FrontEnd Link
Step 3 DRAFT: Design HTML Interface + DML SQL
Date: May 7, 2024
Team 6 — Patrick Kim & William Chen

Project: Online Bookstore Management System for The Book Club

Feedback by the TAs and peer reviewer

Feedback from Henry Kanaskie (student):

H Henry Kanaskie
4 days ago

- **Does the overview describe what problem is to be solved by a website with DB back end?**

Yes the overview describes in a lot of detail the background to the problem and how the database backend will work.

- **Does the overview list specific facts?**

The overview is a little vague on the facts part. Listing that a library contains 5000+ books as the only metric is a little vague, instead adding how many customers/transactions there usually are anually could help garner more comprehension.

- **Are at least four entities described and does each one represent a single idea to be stored as a list?**

Yes, the draft describes 5 entities and each one represents a single idea. There are no obscure or confusing entities in the draft. Everything is very detailed and organized. The explanation that sums up the entity at the bottom was really helpful in understanding the flow of everything.

- **Does the outline of entity details describe the purpose of each, list attribute datatypes and constraints and describe relationships between entities?**

Yes, each entity outline is very detailed and has attributes and constraints on each. The relationships are extremely well defined and explained.

- **Are 1:M relationships correctly formulated? Is there at least one M:M relationship? Does the ERD present a logical view of the database?**

The 1:M relationships are correctly formulated, there is one M:M relationship, and the ERD presents a clear junction table to show how the M:M relationship will work.

- **Is there consistency in a) naming between overview and entity/attributes b) entities plural, attributes singular c) use of capitalization for naming?**

There is consistent naming all around.

Feedback from Jessica Ebanks (student):

Jessica Ebanks
4 days ago

- Does the overview describe what problem is to be solved by a website with DB back end?

The overview identifies a problem: customers are frustrated by inaccurate online inventory descriptions and inefficient order fulfillment. It proposes a solution in the form of a database designed to track inventory accurately and in real time.

- Does the overview list specific facts?

The overview states that there are over 5,000 books in the system. This gives a clear view of the scale of the project.

- Are at least four entities described and does each one represent a single idea to be stored as a list?

All 5 entities listed represent singular ideas and are described in the outline.

- Does the outline of entity details describe the purpose of each, list attribute datatypes and constraints and describe relationships between entities?

The outline describes the purpose of each entity and is detailed with datatypes and constraints. Relationships between entities are also noted.

- Are 1:M relationships correctly formulated? Is there at least one M:M relationship? Does the ERD present a logical view of the database?

1:M relationships look to be correctly formulated and there is a M:M relationship listed between orders and books. The ER diagram is consistent and represents a logical view of the database.

- Is there consistency in a) naming between overview and entity/attributes b) entities plural, attributes singular c) use of capitalization for naming?

One suggestion I have as it relates to naming the entities in your outline would be to make the names plural. This is because each entity will have multiple entries. For example, there will be several books to be tracked in the books category. All attributes seem to be named consistently and each one of the attributes is singular.

Overall, the project seems well organized. I can't wait to see the final project!

Feedback from Monica Cao (student):

Monica Cao
2 days ago

Great work on this draft!

- Does the overview describe what problem is to be solved by a website with DB back end?

The overview was wonderfully written and engaging to read. This DB's purpose is to streamline inventory management to optimize customer satisfaction.

- Does the overview list specific facts?

The overview mentions how big the inventory approximate is (50000+) which is good. There could be more information in regards to how many customers the book club serves on average each month.

- Are at least four entities described and does each one represent a single idea to be stored a s a list?

Yes, there are five entities: books, authors, publishers, customers, and orders. Each one represents a single idea.

- Does the outline of entity details describe the purpose of each, list attribute datatypes and constraints and describe relationships between entities?

Yes, the outline is very detailed with appropriate attribute datatypes and constraints, primary keys, and foreign keys. The relationships are clearly stated as well.

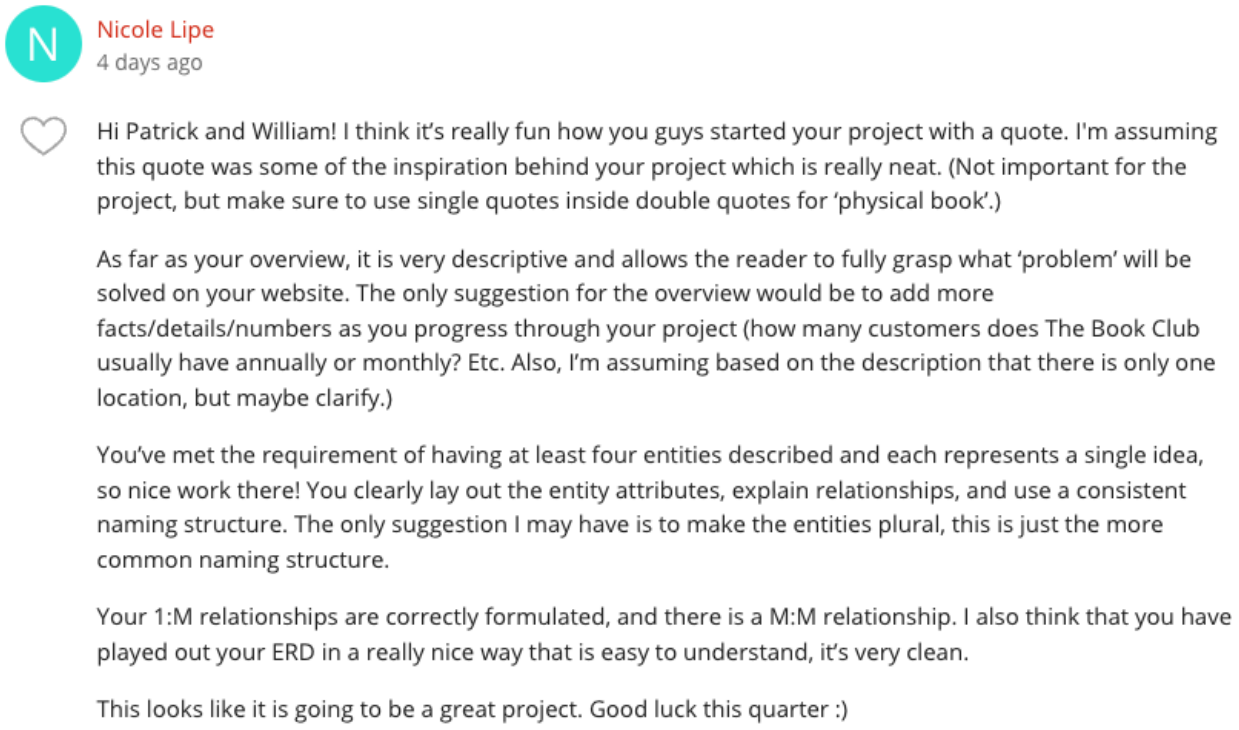
- Are 1:M relationships correctly formulated? Is there at least one M:M relationship? Does the ERD present a logical view of the database?

Yes, the 1:M relationships are correctly formulated and there is at least one M:M relationship between books and orders. The ERD is logical.

- Is there consistency in a) naming between overview and entity/attributes b) entities plural, attributes singular c) use of capitalization for naming?

There are some small discrepancies between the the entity outline and diagram naming such as capitalization. In addition, OrderDetail is not an entity but for clarity I would suggest mirroring the way it is written in the diagram (order_detail vs. OrderDetail). Entities should be plural as well. Otherwise, everything else looks consistent.

Feedback from Nicole Lipe (student):



Nicole Lipe
4 days ago

Hi Patrick and William! I think it's really fun how you guys started your project with a quote. I'm assuming this quote was some of the inspiration behind your project which is really neat. (Not important for the project, but make sure to use single quotes inside double quotes for 'physical book'.)

As far as your overview, it is very descriptive and allows the reader to fully grasp what 'problem' will be solved on your website. The only suggestion for the overview would be to add more facts/details/numbers as you progress through your project (how many customers does The Book Club usually have annually or monthly? Etc. Also, I'm assuming based on the description that there is only one location, but maybe clarify.)

You've met the requirement of having at least four entities described and each represents a single idea, so nice work there! You clearly lay out the entity attributes, explain relationships, and use a consistent naming structure. The only suggestion I may have is to make the entities plural, this is just the more common naming structure.

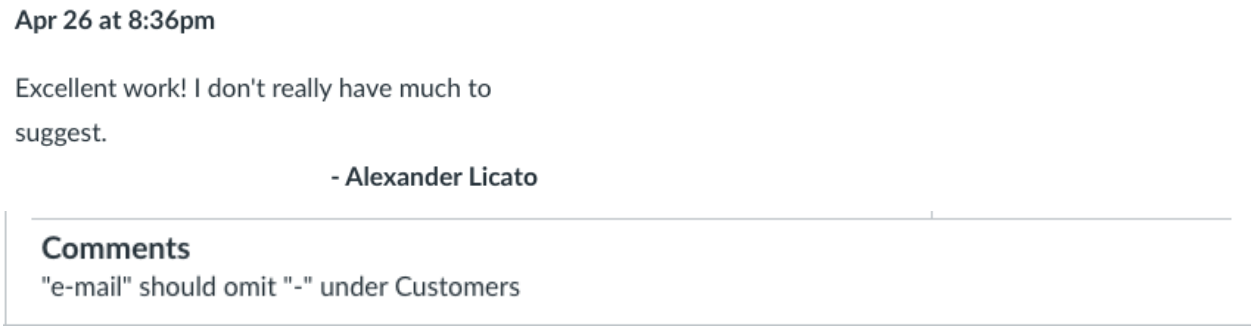
Your 1:M relationships are correctly formulated, and there is a M:M relationship. I also think that you have played out your ERD in a really nice way that is easy to understand, it's very clean.

This looks like it is going to be a great project. Good luck this quarter :)

Draft Feedback from Alexander Licato (TA):

"Excellent first draft! I like the quotation. I'll leave some more detailed comments after you incorporate peer feedback, but there's one I'll leave here now: The ERD should omit some details. This type of diagram is meant to provide more of a logical view of a database, one which just lets you see what entities there are and what relationships they stand in. See here for an example of just how bare-boned the diagram can be: https://edstem.org/us/courses/57666/discussion/4700552"

Step 1 Final - Feedback from Alexander Licato (TA):



Apr 26 at 8:36pm

Excellent work! I don't really have much to suggest.

- Alexander Licato

Comments
"e-mail" should omit "-" under Customers

Step 2 Draft Feedback

Phuc Nguyen
5 days ago

Hi William and Patrick,

The project looks really good. Below is my review.

Does the schema present a physical model that follows the database outline and the ER logical diagram exactly?
- *The schema provides a physical representation of the database that adheres to the logical structure outlined in the database description and the ER diagram. It includes tables, relationships, and attributes specified in the outline and diagram.*

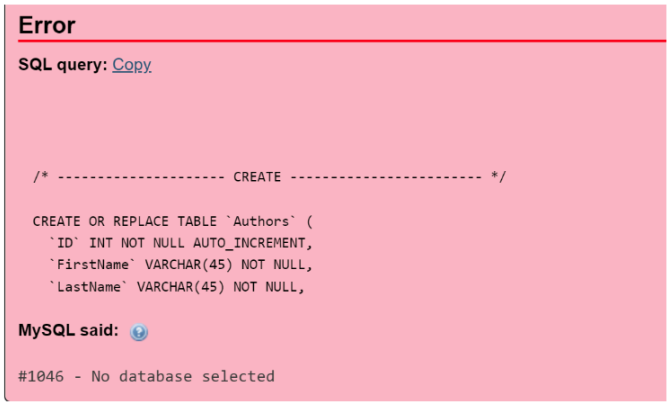
Is there consistency in a) naming between overview, outline, ER and schema entity/attributes b) entities plural, attributes singular c) use of capitalization for naming?
- *There is consistency in naming conventions across the overview, outline, ER diagram, and schema. Entities are named consistently, adhering to a plural form for entities and a singular form for attributes.*

Is the schema easy to read (e.g. diagram is clear and readable with relationship lines not crossed)?
- *The schema's diagram is relatively clear, although some relationships may appear a bit complex due to the interconnected nature of the database. Nonetheless, it provides a clear representation of the relationships without excessive line-crossings.*

Are intersection tables properly formed (e.g. two FKs and facilitate a M:N relationship)?
- *The intersection tables, such as OrderDetails, are correctly formed with two foreign keys, facilitating the many-to-many relationships between books and orders.*

Does the sample data suggest any non-normalized issues, e.g. partial dependencies or transitive dependencies?
- *The sample data appears to be well-structured, with no immediate indication of partial or transitive dependencies, indicating that the database design adheres to the normalization steps up to 3NF.*

Is the SQL file syntactically correct? This can be easily verified by using PhPMyAdmin and your CS 340 database (do not forget to take backup of your own database before you do this!)
- I got this error message when using PhPMyAdmin



In the SQL, are the data types appropriate considering the description of the attribute in the database outline?
- *The data types assigned in the SQL file match the descriptions in the database outline, with appropriate types for attributes like decimal for price and totalPrice and varchar for textual attributes.*

In the SQL, are the primary and foreign keys correctly defined when compared to the Schema? Are appropriate CASCADE operations declared?
- *Primary and foreign keys are appropriately defined, aligning with the schema. Cascade operations are declared to ensure referential integrity when changes occur.*

In the SQL, are relationship tables present when compared to the ERD/Schema?
- *Relationship tables are present, such as OrderDetails, which facilitate the M:N relationship between Orders and Books.*

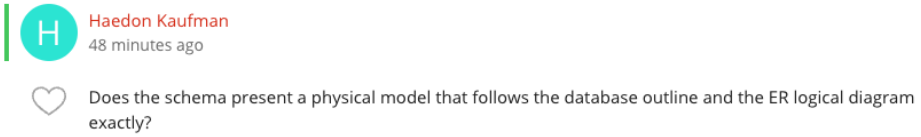
In the SQL, is all example data shown in the PDF INSERTED?

    - *All example data mentioned in the PDF appears to be included in the SQL file, ensuring consistency between the two.*

Is the SQL well structured and commented (e.g. hand authored) or not (e.g. exported from MySQL)?

- *The SQL is well-structured and commented, suggesting a hand-authored nature, which is preferred for clarity and ease of understanding.*

Keep up with the good work.



- Yes, the schema is a physical model of the outline and is exactly the way described.

Is there consistency in a) naming between overview, outline, ER and schema entity/attributes b) entities plural, attributes singular c) use of capitalization for naming?

- Yes, there is consistency in the capitalization, pluralization, and naming.

Is the schema easy to read (e.g. diagram is clear and readable with relationship lines not crossed)?

- There aren't any lines crossed. The tables are placed properly and you can ready the schema easily without any problems.

Are intersection tables properly formed (e.g. two FKs and facilitate a M:N relationship)?

- The OrderDetails table is correctly structured to manage the many-to-many relationship between Books and Orders.

Does the sample data suggest any non-normalized issues, e.g. partial dependencies or transitive dependencies?

- Seems to be normalized properly. I don't see any possibility for data redundancy.

Is the SQL file syntactically correct? This can be easily verified by using PhPMyAdmin and your CS 340 database (do not forget to take backup of your own database before you do this!)

- So I had two issues with two lines in your sql. PHP did not like these:
- ---------- CREATE ----------
- ---------- INSERTS ----------
- When I removed these lines your sql worked properly. So just make sure you are commenting out these lines so it does not affect your sql in the future.

In the SQL, are the data types appropriate considering the description of the attribute in the database outline?

- Yes, the data types matched the attribute name. There were not recommendations for changing the attribute.

In the SQL, are the primary and foreign keys correctly defined when compared to the Schema? Are appropriate CASCADE operations declared?

- Yes cascade operations were declared and they also provided details for primary and foreign keys. Easy to ready and provided all the details.

In the SQL, are relationship tables present when compared to the ERD/Schema?

- Yes all the tables and attributes in ERD and Schema were in the sql.

In the SQL, is all example data shown in the PDF INSERTED?

- Yes the inserts for the tables matched the data in the document.

Is the SQL well-structured and commented (e.g. hand authored) or not (e.g. exported from MySQL)?

- There are some comments.They were hand authored. I think they labeled correctly. Only things I would suggest would be to maybe add a few more comments.

Actions Based on Feedback

From Step 1 Draft to Step 1 Final

- Changed entity names to be plural and PascalCase
- We matched the ER Diagram Entity names to what we have in our outline
- Edited ER Diagram to omit some details to provide more of a logical view of a database.

From Step 1 Final to Step 2 Draft

- Omitted “-” from “e-mail” under Customers per TA feedback
- Added Primary Key to intersection table make it easier to access from the M:M relationship and more attributes
- Included primary keys for ERD

From Step 2 Draft to Step 3 Draft

- One feedback was on if the SQL file was syntactically correct because the reviewer got an error message when using PHPAdmin. We did not make any changes from this feedback because the error message states “No database selected”.

Upgrades

From Step 1 Draft to Step 1 Final

- Added a numeric value to the amount of customers and monthly orders
- Added a Primary Key to the OrderDetails intersection table

From Step 1 Final to Step 2 Draft

- Added Attributes to OrderDetails intersection table

From Step 2 Draft to Step 3 Draft

- Removed TotalPrice Attribute from Orders Entity for simplicity, the Total price can be shown in an SELECT query that shows an invoice slip from the OrderDetails Table if desired.

Overview

“The technology that threatens to kill off books as we know them - the “physical book,” a new phrase in our language - is also making the physical book capable of being more beautiful than books have been since the middle ages.”

- Art Spiegelman

At The Book Club, the primary goal is to optimize inventory management and enhance the customer experience with our site. The bookstore currently faces challenges in efficiently managing its 50000+ different titles as well as the inventory of 1m+ books due to the lack of a centralized system. Not only is inventory management a problem, but also the record of 50000 customers and 30000 monthly orders. As a result, employees spend significant time manually updating inventory records, leading to errors and inconsistencies in stock levels causing delays to their $800000 monthly business transactions. Additionally, customers may experience delays or frustration due to inaccuracies in online availability and fulfillment process.

By implementing the online bookstore management system through MySQL, the bookstore aims to streamline its inventory management processes. Not only will the system provide real-time visibility into available book inventory, but also modernize online order fulfillment.

Outline

- Books: Records information on the individual book in our system
    - **ISBN: int(13), auto-increment, unique, not NULL, PK**
    - **Title: varchar(50), unique, not NULL**
    - **Genre: varchar(45), not NULL**
    - **Stock: int(3), not NULL**
    - **Price: decimal(5.2), not NULL**
    - **AID (FK), not NULL**
    - **PID (FK), not NULL**
    - Relationship: a 1:M relationship between Author and Book is implemented with Book containing author_ID as a FK. Book has the same relationship with Publisher
    - Book can have only one author and one publisher

- Authors: Records information on an Author for each book
    - **ID: int, auto-increment, unique, not NULL, PK**
    - **FirstName: varchar(45), not NULL**
    - **LastName: varchar(45), not NULL**
    - **Gender: varchar(45)**
    - Relationship: a 1:M relationship between Author and Book is implemented, with author_ID as a FK inside of Book
    - Author may have written multiple books

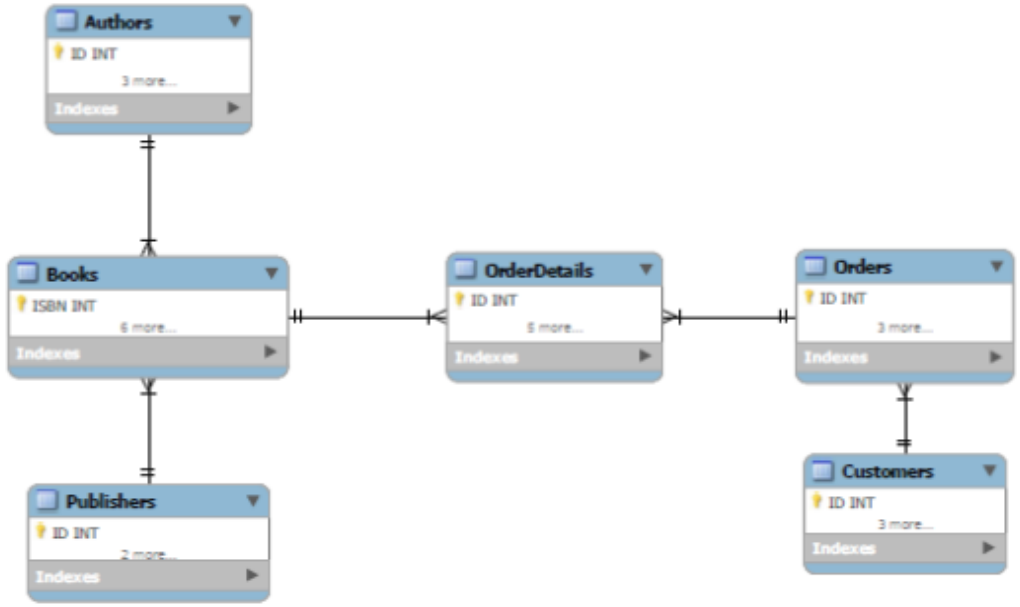
- Publishers: Records information about the Publisher for each book
    - **ID: int, auto-increment, unique, not NULL, PK**
    - **Company: varchar(45), unique, not NULL**
    - **Year: int(4)**
    - Relationship: a 1:M relationship between Publisher and Book is implemented with publisher_ID as a FK inside of Book
    - Publisher may have published multiple books

- Customers: Records the details of Customers we do business with
    - **ID: int, auto-increment, unique, not NULL, PK**
    - **FirstName: varchar(45), not NULL**
    - **LastName: varchar(45), not NULL**
    - **Email: varchar(45), unique, not NULL**
    - Relationship: 1:M relationship with Order which contains customer_ID as a foreign key.
    - Customer may have placed zero or many orders

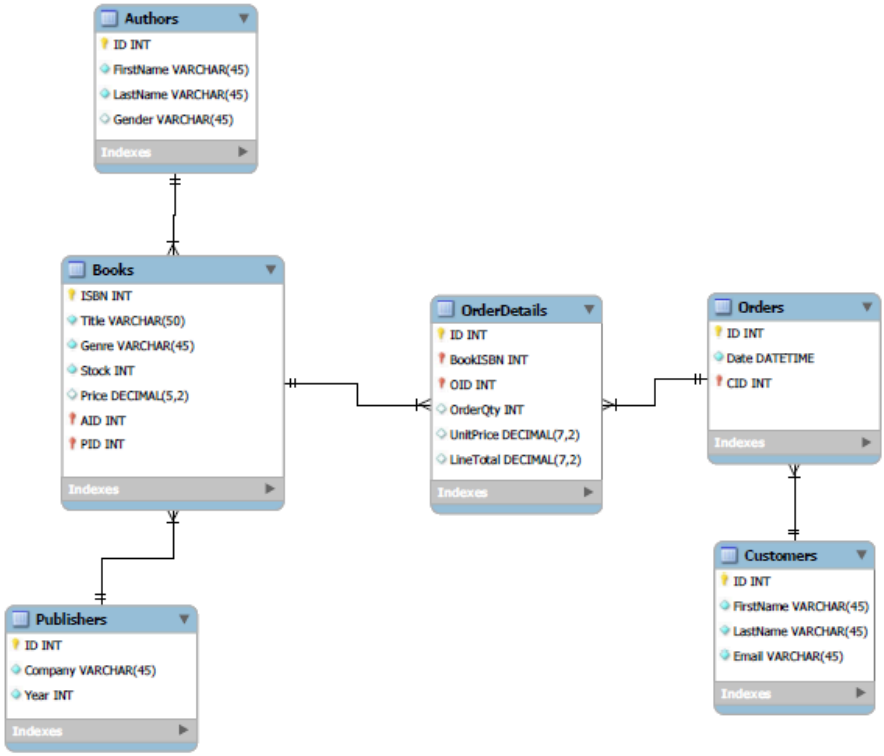
- Orders: Records the details of an order placed by a customer
    - **ID: int, auto-increment, unique, not NULL, PK**
    - **Date: date, not NULL**
    - **FK: CID, not NULL**
    - Relationship: Order and Book have a M:M relationship that is facilitated by an intersection “OrderDetail” which contains order_ID and ISBN as foreign Keys. Order also has a 1:M relationship with Customer, it contains customer_ID as a foreign key.
    - An Order can have only one customer but Customer can place many orders

- OrderDetails: (NOT AN ENTITY)
    - **ID: int, auto-increment, unique, not NULL, PK**
    - **FK: OID**
    - **FK: BookISBN**
    - **OrderQty: Int**
    - **UnitPrice: decimal(7,2)**
    - **LineTotal: decimal(7,2)**
    - Relationship: Intersection table that facilitates the M:M relationship between books and orders.

ERD


Authors
ID INT
3 more...
Indexes
Books
ISBN INT
6 more...
Indexes
OrderDetails
ID INT
5 more...
Indexes
Orders
ID INT
3 more...
Indexes
Publishers
ID INT
2 more...
Indexes
Customers
ID INT
3 more...
Indexes

Schema


Authors
ID INT
FirstName VARCHAR(45)
LastName VARCHAR(45)
Gender VARCHAR(45)
Indexes
Books
ISBN INT
Title VARCHAR(50)
Genre VARCHAR(45)
Stock INT
Price DECIMAL(5,2)
AID INT
PID INT
Indexes
OrderDetails
ID INT
BookISBN INT
OID INT
OrderQty INT
UnitPrice DECIMAL(7,2)
LineTotal DECIMAL(7,2)
Indexes
Orders
ID INT
Date DATETIME
CID INT
Indexes
Publishers
ID INT
Company VARCHAR(45)
Year INT
Indexes
Customers
ID INT
FirstName VARCHAR(45)
LastName VARCHAR(45)
Email VARCHAR(45)
Indexes

Example Data

```
MariaDB [cs340_kimpatr]> select * from Authors;
+----+-----------+-------------+--------+
| ID | FirstName | LastName    | Gender |
+----+-----------+-------------+--------+
|  1 | Joanne    | Rowling     | Female |
|  2 | Alex      | MichaelIDes | Male   |
|  3 | Ray       | Bradbury    | Male   |
|  4 | Liu       | Cixin       | Male   |
+----+-----------+-------------+--------+
```

```
MariaDB [cs340_kimpatr]> select * from Publishers;
+----+-----------------------+------+
| ID | Company               | Year |
+----+-----------------------+------+
|  1 | Scholastic Corporation | 1920 |
|  2 | Macmillian Publishers  | 1843 |
|  3 | Ballantine Books       | 1952 |
+----+-----------------------+------+
```

```
MariaDB [cs340_kimpatr]> select * from Books;
+------+---------------------------------------+----------+-------+-------+-----+-----+
| ISBN | Title                                 | Genre    | Stock | Price | AID | PID |
+------+---------------------------------------+----------+-------+-------+-----+-----+
|    1 | Harry Potter and the Sorcerer's Stone | Fantasy  |    50 |  7.00 |   1 |   1 |
|    2 | The Silent Patient                    | Thriller |   123 | 10.53 |   2 |   2 |
|    3 | Farenheit 451                         | Sci-Fi   |   451 |  8.36 |   3 |   3 |
|    4 | The Three-Body Problem                | Sci-Fi   |   333 | 10.59 |   4 |   2 |
|    5 | The Fury                              | Thriller |    72 | 16.19 |   2 |   2 |
+------+---------------------------------------+----------+-------+-------+-----+-----+
```

```
MariaDB [cs340_kimpatr]> select * from Customers;
+----+-----------+----------+-------------------------+
| ID | FirstName | LastName | Email                   |
+----+-----------+----------+-------------------------+
|  1 | Patrick   | Kim      | kimpatr@oregonstate.edu |
|  2 | William   | Chen     | chewill@oregonstate.edu |
|  3 | Jane      | Smith    | jsmith@mail.com         |
+----+-----------+----------+-------------------------+
```

```
MariaDB [cs340_kimpatr]> select * from Orders;
+----+---------------------+-----+
| ID | Date                | CID |
+----+---------------------+-----+
|  1 | 2024-03-23 00:00:00 |   1 |
|  2 | 2024-03-31 00:00:00 |   2 |
|  3 | 2024-04-02 00:00:00 |   1 |
|  4 | 2024-04-20 00:00:00 |   3 |
+----+---------------------+-----+
```

```
MariaDB [cs340_kimpatr]> select * from OrderDetails;
+----+----------+-----+----------+-----------+-----------+
| ID | BookISBN | OID | OrderQty | UnitPrice | LineTotal |
+----+----------+-----+----------+-----------+-----------+
|  1 |        4 |   1 |        1 |     10.59 |     10.59 |
|  2 |        5 |   1 |        1 |     16.19 |     16.19 |
|  3 |        2 |   2 |        1 |     10.53 |     10.53 |
|  4 |        3 |   2 |        1 |      8.36 |      8.36 |
|  5 |        2 |   3 |        1 |     10.53 |     10.53 |
|  6 |        3 |   4 |       10 |      8.36 |     83.60 |
+----+----------+-----+----------+-----------+-----------+
```