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TOWN LIBRARY DATABASE

Here is a solution to the practice case. Possible variations are noted after each table. An asterisk (*) designates a table's primary key(s). Foreign keys are denoted by "FK."

MEMBER table

Field Name	*Data Type*
Member Number (*)	Text
Member Name	Text
Member Address	Text
Member Phone	Text
Date Joined Library	Date/Time

The components of the name and address could be further designated as fields:
Last Name, First Name, Street, Town, Zip, etc.

MEMBER READING INTEREST table

Field Name	*Data Type*
Member Number (*) (FK)	Text
Member Interest (*)	Text

A reading interest number could be a third field and used as the primary key.

Conceivably, you could have another table that defines all possible reading interests, each with its own code. The table would have the fields Reading Interest Code (Text data type—Primary Key) and Member Interest (Text data type). In that case, the MEMBER READING INTEREST table would have these fields: Member Number (Text data type—Primary Key) and Reading Interest Code (Text data type—Primary Key). This approach would prevent different entries for essentially the same interest—for example, "Growing Orchids," "Orchids," "Orchid Culture," and "Phalaenopsis" (a type of orchid).

BOOK table

Field Name	*Data Type*
Book Number (*)	Text
Title	Text
Checked Out	Yes/No
Reader Interest	Text

One title per book is assumed. One classification of interest per book is assumed. If there were more than one reader interest per book, a table would be needed (book number, possible reader interest, compound key needed).

BOOK AUTHORS table

Field Name	*Data Type*
Book Number (*) (FK)	Text
Author Name (*)	Text

More than one author per book is possible.

BOOK CHECK-OUTS table

Field Name	*Data Type*
Check Out Number (*)	Text
Member Number (FK)	Text
Date Out	Date/Time
Date Due Back	Date/Time

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Note that this table is the organization's primary "external event entity."

Technically, the date due back could be computed by a query—add 14 days to Date Out. However, most students will add this field, and most instructors would have trouble taking credit off for it.

BOOKS CHECKED OUT table

Field Name	*Data Type*
Check Out Number (*) (FK)	Text
Book Number (*) (FK)	Text

Any number of books can be taken out per visit, so this table is needed.

EMPLOYEE table

Field Name	*Data Type*
Employee Number (*)	Text
Employee Name	Text
Employee Address	Text
Job Title	Text
Salaried?	Yes/No
Wage Rate Per Hour	Currency
Salary Per Week	Currency
Bank	Text
Bank Account Number	Text

If an employee is salaried, the wage rate entered would be zero, and salary per week would get an entry. If an employee is not salaried, the wage rate would be greater than zero, and salary per week would be zero.

Conceivably, the payroll data could be handled by using other tables and not entered into the previous table. In that scheme, tables would be as shown below (Format: Table name (fields)).

Salaried Employee Data (Employee Number (*), Salary Per Week)
Hourly Employee Data (Employee Number (*), Wage Rate Per Hour)

The librarian's data (only) would go into the first table. The hourly employee's data would go into the second table.

EMPLOYEE HOURS WORKED table

Field Name	*Data Type*
Employee Number (*) (FK)	Text
Date (*)	Date/Time
Clock In	Date/Time
Clock Out	Date/Time

This table assumes that a worker only has one shift a day. If more than one shift is possible, then Clock In would have to be part of the key as well.

Note that tables are not needed for the following elements because they can be computed by query:

- Wages earned per week
- List of member anniversaries

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