



# Assignment Report

## Library Management System

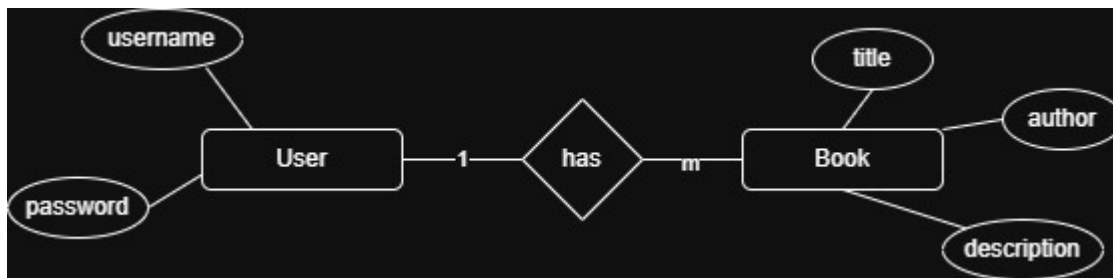
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Company Name: **Expernetic**

# Library Management System

CGPA : 3.45 / 4.00
Flexibility to work onsite : Hybrid
Notice period : Immediately available

ER diagram:



Technologies Used:

- ASP.NET Core Web API
- React.js
- SQL Server
- JWT Authentication
- GitHub
- Visual Studio
- VS Code

## 1. Project Overview:

This project is a Library Management System developed using ASP.NET Core Web API and React.js. The system allows users to register, login, and manage books securely using JWT authentication. The backend follows layered architecture including Controller, Service, and Repository layers, while the frontend provides a responsive user interface.

## 2. Backend Implementation:

- Framework: C# .NET
- Database: SQLite (using Entity Framework)
- Features:
  - RESTful API endpoints for book CRUD operations

- Input validation and error handling
- API endpoints:
  - GET /api/books – list all books
  - GET /api/books/{id} – get a single book
  - POST /api/books – create a book
  - PUT /api/books/{id} – update a book
  - DELETE /api/books/{id} – delete a book
- Challenges: Handling database migrations and ensuring correct entity mappings.

### 3. Frontend Implementation:

- Framework: React + Typescript
- Component Structure:
  - Book List – displays all books
  - Book Form – create/update book
  - Book Item – single book card
- Features:
  - Responsive and user-friendly interface
  - CRUD operations integrated with the backend API
  - Form validation and error handling
  - Book list displays title, author, and description
- Challenges: Synchronizing state after CRUD operations and handling API errors gracefully.

### 4. Database Schema

Table: Books

- Columns: Id, Title, Author, Description, CreatedAt

Table: Users

- Columns: Id, Username, PasswordHash, Role, Email

### 5. Optional Features:

- User authentication and registration.
- Enhanced UI styling for better user experience.

### 6. Lessons Learned:

- Practical experience with C# .NET and Entity Framework
- Integration of React frontend with a RESTful backend
- Importance of input validation, error handling, and user experience

- Using Git for version control and project organization

## 7.Conclusion

This project demonstrates full stack development using ASP.NET Core and React.js with JWT authentication. Layered architecture ensures clean code structure and maintainability. The application successfully implements secure user authentication and book management features.

Link : [jashvanth370/Library-management-system: Internship Assignment](https://github.com/jashvanth370/Library-management-system)

The image shows two side-by-side forms for a library management system. The left form is titled 'Welcome Back' and 'Log in to manage your library'. It has a blue book icon at the top. Below the icon, there are two input fields: 'USERNAME' with the text 'Steve' and 'PASSWORD' with masked characters '\*\*\*\*\*'. A blue button labeled 'Login to Account' is below the password field. At the bottom, there is a link: 'Don't have an account? [Create one now](#)'. The right form is titled 'Join the Library' and 'Create an account to track your books'. It also has a blue book icon at the top. Below the icon, there are two input fields: 'CHOOSE USERNAME' with the placeholder 'enter username' and 'CREATE PASSWORD' with the placeholder 'enter password'. A blue button labeled 'Create Account' is below the password field. At the bottom, there is a link: 'Already have an account? [Log in here](#)'.

The image shows a screenshot of the library management system's main dashboard. At the top left, there is a logo with a book icon and the text 'Library'. At the top right, there is a 'Logout' button with a right arrow icon. The dashboard is divided into two main sections. On the left, there is a form titled 'Add a new Book' with the subtitle 'Grow your library.'. It has three input fields: 'TITLE' with the placeholder 'Enter Title', 'AUTHOR' with the placeholder 'Enter Author', and 'DESCRIPTION' with the placeholder 'A short summary of the book...'. A blue button labeled 'Create Book' is at the bottom of the form. On the right, there is a section titled 'Your Collection' with a blue badge showing the number '2'. Below this title, there are two book cards. The first card is titled 'Strangers' by 'El' with the subtitle 'UpSide Woild'. It has a blue 'EDIT' button and a red 'DELETE' button. The second card is titled 'Moraco' by 'Rio' with the subtitle 'Fun Blaster'. It also has a blue 'EDIT' button and a red 'DELETE' button.