Project 3

Problem 3: Online Book Publishing and Sales Platform

Design an Entity-Relationship schema for an online book publishing and sales platform. The database should contain information about books with title, ISBN, edition, publication year, publisher, genres, and price. Authors have ID, name, biography, and are associated with multiple books.

Customers have customer ID, name, purchase history, shipping addresses, and wishlist items. Orders have order number, order date, customer placing the order, list of books ordered with quantity and per item discounts, payment details, and shipment status.

Publishers have names, contact details, and the books they publish. Books can be written by multiple authors and can belong to multiple genres. Customers can place multiple orders, have multiple shipping addresses, and maintain a wishlist of books.

Each edition of a book is published by exactly one publisher, and books can have multiple editions sold in different years. Orders can contain multiple books with different quantities and item-specific discounts. Assume scenarios such as co-authored books, special editions, and pre-order capabilities.

Creating Tables - - - -

Author - - - -

```
CREATE TABLE Author (
    author_id INT PRIMARY KEY AUTO_INCREMENT,
```

```
    name VARCHAR(100),

    biography TEXT

);
```

Publisher - - - -

```
CREATE TABLE Publisher (

    publisher_id INT PRIMARY KEY AUTO_INCREMENT,

    name VARCHAR(100),

    contact_details TEXT

);
```

Genere - - - -

```
CREATE TABLE Genre (

    genre_id INT PRIMARY KEY AUTO_INCREMENT,

    genre_name VARCHAR(50) UNIQUE

);
```

Book - - - -

```
CREATE TABLE Book (

    book_id INT PRIMARY KEY AUTO_INCREMENT,

    title VARCHAR(200),

    isbn VARCHAR(20),

    edition VARCHAR(50),

    publication_year INT,
```

```
    price DECIMAL(10, 2),

    publisher_id INT,

    FOREIGN KEY (publisher_id) REFERENCES Publisher(publisher_id)

);
```

BookAuthor - - - -

```
CREATE TABLE BookAuthor (

    book_id INT,

    author_id INT,

    PRIMARY KEY (book_id, author_id),

    FOREIGN KEY (book_id) REFERENCES Book(book_id),

    FOREIGN KEY (author_id) REFERENCES Author(author_id)

);
```

BookGenre - - - -

```
CREATE TABLE BookGenre (

    book_id INT,

    genre_id INT,

    PRIMARY KEY (book_id, genre_id),

    FOREIGN KEY (book_id) REFERENCES Book(book_id),

    FOREIGN KEY (genre_id) REFERENCES Genre(genre_id)

);
```

Customer - - - -

```sql
CREATE TABLE Customer (

    customer_id INT PRIMARY KEY AUTO_INCREMENT,

    name VARCHAR(100)

);
```

ShippingAddress - - - -

```sql
CREATE TABLE ShippingAddress (

    address_id INT PRIMARY KEY AUTO_INCREMENT,

    customer_id INT,

    full_address TEXT,

    FOREIGN KEY (customer_id) REFERENCES Customer(customer_id)

);
```

Wishlist - - - -

```sql
CREATE TABLE Wishlist (

    customer_id INT,

    book_id INT,

    PRIMARY KEY (customer_id, book_id),

    FOREIGN KEY (customer_id) REFERENCES Customer(customer_id),

    FOREIGN KEY (book_id) REFERENCES Book(book_id)

);
```

Order - - - -

```sql
CREATE TABLE `Order` (

    order_id INT PRIMARY KEY AUTO_INCREMENT,

    customer_id INT,

    order_date DATE,

    shipment_status VARCHAR(50),

    is_preorder BOOLEAN DEFAULT FALSE,

    FOREIGN KEY (customer_id) REFERENCES Customer(customer_id)

);
```

Payment - - - -

```sql
CREATE TABLE Payment (

    payment_id INT PRIMARY KEY AUTO_INCREMENT,

    order_id INT,

    payment_method VARCHAR(50),

    payment_date DATE,

    FOREIGN KEY (order_id) REFERENCES `Order`(order_id)

);
```

OrderItem - - - -

```sql
CREATE TABLE OrderItem (

    order_item_id INT PRIMARY KEY AUTO_INCREMENT,
```

```
    order_id INT,

    book_id INT,

    quantity INT,

    item_discount DECIMAL(5,2), -- e.g., 10.00 means 10% discount

    FOREIGN KEY (order_id) REFERENCES `Order`(order_id),

    FOREIGN KEY (book_id) REFERENCES Book(book_id)
);
```
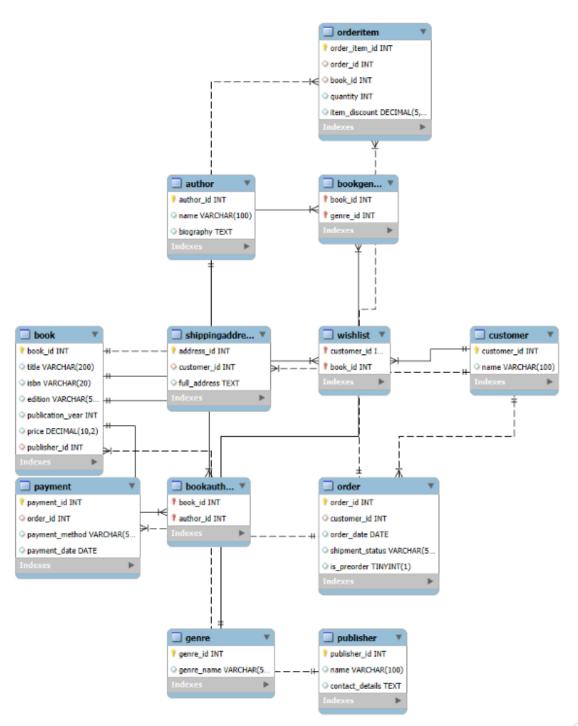
ER Diagram - - - - -

orderitem
- 🔑 order_item_id INT
- ◇ order_id INT
- ◇ book_id INT
- ◇ quantity INT
- ◇ item_discount DECIMAL(5,...
- Indexes ▶

author
- 🔑 author_id INT
- ◇ name VARCHAR(100)
- ◇ biography TEXT
- Indexes ▶

bookgen...
- 🔑 book_id INT
- 🔑 genre_id INT
- Indexes ▶

book
- 🔑 book_id INT
- ◇ title VARCHAR(200)
- ◇ isbn VARCHAR(20)
- ◇ edition VARCHAR(5...
- ◇ publication_year INT
- ◇ price DECIMAL(10,2)
- ◇ publisher_id INT
- Indexes ▶

shippingaddre...
- 🔑 address_id INT
- ◇ customer_id INT
- ◇ full_address TEXT
- Indexes ▶

wishlist
- 🔑 customer_id I...
- 🔑 book_id INT
- Indexes ▶

customer
- 🔑 customer_id INT
- ◇ name VARCHAR(100)
- Indexes ▶

payment
- 🔑 payment_id INT
- ◇ order_id INT
- ◇ payment_method VARCHAR(5...
- ◇ payment_date DATE
- Indexes ▶

bookauth...
- 🔑 book_id INT
- 🔑 author_id INT
- Indexes ▶

order
- 🔑 order_id INT
- ◇ customer_id INT
- ◇ order_date DATE
- ◇ shipment_status VARCHAR(5...
- ◇ is_preorder TINYINT(1)
- Indexes ▶

genre
- 🔑 genre_id INT
- ◇ genre_name VARCHAR(5...
- Indexes ▶

publisher
- 🔑 publisher_id INT
- ◇ name VARCHAR(100)
- ◇ contact_details TEXT
- Indexes ▶