Database Design Homework

In this homework you will do the conceptual, logical, and physical design of a database for the book publishing industry. In addition, you will create an installation and a population script.

Your first step will be to familiarize yourself with the book publishing industry. Do some research on Google. Once you have a working overview go to the first question.

Use the naming conventions covered in class for all questions.

1. Create a list of the entities and properties of the book industry?

```
/*

Entity 1
Entity 2
Entity N
Property 1
Property 2
Property N

*/
```

2. Create a list of the unique identifiers – primary keys.

```
/*

PK 1
PK 2
PK N

*/
```

3. Create a list of the table relationships – the cardinality between entities.

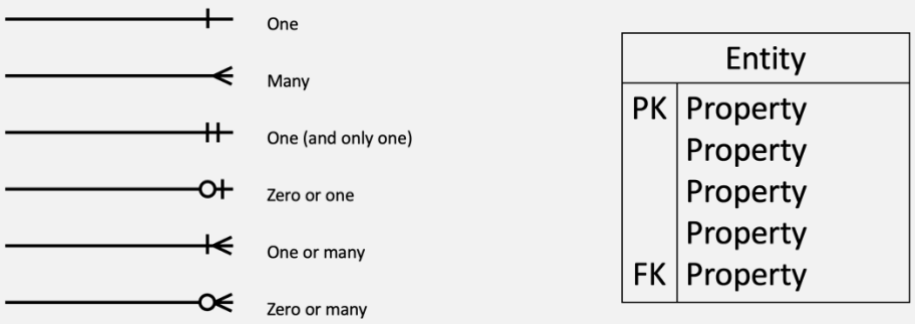
```
/*

Table 1, Table 2, 1:N
Table 3, Table 4, N:N

*/
```

Your database needs to answer the following questions.

Books per author.
Authors per book.
Author royalties on a book.
Book royalties per author.
Books in a genre.
Books published by a publisher.
Editors per book.
Books per editor.
Books in an order.
Orders for a book.
Customer orders.
Orders per customer.

4. Use the site `diagrams.net`, create an entity-relationship diagram (ERD) – your diagram should include cardinality and normalization considerations.

Use the diagraming conventions from class:



5. Once you have finished your ERD, write an installation script for your database.

- Check if database exists, if yes drop database, create database
- Create tables
  - Fields, datatypes
  - Null, or not null
  - Unique identifiers
  - Indexes
  - PK, FK

6. Write sample input data for your database. You need input data for all your tables. We will run your input data after we run your installation script.

```
-- input data format
INSERT INTO TableName [(column1 [, column2] … )]
```

7. Write a separate SQL query to answer each of the following questions. Your sample data, the data from the previous question, needs to support all queries.

7.1. Books per author.
7.2. Authors per book.
7.3. Author royalties on a book.
7.4. Book royalties per author.
7.5. Books in a genre.
7.6. Books published by a publisher.
7.7. Editors per book.
7.8. Books per editor.
7.9. Books in an order.
7.10. Orders for a book.
7.11. Customer orders.
7.12. Orders per customer.

Submission instructions

Questions 1-to-3: submit a text file.

entities_and_properties.txt

Question 4: submit a PNG file and a DRAWIO file.

book_business.png

book_business.drawio

Questions 5: submit an SQL file.

book_business.sql

Questions 6: submit an SQL file.

sample_data.sql

Questions 7: submit an SQL file.

queries.sql

Your final list of files will look like the following: