Second Normal Form
What Will I Learn?

In this lesson, you will learn how to:

• Define the rule of Second Normal Form in the normalization process
• Examine a nonnormalized entity and determine which rule (or rules) of normalization are being violated
• Apply the rule of Second Normal Form to resolve a violation in the model
Why Learn It?

Your goal as a database designer is to “store information in one place and the best place.”

Following the rules of normalization helps you achieve this goal.

When organizing information such as your friends’ phone numbers and addresses, you want to make sure that you store it in the appropriate place -- such as a personal address book. If you store a friend’s address in your recipe box, for instance, you may not find it until the next time you look up that recipe.

Normalization is a process to eliminate these kinds of problems.
Tell Me / Show Me

Examine the entity PRODUCT SUPPLIER. The UID is a combination of Supplier number and Product number.

What about the Supplier Name attribute? If one supplier supplies 5 different products, what happens if the supplier name changes?

The name would need to be changed in 5 instances of the entity. What if some of them were changed, but not others? What would be the correct value for the supplier name?
Tell Me / Show Me

Second Normal Form requires that any non-UID attribute be dependent on the entire UID.

This means that all attributes that are not part of the entity’s UID should be dependent on the whole UID. This specifically applies to entities that have a UID that is composed of more than one attribute or a combination of attribute(s) and relationship(s).
Tell Me / Show Me

The same ACCOUNT numbers exist at different BANKs so the relationship is part of the UID. This is represented by the bar on the relationship.

ACCOUNT
- # number
- * balance
- * date opened

located in

the location for

BANK
- # number
- * name
Tell Me / Show Me

In this ERD, however, the attribute bank location is misplaced. It depends ONLY on the BANK number.

This is a violation of Second Normal Form.

What would happen if a bank’s location changed? All the accounts at that bank would need to be changed.
Tell Me / Show Me

The DJ is responsible for preparing the collection of songs to be played at each event. Each SONG can be played at more than one EVENT, and each EVENT will use more than one SONG. Let’s look at how the DJ prepares the play list.
Tell Me / Show Me

Let’s look at a slightly modified ERD of the DJ business. What is wrong with this diagram?

Answer: The attributes duration and event date are misplaced. Duration depends solely on SONG, and event date depends solely on EVENT.

This is a violation of Second Normal Form.
Tell Me / Show Me

Terminology

Key terms used in this lesson include:

Second Normal Form (2NF)
Summary

In this lesson, you have learned how to:

• Define the rule of Second Normal Form in the normalization process

• Examine a nonnormalized entity and determine which rule (or rules) of normalization are being violated

• Apply the rule of Second Normal Form to resolve a violation in the model
Summary

Practice Guide

The link for the lesson practice guide can be found in the course resources in Section 0.