Database Design
6-4: Third Normal Form
Practice Activities

Objectives

- Identify transitive dependencies in a data model
- Define the rule of Third Normal Form in the normalization process
- Examine a non-normalized entity and determine which rule, or rules of normalization are being violated
- Apply the rule of Third Normal Form to resolve a violation in the model

Vocabulary

Identify the vocabulary word for each definition below.

	The form of database normalization where all non-key fields are dependent on the key, the whole key, and nothing but the key.
	A condition that exists when any attribute in an entity is dependent upon any other non-UID attribute in that entity.

Try It / Solve It

1. Identify the transitive dependency in the model below. State which attributes violate Third Normal Form.

```
PRODUCT
# number
o model
o store name
o store address
```

2. Define the rule of Third Normal Form.

3. A color scheme for a car includes specifications for paint color for the body and the interior colors and materials. For example: The "Desert" color scheme includes silver paint and gray leather interior; the "Sunburst" color scheme includes gold paint and cream leather interior. Does the model below follow the rules of Third Normal Form? If you spot a violation, correct it.

CAR
\# number
* make
* model
* color scheme
* paint color
* interior color

4. Assume the following business rules:

- An athlete employs one agent.
- An agent may work for one or more athletes.
- An athlete may play for one team.
- A team may have one or more players

Does the model below contain one or more transitive dependencies? Identify the attributes involved in the transitive dependencies.

ATHLETE
\# number
* name
* birth date
* team
* team coach
* agent
* agent commission

5. Now that you have an idea of what makes a good UID, you need to be aware of the controversy, benefits, and difficulty of uniquely identifying someone. Consider the idea of a national ID card. What kinds of problems would the card create and what kinds of problems would it solve? If your country already uses a national ID card, what are the benefits and issues associated with this? In your opinion, could DNA mapping become the national ID card? Why or why not?