

Lab # 2, MySQL Workbench (Cont.)

Objectives

- 1- How to implement a relational schema.
- 2- Express the various data types.
- 3- Practicing DDL statements.
- 4- Practicing DML statements.
- 5- Demonstrating the referential integrity constraints.

Problem Statement

Consider the Library relational database schema shown in Figure 6.14 (problem 6.18, Reference Elmasri, 6th Edition), which is used to keep track of books, borrowers, and book loans. Referential integrity constraints are shown as directed arcs in the figure.

Lab Session

- Login to MySQL workbench and implement the given schema on MySQL using suitable DDL statements.
- Try the INSERT, UPDATE and DELETE statements on the *Publisher* table.
- Insert a row in the *Book* table that references a row in the *Publisher* table. Then try to update and delete the referenced row. Comment on the DBMS response regarding the referential integrity constraints specified in the DDL script.
- Write SELECT statements to answer the queries of the problem.
For each select statement, it is required to show the result set and validate its correctness against your data in the above points, i.e you are required to report the tables data for each table before execution of queries in order to validate the correctness of your query results

Important notes :

- 1- the data preparation for testing the select statements is left for you to insert reasonable data for covering all select statements scenarios in the problem.**
- 2- at least two records at each table are needed.**
- 3- make sure each select statement should return one or more records as per your inserted data..**

Appendix, Problem 6.18, Reference Elmasri, 6th Edition

Consider the LIBRARY relational database schema shown in Figure 6.14, which is used to keep track of books, borrowers, and book loans. Referential integrity constraints are shown as directed arcs in Figure 6.14, as in the notation of Figure 3.7. Write down relational expressions for the following queries:

- How many copies of the book titled *The Lost Tribe* are owned by the library branch whose name is 'Sharpstown'?
- How many copies of the book titled *The Lost Tribe* are owned by each library branch?
- Retrieve the names of all borrowers who do not have any books checked out.
- For each book that is loaned out from the Sharpstown branch and whose Due_date is today, retrieve the book title, the borrower's name, and the borrower's address.
- For each library branch, retrieve the branch name and the total number of books loaned out from that branch.
- Retrieve the names, addresses, and number of books checked out for all borrowers who have more than five books checked out.
- For each book authored (or coauthored) by Stephen King, retrieve the title and the number of copies owned by the library branch whose name is Central.

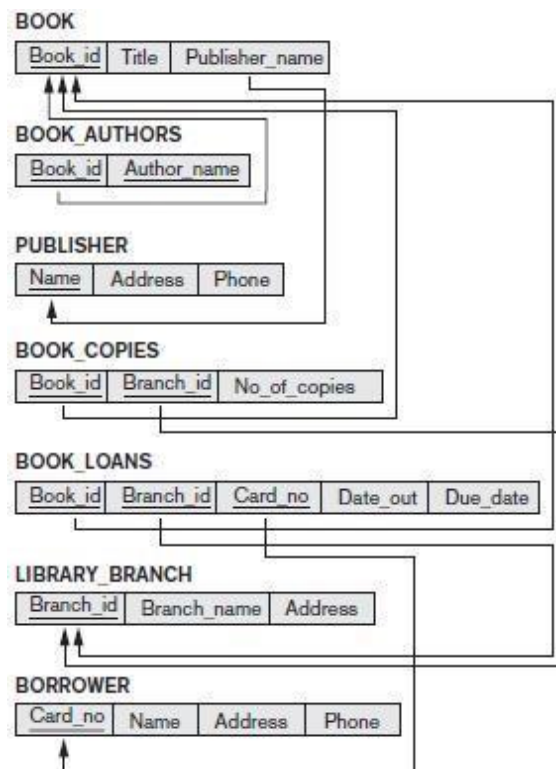


Figure 6.14
A relational database
schema for a LIBRARY
database.