Library Management System with ASP.NET Core

This project aims to develop a comprehensive library management system using ASP.NET Core and SQL Server. The system will streamline book lending, tracking, and penalty management for improved efficiency and user experience.

Introduction to the Library Management System

This system is designed to enhance the library's operations by automating various processes, including book lending, member management, and penalty calculations.

1 **Book Tracking**

The system will maintain a comprehensive record of each book, including its title, author, ISBN, and availability status.

2 **Member Management**

It will facilitate member registration, update membership details, and manage borrowing limits and overdue penalties.

3 **Search Functionality**

Users can search for books by title, author, or keyword, providing quick access to relevant information.

4 **User Interface**

The system will provide a user-friendly interface for both library staff and members, simplifying interactions.

Key Features of the System

This system encompasses various essential features to ensure efficient library management.

Book Management

The system will allow for adding, updating, and removing books from the library's collection.

Member Management

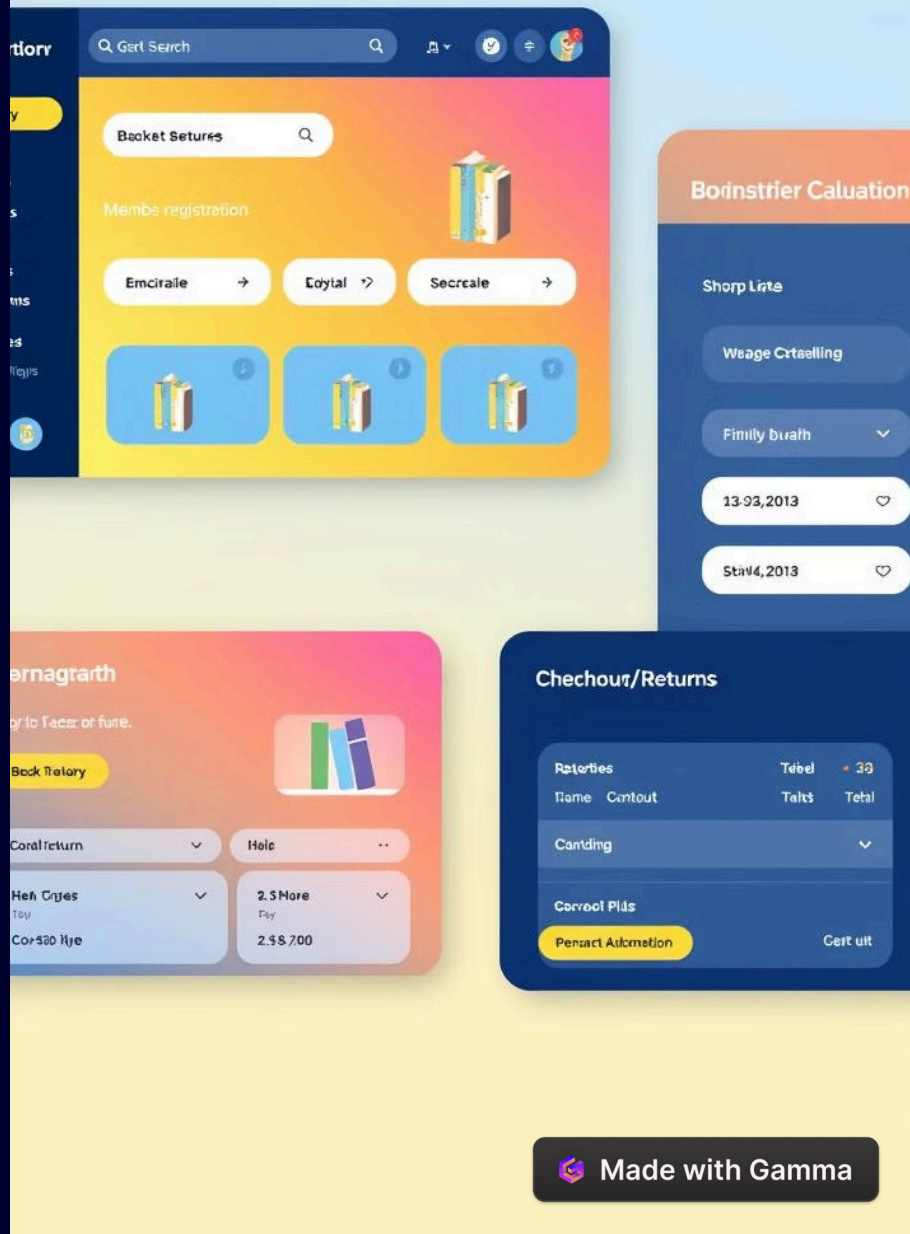
It will enable the addition, modification, and deletion of member accounts, including managing their borrowing privileges.

Checkout and Return

The system will facilitate the lending and returning of books, tracking due dates and recording overdue penalties.

Search and Availability

The system will provide a search function to find available books, ensuring quick access to library resources.



ASP.NET Core Architecture and Functionality

ASP.NET Core will power the front-end and back-end functionalities of the system.

User Interface

The user interface will be built using Razor Pages or MVC, providing a user-friendly experience for interacting with the system.

1

Data Access

The data access layer will handle interactions with the SQL Server database, retrieving and updating information.

3

2

Business Logic

Business logic will handle tasks like book checkout, return processing, and penalty calculations.

Member Management and Checkout/Return Processes

The system will provide comprehensive member management capabilities, including registration, account updates, and borrowing limits.

1

Member Registration

New members can register by providing their personal information and contact details.

2

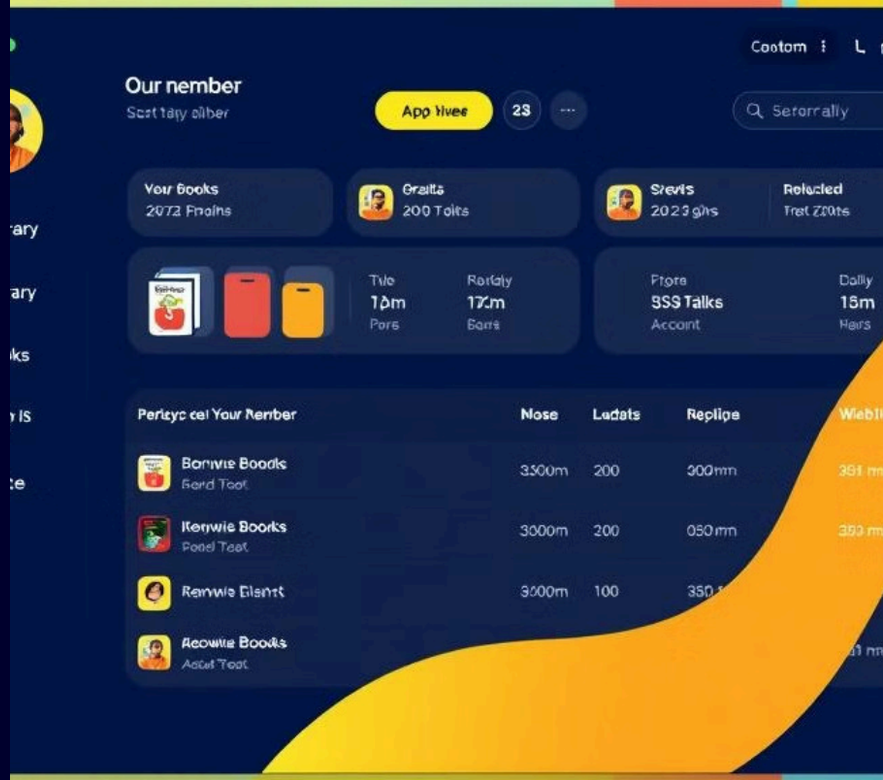
Book Checkout

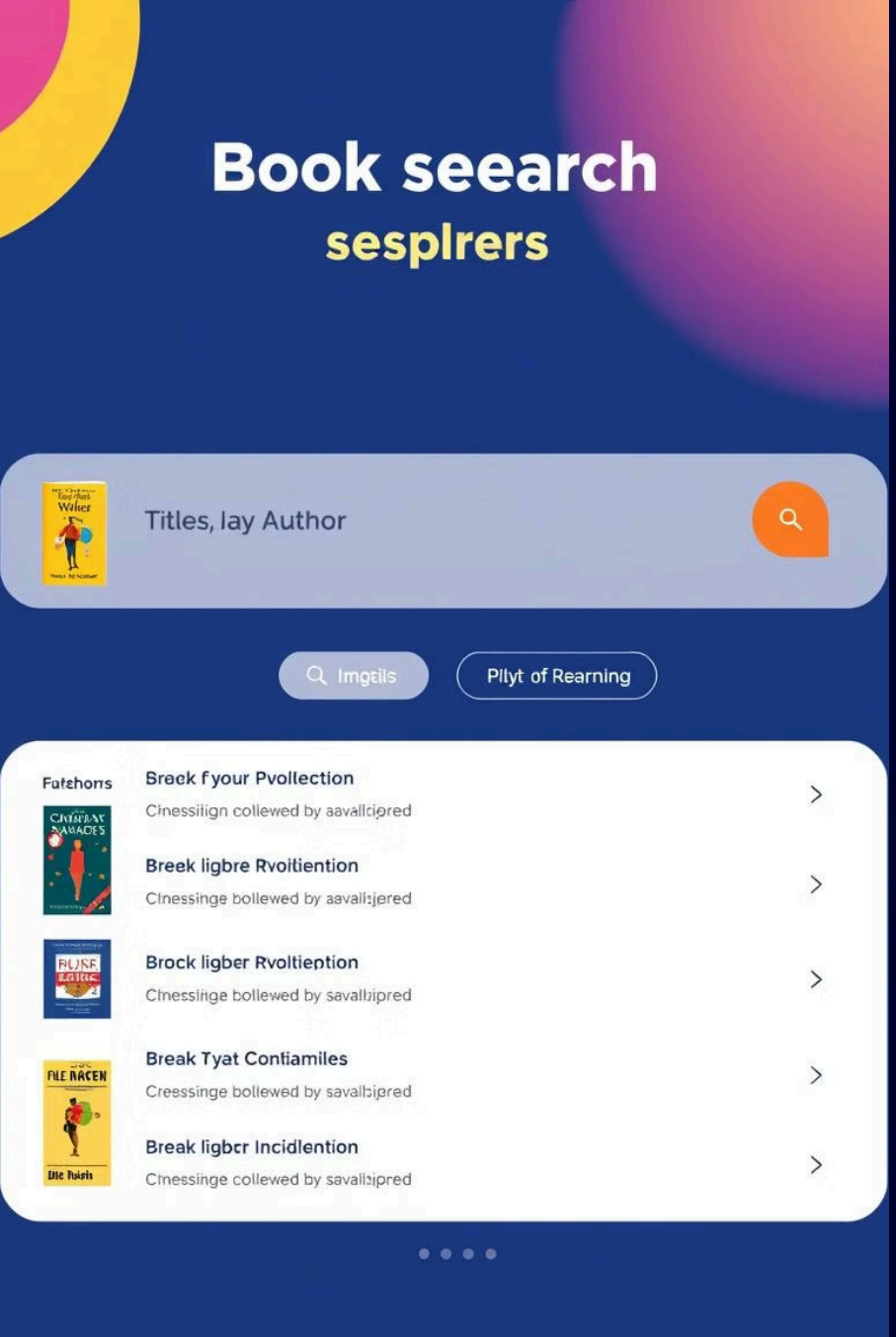
Members can checkout books by searching the catalog, selecting desired books, and confirming borrowing details.

3

Book Return

Members can return books by scanning the ISBN or entering the book's details, and the system will update the book's availability status.

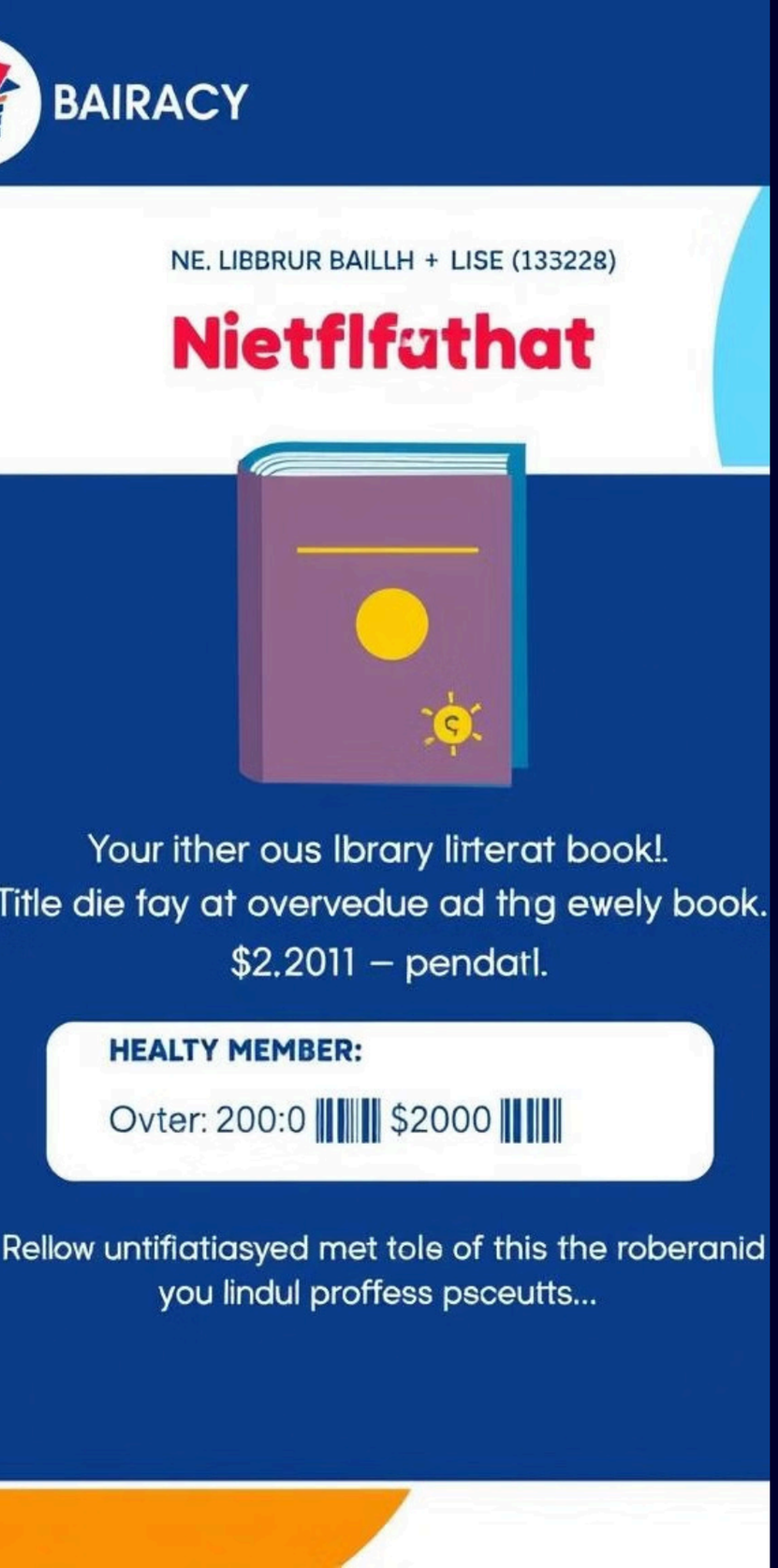




Search and Availability Tracking

The system will provide a robust search functionality for members to locate available books.

Search Criteria	Title	Author	Keyword
Availability Status	Available	Borrowed	Overdue



Penalty Calculation and Notifications

The system will calculate and track overdue penalties for borrowed books.

Penalty Calculation

The system will automatically calculate penalties based on the overdue period and pre-defined rates.

Notifications

Notifications will be sent to members reminding them of due dates and informing them of overdue penalties.

Payment Processing

The system may integrate with payment gateways for online penalty payment options.

Conclusion and Future Enhancements

This project aims to provide a user-friendly and efficient library management system that meets the needs of both library staff and members.

1. ### Integration with Digital Resources

   Future enhancements may include integrating with e-book platforms and digital libraries.

2. ### Enhanced Search Functionality

   The system could be enhanced with advanced search features, such as faceted search and personalized recommendations.

3. ### Mobile Application

   Developing a mobile application