**CS 4347: Phase 1**

**Group 8: Bookstore Management System**

**Name of Project:** Bookstore Management System

**Team Number:** 8

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**Problem Statement:**

We can use a database system to query a central dataset to see if the book a customer wants is currently in our inventory, this makes it such that both the employees and customers know exactly what books we have in store. We aim to have multiple bookstores spanning across Texas, so in the future as more stores are added we maintain data concurrency. As this database will make use of primary and foreign keys, we can ensure that the data is accurate and consistent throughout the system. The database will also increase the efficiency of retrieving insights into book sales, therefore the bookstore is able analyze which books the users are more or less interested in. Data redundancy is reduced by ensuring that information about the books, orders, etc. are stored in normalized forms. Along with that, we will be able to make use of the benefits of online security that comes with databases.

**Target users**:

*Customers* - Access the database to browse books, place orders, check availability, make payments, and manage their accounts.

*Suppliers/Publishers* - Access the database to update product catalogs, provide pricing and availability information, manage orders, and communicate with the bookstore about shipments and deliveries.

*Employees/Database administrators* - Manage the database by performing operations such as managing inventory, processing orders, and updating product information.

*Accounting/Finance Personnel* - Access the database to generate financial reports, track sales revenue, manage invoices and payments, reconcile accounts, and analyze business performance.

**Real-World Example:**

*Barnes & Noble’s database* - Store managers and staff across various locations access the database to manage inventory, process sales, and view customer information. Customers access the database through the Barnes & Noble website or mobile app to browse books, place orders, and manage their accounts. Suppliers and publishers have access to update product catalogs and communicate with Barnes & Noble about orders and shipments. Barnes & Noble's IT department manages the bookstore management database. They oversee tasks such as database installation, configuration, security, backups, performance tuning, and ensuring compliance with data privacy regulations.

**List of Relations:**

*Book Relation*

book\_id

title

author\_id

genre

age\_rating

price

quantity\_available

quantity\_sold

*Author Relation*

author\_id

name

accolades

biography

*Customer Relation*

customer\_id

customer\_password

name

email

address

shopping\_cart

owned\_books

*Order Relation*

order\_id

customer\_id

book\_id

quantity

total\_price

order\_date

*Supplier Relation*

supplier\_id

book\_id

price

quantity

**Web interface:**

*User Registration and Login* - Customers will be able to create accounts or login to existing ones.

Registration Form

Login Form

*Browsing Books* - Customers will be able to search for and browse through books.

Search Form (with filters such as title, author, genre, and age rating)

*Placing Orders* - Customers will be able to add books to their shopping cart and place orders.

Add to Shopping Cart Form

Checkout Form

*Inventory Management* - Employees will be able to use canned transactions to help quick query and update relevant data regarding concurrent available books, they will also be able to order books from the supplier.

Adding New Books to Inventory Form

Updating Book Details Form

Ordering Books from Supplier Form

*Processing Orders* - Employees will be able to process and manage customer orders.

Customer Order Form

**Data:**

As a foundation, to populate our relations we can use external sources like kaggle, tableau, and github to fill up our data such as the title of the book, author of the book, price of the book, etc. We will also have to manually populate some of our relations such as the customer relation which can be done by using a pre-made dataset with names, emails, and addresses along with manually entering the owned books and shopping cart. In summary, we will use a combination of pre-made datasets from the internet and manual data-entry, when necessary, to populate our relations

**Links:**

Tableau - <https://help.tableau.com/current/pro/desktop/en-us/bookshop_data.htm>

Kaggle - <https://www.kaggle.com/datasets/jealousleopard/goodreadsbooks/data>

Kaggle - <https://www.kaggle.com/datasets/thedevastator/books-sales-and-ratings>

Kaggle - <https://www.kaggle.com/datasets/digenessilva/bestsellers-books-amazon-ebay-and-barnesnoble>

Github - <https://github.com/yusanlin/Barnes-and-Noble/tree/master>