



LIBRARY MANAGEMENT SYSTEM

(GUI Development with JavaFX)



SYSTEM ARCHITECTURE

- Three-tier architecture: Presentation Layer (JavaFX GUI), Business Logic Layer, Data Access Layer (MySQL)
- User authentication (Student & Librarian)
- Real-time updates on book availability and issued books

JavaFX Components

- Stage & Scene
- Controls: Buttons, Labels, TextFields, TableView, ComboBox, DatePicker
- Layouts: VBox, HBox, GridPane
- Event Handling: OnClick, OnAction
- CSS Styling

Technical Setup



- IDE: Eclipse
- Java Version: JDK 25+
- Libraries: JavaFX SDK
- Database Tables: Books, Users, IssuedBooks
- Build Tools: Maven

Book Management Module

- Add New Book: title, author, genre, quantity
- Update Book Details
- Delete Book
- View Books using TableView
- Search by title, author, genre

Issue and Return System

- Issue Book: select student and book, record issue & return date
- Return Book: update database, calculate fines
- Display Issued Books and return status
- Validation: check availability, restrict double-issue



THANK YOU !