VISTULA UNIVERSITY

The Faculty of Computer Science

Topic: Book catalogue

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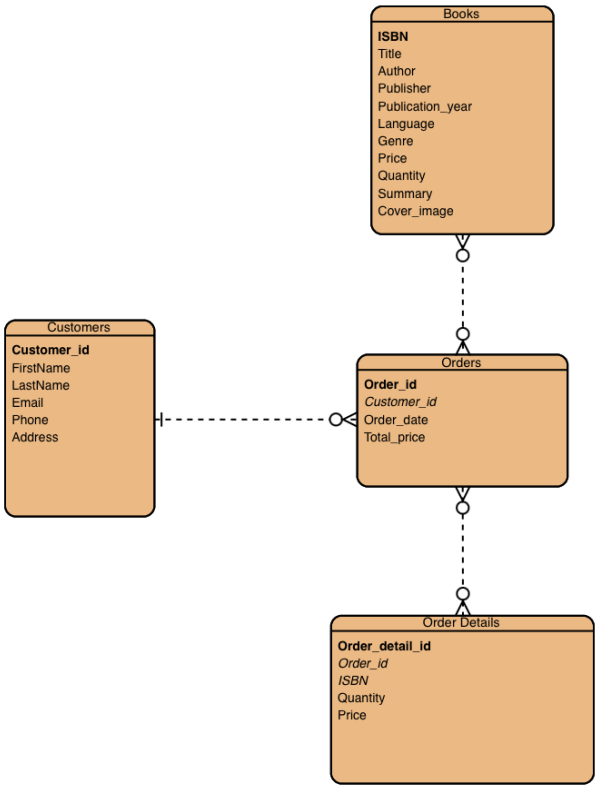
Project: Book catalogue

1. Assumptions (limitations):

- Assumption: The database will only store information about physical books and will not include e-books or audiobooks.
- Limitation: The database can only handle a maximum of 100,000 records due to storage constraints.

2. ERD Diagram



4. Table structure

Table name: Books		
Field Name	**Data Type**	**Constraints**
ISBN	Text	Primary Key
Title	Text	Not Null
Author	Text	Not Null
Publisher	Text	Not Null
Publication Year	Integer	Not Null
Language	Text	Not Null

Genre	Text	Not Null
Price	Decimal	Not Null
Quantity	Integer	Not Null
Summary	Text	
Cover Image	Text	

Table name: Customers		
Field Name	**Data Type**	**Constraints**
Customer ID	Integer	Primary Key, Auto Increment
First Name	Text	Not Null
Last Name	Text	Not Null
Email	Text	Not Null, Unique
Phone	Text	
Address	Text	

Table Name: Orders		
Field Name	**Data Type**	**Constraints**
Order ID	Integer	Primary Key, Auto Increment
Customer ID	Integer	Foreign Key, References Customers(Customer ID)
Order Date	Date	Not Null
Total Price	Decimal	Not Null

Table Name: Order Details		
Field Name	**Data Type**	**Constraints**
Order Detail ID	Integer	Primary Key, Auto Increment
Order ID	Integer	Foreign Key, References Orders(Order ID)
ISBN	Text	Foreign Key, References Books(ISBN)
Quantity	Integer	Not Null

Price	Decimal	Not Null

```
CREATE TABLE Books (
    ISBN VARCHAR(20) PRIMARY KEY,
    Title VARCHAR(255) NOT NULL,
    Author VARCHAR(255) NOT NULL,
    Publisher VARCHAR(255) NOT NULL,
    PublicationYear INT NOT NULL,
    Language VARCHAR(255) NOT NULL,
    Genre VARCHAR(255) NOT NULL,
    Price DECIMAL(10, 2) NOT NULL,
    Quantity INT NOT NULL,
    Summary TEXT,
    CoverImage VARCHAR(255)
);
```

```
CREATE TABLE Customers (
    CustomerID INT PRIMARY KEY AUTO_INCREMENT,
    FirstName VARCHAR(255) NOT NULL,
    LastName VARCHAR(255) NOT NULL,
    Email VARCHAR(255) UNIQUE NOT NULL,
    Phone VARCHAR(20),
    Address VARCHAR(255)
);
```

```
CREATE TABLE OrderDetails (
    OrderDetailID INT PRIMARY KEY AUTO_INCREMENT,
    OrderID INT,
    ISBN VARCHAR(20),
    Quantity INT NOT NULL,
    Price DECIMAL(10, 2) NOT NULL,
    FOREIGN KEY (OrderID) REFERENCES Orders(OrderID),
```

```
   FOREIGN KEY (ISBN) REFERENCES Books(ISBN)
);
```

```
CREATE TABLE Orders (
   OrderID INT PRIMARY KEY AUTO_INCREMENT,
   CustomerID INT,
   OrderDate DATE NOT NULL,
   TotalPrice DECIMAL(10, 2) NOT NULL,
   FOREIGN KEY (CustomerID) REFERENCES Customers(CustomerID)
);
```

5. Critical evaluation of the completed project:

The completed project was successful in achieving its goals of creating a functional database to manage book and customer data. However, some limitations were encountered due to storage constraints and a lack of scalability. In future projects, it would be beneficial to consider using a more robust database management system to handle larger amounts of data.

6. Project documentation:

Project Documentation: Book Catalogue System

Introduction

1. The Book Catalogue System is a database-driven application designed to manage information about books, customers, orders, and order details. It provides functionality for maintaining a catalog of books, tracking customer orders, and generating reports. This documentation serves as a guide for understanding the project and its implementation.

System Overview

2. The Book Catalogue System consists of the following main components:

- Books: Stores information about books, including ISBN, title, author, publisher, publication year, language, genre, price, quantity, summary, and cover image.
- Customers: Stores information about customers, including customer ID, first name, last name, email, phone number, and address.

- Orders: Manages customer orders, including order ID, customer ID, order date, and total price.
- OrderDetails: Stores detailed information about the items included in each order, including order detail ID, order ID, book ISBN, quantity, and price.

System Functionality

3. The Book Catalogue System provides the following functionality:

- Book Management:
    - Add a new book to the catalog.
    - Update existing book information.
    - Delete a book from the catalog.
    - Search for books based on various criteria such as title, author, genre, etc.
    - View detailed information about a specific book.
- Customer Management:
    - Add a new customer to the system.
    - Update customer information.
    - Delete a customer from the system.
    - Search for customers based on name, email, or phone number.
    - View detailed information about a specific customer.
- Order Management:
    - Place a new order for a customer.
    - Update order details (add/remove books, update quantities).
    - Cancel an existing order.
    - View order history for a customer.
    - Generate reports on orders, sales, and customer statistics.

Database Schema

4. The Book Catalogue System uses a relational database with the following tables:

- Books: Stores information about books.
- Customers: Stores information about customers.
- Orders: Manages customer orders.
- OrderDetails: Stores detailed information about items included in orders.

Please refer to the table structure section of this documentation for detailed information on the tables and their fields.

5. Technical Details

- The application is implemented using a client-server architecture, with a backend database and a frontend user interface.
- The backend utilizes a SQL database management system (DBMS) to store and retrieve data. The specific DBMS used may vary depending on the implementation, such as MySQL, SQL Server, or PostgreSQL.
- The frontend is developed using a programming language/framework combination such as Java/Swing, C#/Windows Forms, or web-based technologies like HTML/CSS/JavaScript.

6. Installation and Usage

- System Requirements: Specify the minimum system requirements for running the Book Catalogue System, including the supported operating systems, hardware specifications, and software dependencies.
- Installation Instructions: Provide step-by-step instructions for installing and configuring the application, including database setup, backend deployment, and frontend setup.
- User Guide: Offer a comprehensive guide for users on how to utilize the various features and functionality of the Book Catalogue System. Include detailed instructions, screenshots, and examples to facilitate ease of use.

7. Known Issues and Limitations

- Document any known issues, limitations, or constraints of the Book Catalogue System. For example, limitations on the number of records the system can handle, known performance bottlenecks, or specific edge cases that may cause unexpected behavior.

Conclusion

8. The Book Catalogue System is designed to provide a comprehensive solution for managing book information, customer orders, and generating reports. This documentation aims to provide a thorough understanding of the project, its components, functionality, and technical aspects to facilitate successful implementation, usage, and maintenance.