Assignment 6 Normalization

Objectives

- Work with data structures
- Normalize entities
- Create normalized tables and write queries
- Create indices and views

Instructions

Follow the instructions below to normalize data and create the tables in SQL.

Data

For this lab you will be working with a table of data representing various books for sale. You can find the data in Assignment6Normalization.csv.

Normalize

Normalize this database. Draw an Entity Relationship Diagram (ERD) for each normalization form. Be sure in the final normalization step to name your tables in a meaningful way.

To create the ERD you can use any tool you like as long as it is legible. Some free solutions: https://app.diagrams.net/, https://www.lucidchart.com/pages/ (requires sign up).

Create the database

Create a new SQL file called assignment6.sql. In this file, write the create table statements for creating the normalized version of the database. Ensure you handle constraints (PRIMARY KEY, FOREIGN KEY) as necessary.

Insert Data

In assignment6.sql, write the insert statements to fill out your tables with the necessary data (same file for DDL statements).

Write Queries

In assignment6.sql, write queries to answer the following questions:

1. How many books cost more than $15
2. List all the fantasy books, including the title and the authors name
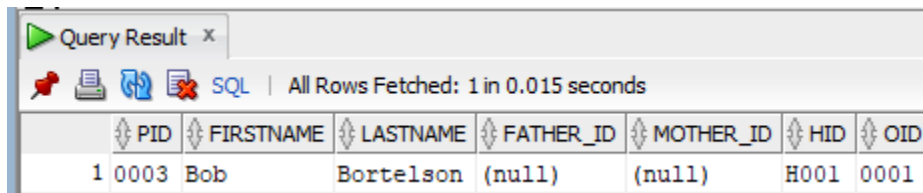3. List all the Canadian book titles.

Create View:

In assignment6.sql create a view that shows the Title, Author, Price, and City for all Business books.

Create Indexes:

In assignment6.sql, add indexes to your database that would allow returning your view above more efficiently. Access your view before and after creating the index and compare the timing. Use the log provided by SQL Developer to show the difference in timing before and after you added indices. Discuss why you may or may not see a performance improvement.

Screen shot of timing information returned by SQL Developer

Deliverable

Submit a file called assignment6.pdf that contains your ERD diagrams, and timing analysis. Additionally, submit the SQL Script file assignment6.sql. Be sure your script is runnable from start to finish (i.e., it drops tables, indexes, etc. at the start) and has the necessary comments to be well understood.

Resources