ER Diagram and Design Narrative

Instructions
You will be developing an ERD and a schema diagram (in 3NF) for a data model.

Pre-requisite:

Create a free account on erdplus.com.

Requirements:

Imagine you're tasked with designing the data model for an online bookstore, one that needs to handle the complexity of managing a wide array of books, authors, publishers, customers, and their interactions within the system.

At the heart of this bookstore is a vast collection of books. Each book has its own identity, defined by a unique ISBN. Alongside this, every book has a title, a publication date marking its debut, and a price that reflects its market value. But a book is more than just its physical or digital form; it's a creation born of collaboration between authors and publishers.

Authors are the creative force behind these books. Some books may have a single author, while others might be the result of a collaborative effort between multiple authors. Each author is recognized in the system with a unique author ID, and their profile includes their first name, last name, and a biography that delves into their background and achievements. The relationship between books and authors is intricate—a single book can have multiple authors, and each author might contribute to multiple books.

Then there are the publishers—the entities responsible for bringing these books to market. Each book has a publisher and each publisher is assigned a unique ID. It also has an associated a name, contact information, and the country where they are based. Publishers can publish multiple books. The bookstore intends to load all known major publishers into the database, regardless of whether the bookstore currently offers one of that publisher's books.

Beyond the creation and distribution of books, the bookstore's success hinges on its customers. Customers are the lifeblood of the business, each one bringing their own preferences and buying habits. In the data model, every customer should have a unique ID, alongside their first name, last name, email, phone number, and shipping address. This information is crucial for personalizing their shopping experience and ensuring their orders are delivered correctly.

When customers make a purchase, their transaction is captured as an order. Each order is a record of a customer's interaction with the bookstore, containing details like the order date and a reference to the customer who made the purchase. But an order is more than just a single transaction; it's a collection of several items. The order includes itemized entries for individual books, noting the quantity of each book purchased and the price at the time of the order. This granular detail allows the bookstore to keep track of its sales and inventory with precision. Customers must be able to place multiple orders. It's possible that a customer has not yet placed an order.

Books in this bookstore aren't just scattered haphazardly—they are thoughtfully categorized to help customers find what they're looking for. Categories like Fiction, Mystery, and Non-Fiction organize the bookstore's inventory, making it easier for customers to browse and discover new titles. A book can fit into multiple categories (for instance, a book might be both a Mystery and a Thriller).

In this online bookstore, every entity is interconnected, forming a web of relationships that ensures every book, author, customer, and transaction

is meticulously recorded and easily accessible. This data model not only captures the complexity of the bookstore's operations but also lays the foundation for providing customers with a seamless and personalized shopping experience.

Ambiguity and Open Questions:

Some areas of these requirements are intentionally vague. You should consider the following questions. You will be required to formulate a response, **justify it,** and any assumptions you will make.

- If the requirements do not specify that a unique identifier for a record is necessary, is such an identifier still required in the ERD? What about the schema diagram?
- What exactly is "contact information" for a publisher?
- How might you model "shipping address"?

Your Tasks:

1. Write your responses, explanations, and any assumptions for the questions stated. You may search online for ideas about how these things are handled, but **any source must be cited and your written explanation must be in your own words.**
2. Produce an ERD including accurate use of the following:
    - Entities
    - Relationships
    - Cardinality
    - Attributes, including
        - Uniqueness
        - Multi-valued

    - Composite
    - Optionality
3. A schema diagram in 3rd normal form including accurate use of the following. Note that you are not required to correctly set data types for columns.
    - Primary Keys
    - Foreign Keys
    - Uniqueness If
    - Optionality

Submitting your work:

1. Download the Word file template, adding your name to the file name and to the top of the document. For example, my file would be named "CSCI311-Project1-moser-lucas.docx".
2. Include your documentation and diagrams in the appropriate places within the document.
3. Upload to Brightspace.

Grading:

Criteria	Points
Adheres to submission instructions and template	5
Thoughtful and thorough answers to questions	15
Accurate ERD making appropriate use of listed features	40
Accurate relational schema diagram, making	40

appropriate use of listed features	
TOTAL	100

IMPORTANT ADVICE:

- If graders cannot read your diagram because it is too small or too blurry, we will not be able to give you many points. Please ensure that the diagrams are legible.
- Upload your submission before the due date. You don't want to miss points due to an issue with ERDPlus.com or Brightspace.

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Submissions

CSCI311-Project1-ali-raja.d... (394.33 KB) Sep 9, 2024 2:23 PM

Drop files here, or click below!

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Comments

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100 / 100 **100 %**

Last Modified Tuesday, September 17, 2024 12:36 AM EDT

Activity Details

Well done! You have completed the assignment

Due September 9 at 11:59 PM

Assessment

100 / 100
100 %

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