LIBRARY MANAGEMENT SYSTEM

C PROGRAMMING & SQL DATABASE

Diksha Rughoonundhun
M01013412

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INTRODUCTION

The Library Management System is built using C# (.NET Framework) programming and a local SQL server (.mdf) database. It is a Windows Forms-based project.

The System is designed to allow both users and members to manage members, books and loans. Users need to register first by creating an account. Their credentials such as email, username and password are stored in a local database namely admin. The system also includes a simplified cart and checkout simulation for borrowing books.

Sign Up Page & Login Page

Initially, users would be displayed with the login page. If the user already has an account in the Library Management System he can directly log in with the same username and password. Else he will be required to register to the system where his credentials will be stored in a local SQL database, admin.
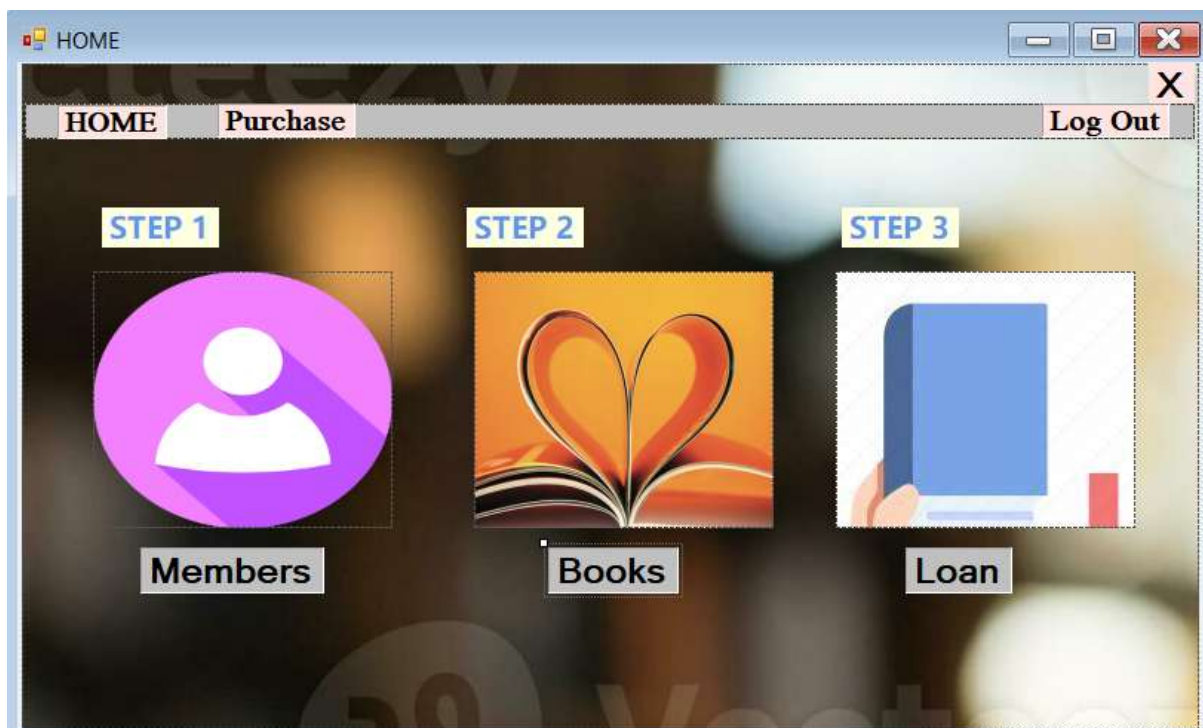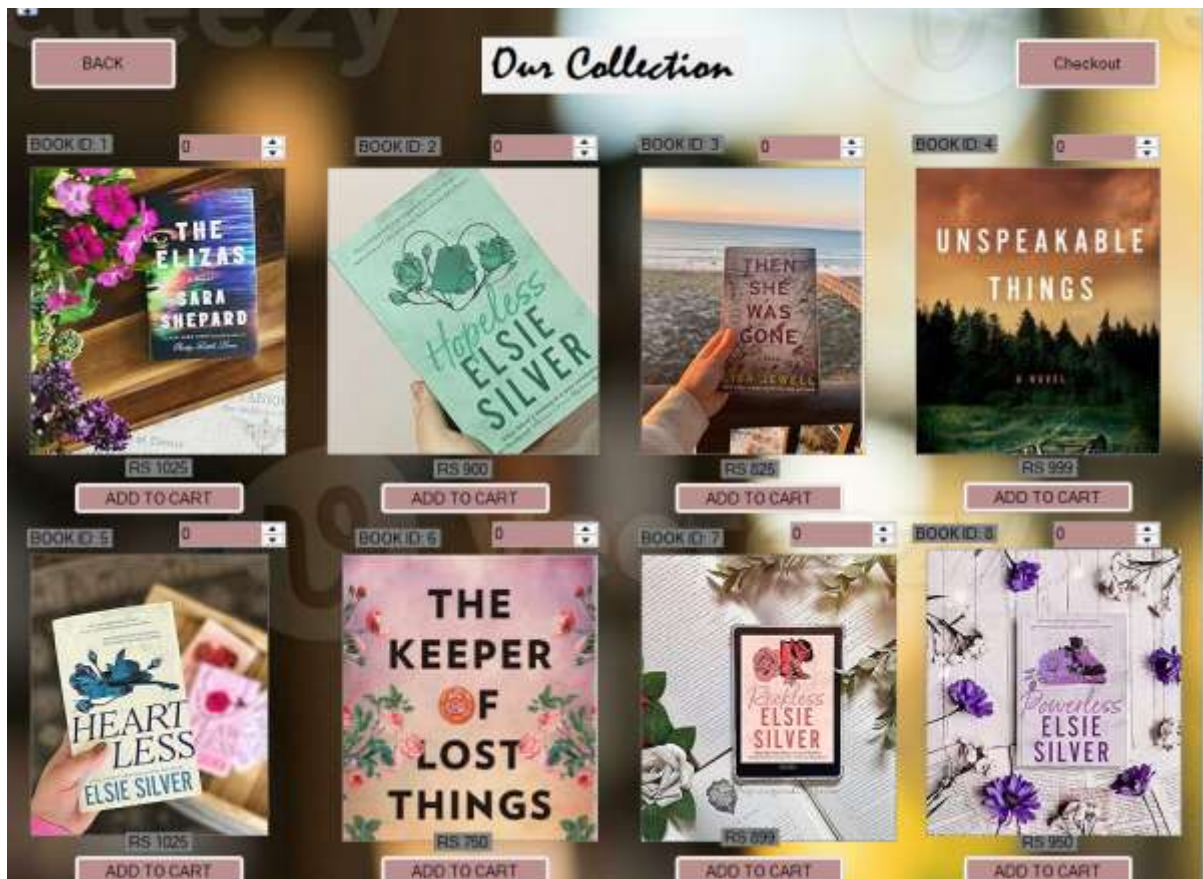
LOGIN PAGE

SIGN UP PAGE

HOME PAGE

The Home Page allow users to navigate the different functionalities of the Library Management System such as Members, Books, Loan.
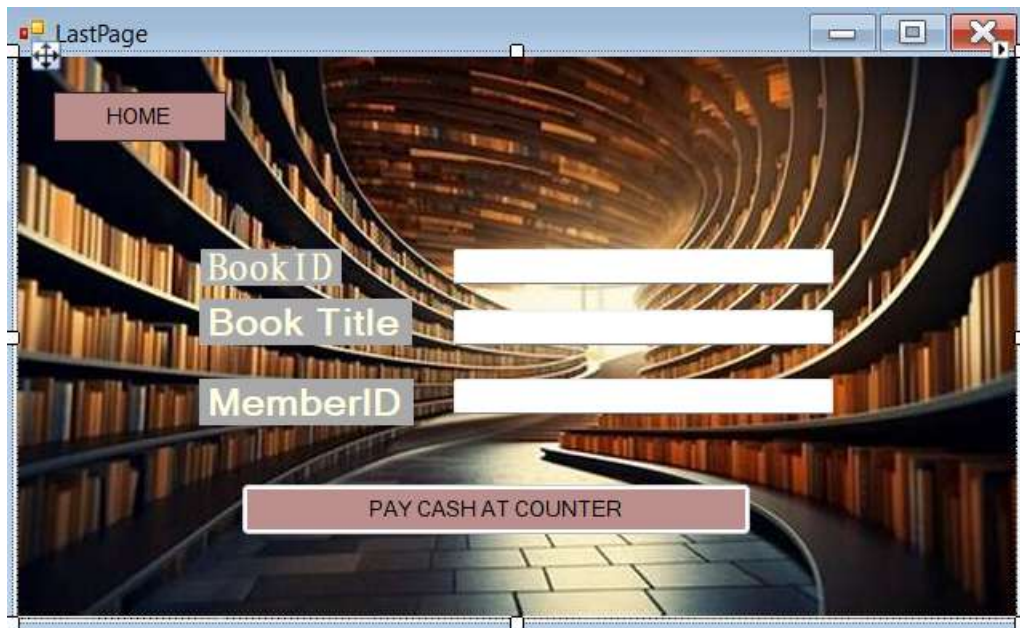
HOME PAGE

MAINFORM

The main form allows users to navigate between the different books available to purchase or rent.

Upon pressing the checkout button users are automatically redirected to the checkout page where he can purchase the books selected using the Book ID.

DATABASE STRUCTURE

Memberstbl – stores MemberId, MemberName, ContactNo

Bookstbl – stores BookID, Book Title, Author, Genre, Year

Loantbl – stores BookID, BookTitle, MemberID, MemberName, LoanDate, DueDate

admin – stores user login credentials

Testing & Validation

Empty field checks prevent incomplete form submissions

Book ID check ensures only values between 1–8 are accepted

Member ID existence is verified before issuing a loan

DataGridView displays database contents after every insert/update/delete

Clear buttons reset form fields for clean input