Book Management System

Organize, track, and visualize your library with a modern, intuitive interface.

Explore Books

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App. Development for Analytics

Final Project Presentation

Group 1

Do Minh Chau Vo, Chris Brown, Tra Le Nguyen Huong, and Felix Schaefer

About Us

Meet Our Team

Felix Schaefer
MS AIBA Class of 2025

- Created Buttons for CRUD functions
- Created documentation for the project
- Create Presentation

Chau Vo
MS AIBA Class of 2026

- Created About Us page
- Updated CSS files and style of Explore page
- Implemented MVC architecture for Home, Data Visual, and About Us page.
- Hosted GitHub repository

Tra Le
MS AIBA Class of 2026

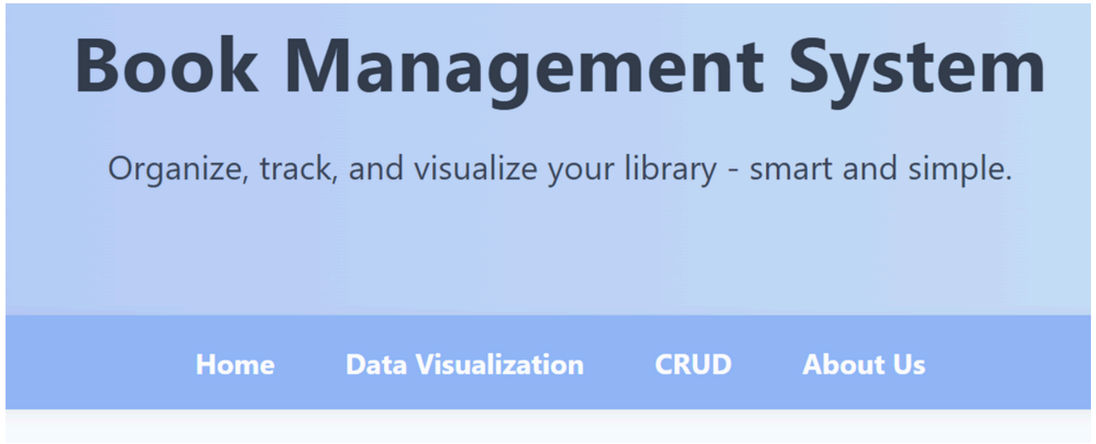
- Created Home page and Data Visualization
- Created the Logical Data Model diagram
- Added Open library API

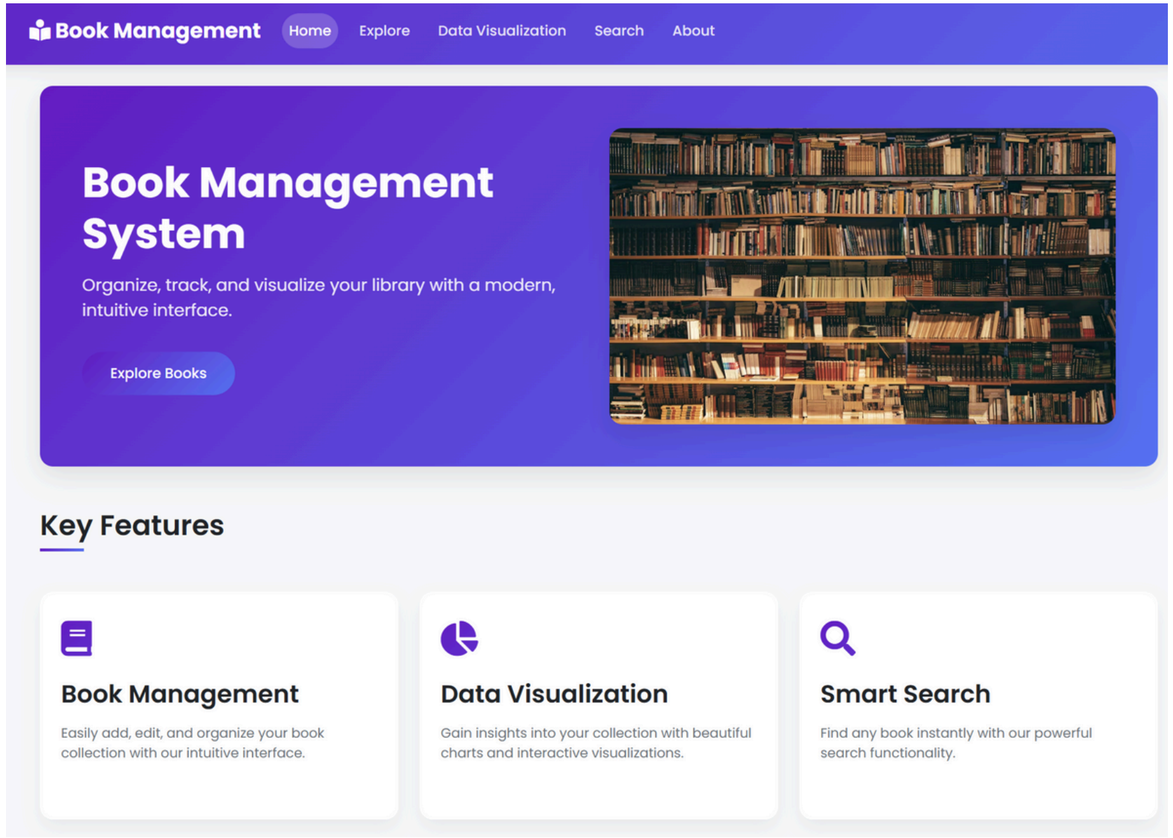
Chris Brown
Team Member

- Created CRUD page and buttons
- Adjusted code for CRUD operations

Project Look and Feel

Final Project





Initial Feedback:

- “Ticking Rubric Items”
- No real world use case
- Context and Purpose to CRUD Page

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Digital Library / Personalizable Book Management System

Key Features

Implemented:

- MVC Architecture
- API Integration for Data Management
- CRUD Operations
- Azure Deployment

- **Modern UI:** gradient backgrounds, card-based layouts, and interactive elements
- **Explore Books:** Browse and manage your book collection with a visually appealing interface
- **Data Visualization:** Interactive charts
- **Book Search:** Search for books using the Open Library API
- **Adaptive Design:** Works on desktop and mobile devices

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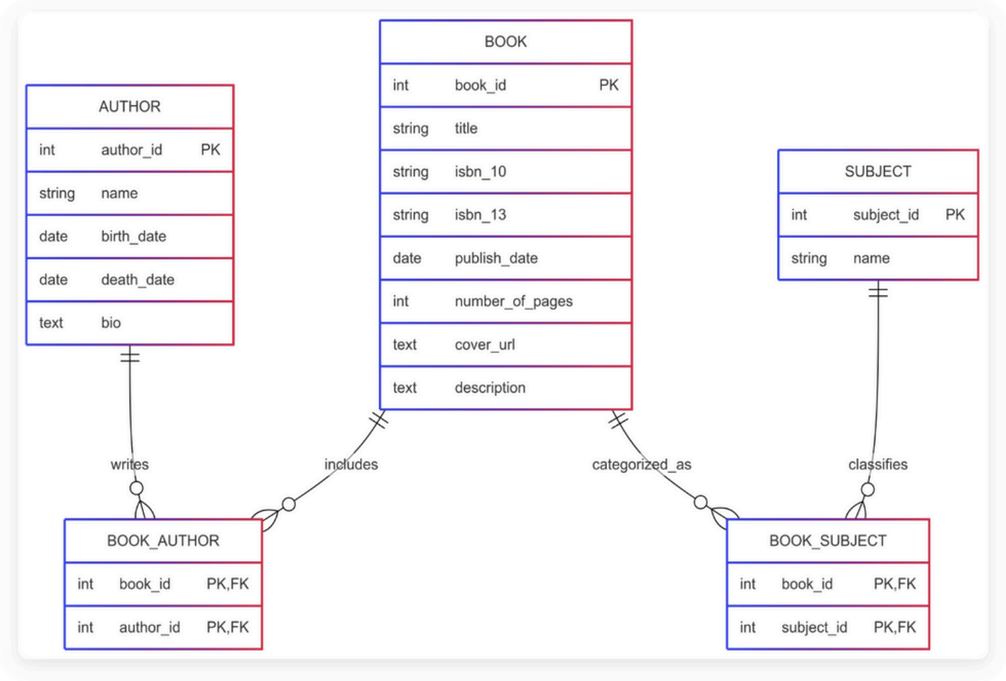
Our Logical Data Model



- **Book**: Stores book information (title, ISBN, etc.)
- **Author**: Contains author details
- **Subject**: Represents book subjects/categories
- **BookAuthor**: Junction table for the many-to-many relationship between books and authors
- **BookSubject**: Junction table for the many-to-many relationship between books and subjects

API

Open Library Search API: https://openlibrary.org/search.json?q={query}

Open Library Covers API: https://covers.openlibrary.org/b/id/{cover_id}-M.jpg

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Notable Technical Challenges

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Infinite Loading with Entity Framework

Problem: Entity Framework was causing infinite loading issues due to circular references in the object graph when loading books with their related authors and subjects.

Solution: Replaced Entity Framework queries with direct SQL queries that precisely control which data is loaded. Implemented proper transaction handling to ensure data integrity.

Database Connection Issues

Problem: First-time database operations would often time out, requiring users to retry the action.

Solution: Implemented connection warmup in the controller constructor and added retry logic with exponential backoff for database operations. Increased the command timeout to accommodate slower connections

Azure Deployment

https://bookmanagementsystem.azurewebsites.net