Module 3: Normalization

Demonstration: Normalizing to Third Normal Form

Objectives

In this demonstration, you will see examples of:

- Normalizing to first normal form.

- Normalizing to second normal form.

- Normalizing to third normal form.

Demonstration Steps

1. In the **D:\Demofiles\Mod03** folder, double-click the **Normalize Book Data.xlsx** file.

2. On the **Raw Data** worksheet, review the data and note the following points:

    1. The worksheet contains data about a collection of books.

    2. There are multiple copies of the same book titles, and each copy might be a different pressing. This information is stored in repeating data group columns called **Copy 1**, **Copy 2**, and **Copy 3**.

3. On the **1NF** worksheet, note the changes that have been made to bring the table into first normal form. These changes include:

    1. Adding a composite primary key consisting of the **Book Title**, **Copy Number**, and **Pressing** columns.

    2. The repeating data group columns have been removed.

4. Note that the columns **Year Published**, **Author**, **Author Year of Birth**, and **Author Age** all contain repeating data values. This is because these columns are not functionally dependent on the whole of the primary key.

5. On the **2NF** worksheet, note the changes that have been made to conform to second normal form. The table has been decomposed into four tables: **Book**, **Author**, **Copy**, and **Pressing**. The columns in each table depend on the whole of the primary key in their respective tables.

6. On the **3NF** worksheet, note the change that has been made to ensure that the **Author** table conforms to third normal form. The **Author Age** column has been removed because it was transitively dependent on the primary key, through the **Author Date of Birth** non-key column. If required, the age of each author can be calculated by using the date of birth value, so it not necessary to store it.

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