

## Database Design

### 7-2: Hierarchies and Recursive Relationships

#### Practice Activities

##### Objectives

- Define and give an example of a hierarchical relationship
- Identify the UUIDs in a hierarchical model
- Define and give an example of a recursive relationship
- Represent a recursive relationship in an ERD given a scenario
- Construct a model using both recursion and hierarchies to express the same conceptual meaning

##### Vocabulary

Identify the vocabulary word for each definition below.

	A relationship between an entity and itself.
	A series of relationships that reflect entities organized into successive levels.

##### Try It / Solve It

1. Develop two ER diagrams to represent the following situation. Develop one using a hierarchical structure and one using a recursive structure.

“Our company sells products throughout the United States. So we’ve divided the U.S. into four major sales regions: the Northern, Eastern, Southern, and Western regions. Each sales region has a unique region code. Each sales region is then divided into sales districts. For example, the Western region is divided into the Rocky Mountain, Northwest, Pacific Coast, and Pacific districts. Each district has a unique district code. Each district is made up of sales territories. The Rocky Mountain district is composed of three territories: Wyoming-Montana, Colorado, and Utah-New Mexico. The Northwest district is made up of two territories: the Washington and Oregon-Idaho territories. The Pacific Coast district is composed of two territories: the California and Nevada territories. The Pacific District includes the Hawaii territory and the Alaska territory. Each territory has a unique territory code.

Then each sales territory is broken down into sales areas. For example, Colorado is made up of two sales areas: the Front Range and the Western Slope sales areas. Each sales area has a unique sales-area code.

Each salesperson is responsible for one or more sales areas and has a specific sales quota. We also have sales managers who are responsible for one or more sales districts, and sales directors who are responsible for one or more sales regions. Each sales manager is responsible for the territories with his/her districts. We don't overlap our employees' responsibilities. Each sales area is always the responsibility of a single salesperson, and our managers' and directors' responsibilities don't overlap. Sometimes our salespersons, managers, and directors will have special assignments and will not be responsible for sales. We identify all our sales personnel by their employee IDs."