Final Project

PROG2111

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Phase 1: Project Idea & Use Case

Project Overview

This application is a small bookstore management system that will support various CRUD features and database queries for books and customers. We assume no co-publishing and no edge cases for simplicity.

The system will keep track of all registered customers including their names, phone number, address and email. It will also manage the individual details of each book such as title, publisher, author, stock and genre. The bookstore will manage the customer orders and the details of each order. An order will consist of a customer and order date while the order details will consist of the book, order, quantity and price. We treat publishers as direct suppliers who provide inventory to the bookstore.

Each of these entities will contain various relationships with each other through associative entities and identifiable keys.

You will be operating from the perspective of the bookstore employee, you will be able to search for customer information, orders, and books. Customers will be found by either name or customer ID. Orders will be found through order ID, and books will be found through author, genre, or title. You will be able to add and remove customers from the database, add and remove books, create new orders and update book/customer information.

GitHub-Repo

https://github.com/Zumh/RMDB2025Final.git

Phase 2: Data Modeling & ER Diagram

Key Entities and Attributes:

1. Customer - customerID (Primary Key) - customerName - customerAddress - customerPhoneNumber - customerEmail	2. Book - bookID (Primary Key) - bookTitle - bookISBN - bookAuthor - bookPrice - bookStock - publisherID (Foreign Key) - categoryID (Foreign Key)	3. OrderDetail - detailID (Primary Key) - orderID (Foreign Key) - bookID (Foreign Key) - quantity - bookPrice
4. Category - categoryID (Primary Key) - categoryName	5. Order - orderID (Primary Key) - orderDate - totalAmount - customerID (Foreign Key)	6. Publisher - publisherID (Primary Key) - publisherName

Key Relationships

1. Publisher ↔ Book (1:N)

- One publisher publishes multiple books
- A book is published by one publisher

2. Category ↔ Book (1:N)

- One category contains multiple books
- A book belongs to one category

3. Customer ↔ Order (1:N)

- One customer can place multiple orders
- An order is placed by one customer

4. Order ↔ OrderDetail (1:N)

- One order can have multiple order details
- An order detail belongs to one order

5. Book ↔ OrderDetail (1:N)

- One book can appear in multiple order details

- An order detail references one book

ER Diagram