TR004, etc. During each semester, a course may be taught in several classes -- so there could be two classes of Physics, three classes of Biology, etc. Each class can be taught by only one teacher. We assign a unique ID for each class, and we also keep track of the day it is taught, the time, and the classroom.”