

DISCOREAD – FINAL PROJECT DOCUMENTATION

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Application Name: DiscoRead - Digital Library System

Github Repository: [Olfinity/DiscoRead: JavaFX Digital Library App with SQLite + Google Books API](https://github.com/Olfinity/DiscoRead)

1. Introduction

DiscoRead is a digital library application developed in Java, using JavaFX for the UI and SQLite for local database persistence.

The application allows users to add, search, edit and delete books while also integrating the Google Books API for online book lookup.

Users can attach PDF files, open them externally, and view book details interactively.

The system was created to help organize reading materials, improve accessibility, and provide a modern digital bookshelf experience.

2. System Modules & Libraries Used

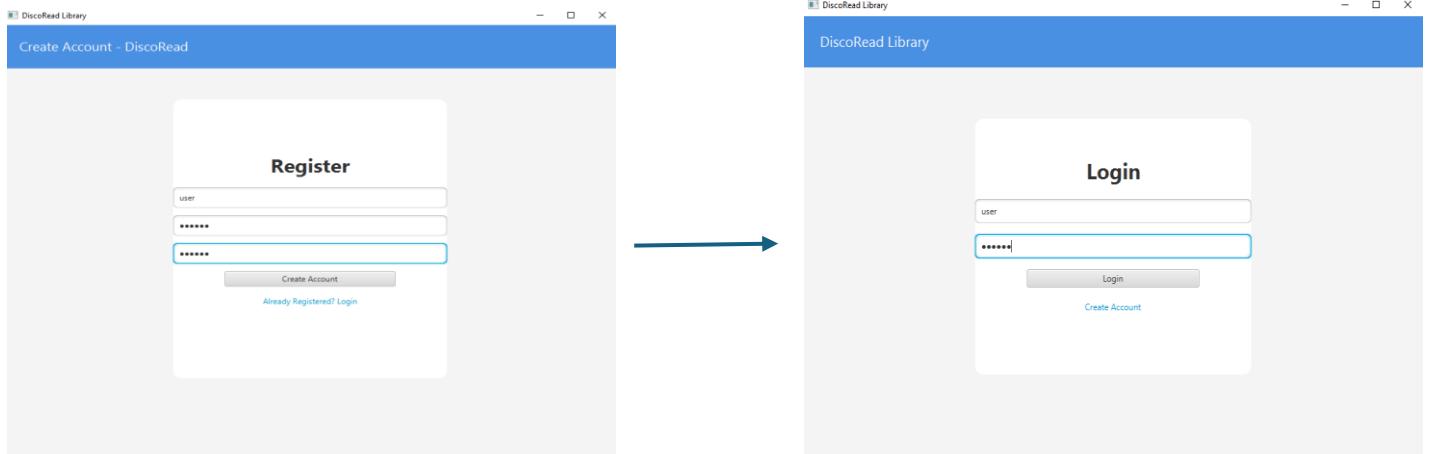
Component	Version	Purpose
Java (JDK)	17	Core language used for logic, OOP structure, controller classes, model handling.
JavaFX	20+	Graphical User Interface, scenes, buttons, tables, forms.
SQLite + JDBC Driver	Built-in	Local persistent storage database for books + users.
Gson JSON Parser	Google Library	Converts Google Books API JSON → Java Book objects.
HTTP / URLConnection	Java Standard Networking	Sends API requests + receives online book metadata.
Maven	Latest	Project build, dependency management, packaging.
Git + GitHub	Git 2.52.0	Version control, project backup, collaboration.
JUnit 5	5.10.0	For testing DAO, login, and API logic (if applied).

3. Use-Case Documentation

Every use-case in this document contains two comparison screenshots, one *before* the action and one *after*, followed by an explanation describing the process and outcome.

3.1 User Registration and Login

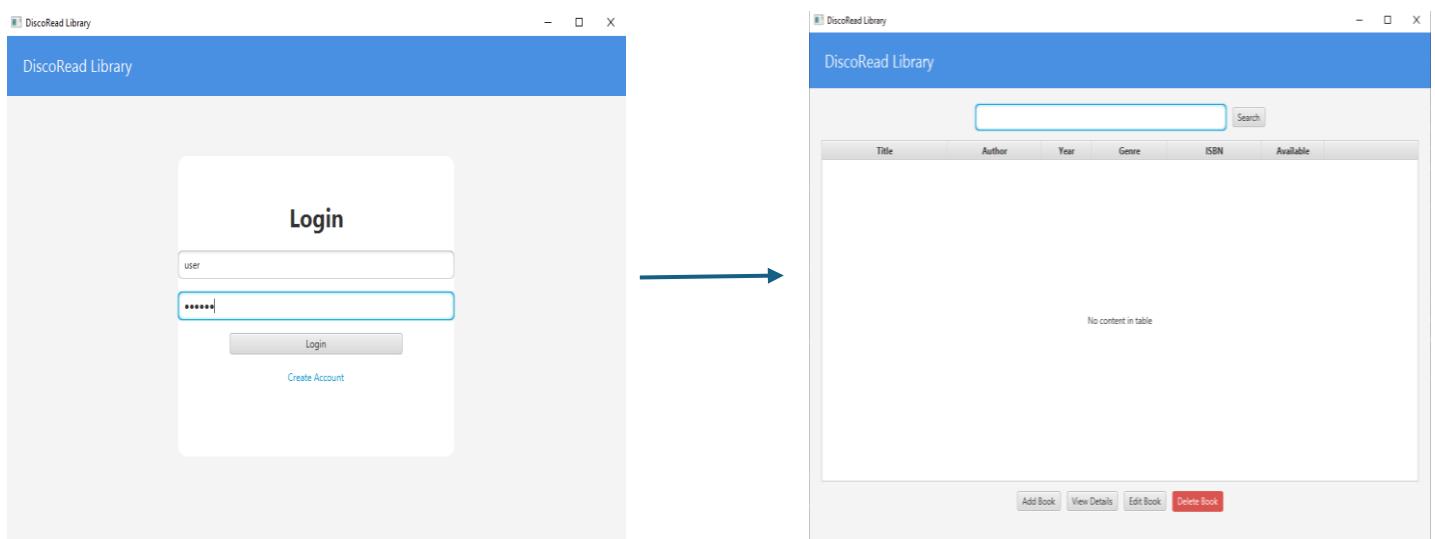
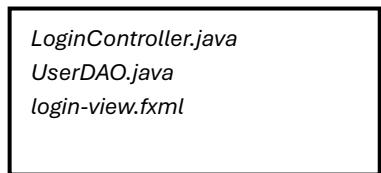
*RegisterController.java
UserDAO.java
User.java
register-view.fxml*



Explanation

The user enters a new Username & Password and submits the form.

Details are stored in SQLite and the new user is allowed to log in immediately.

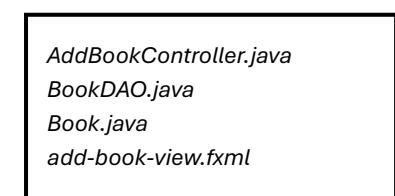


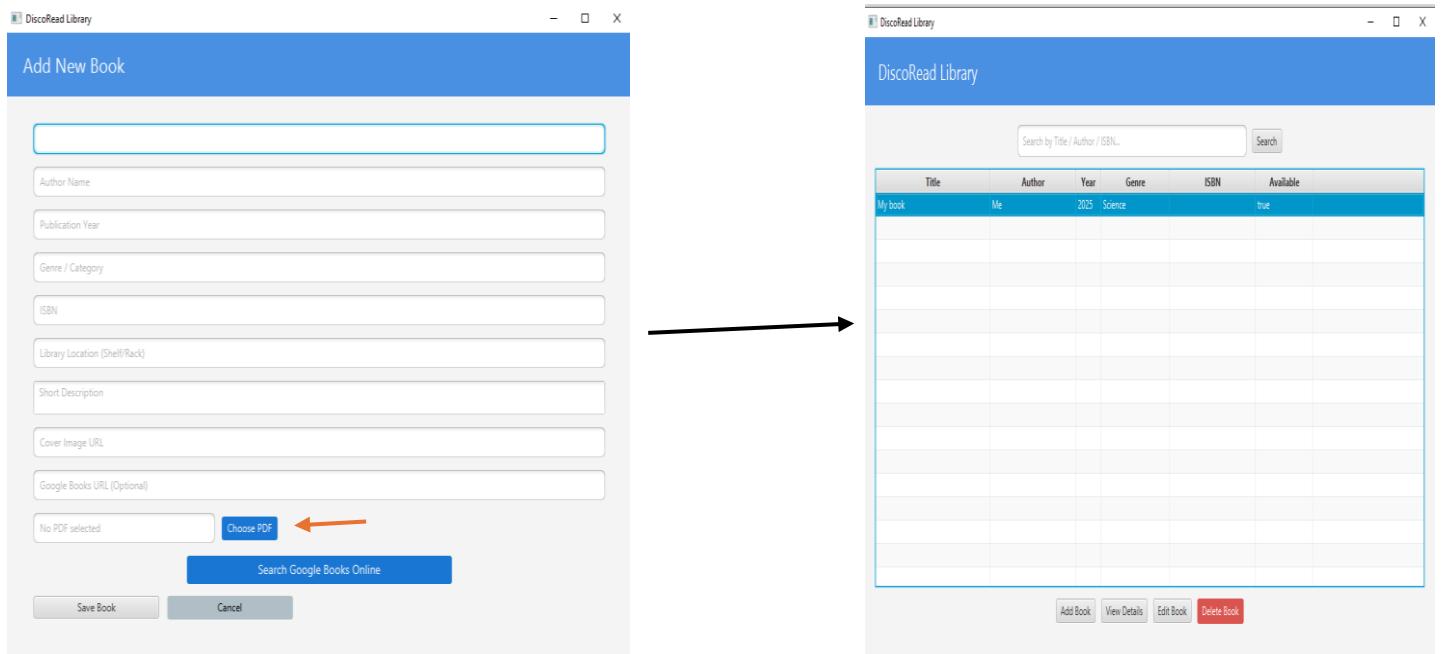
Explanation:

User enters credentials → system validates through database → access granted.

Authentication ensures controlled access and data privacy.

3.3 Add a Book Manually



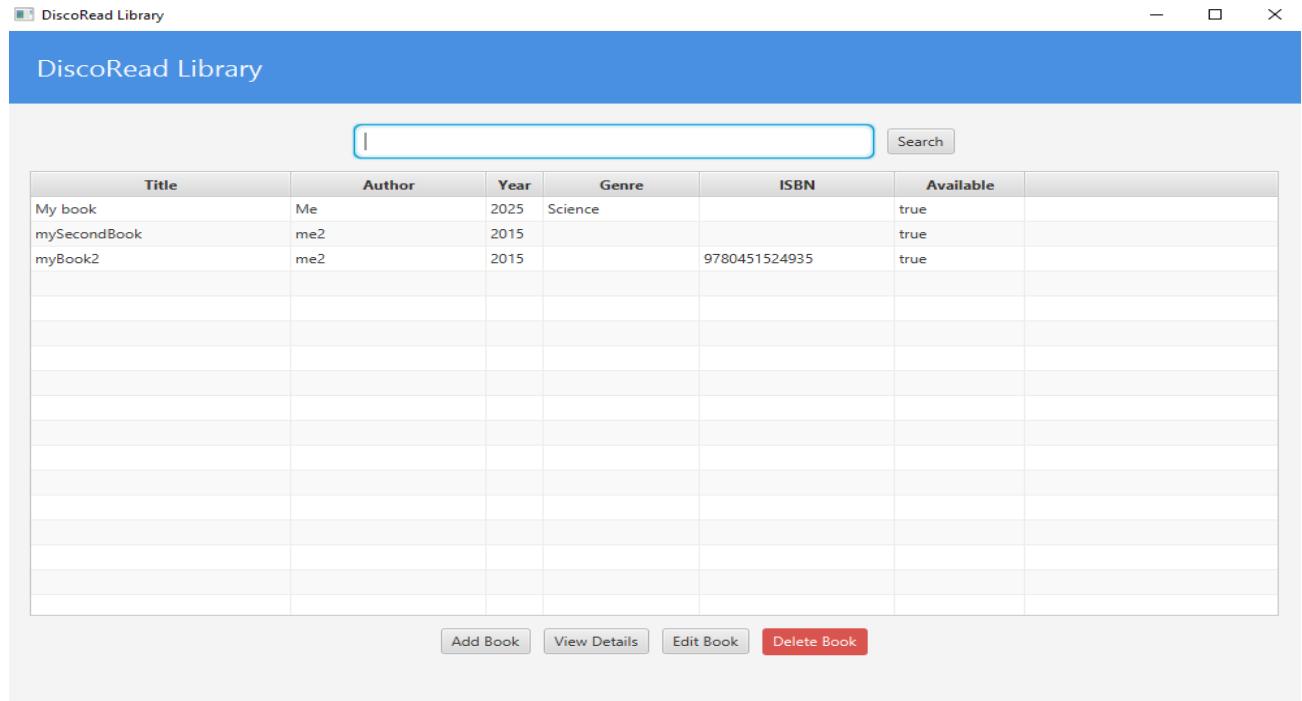


Explanation:

The user enters book details manually including title, author and genre. On save, the book is inserted into SQLite and displayed in the main list.

3.4 Search for a Book

MainController.java
BookDAO.java
main-view.fxml



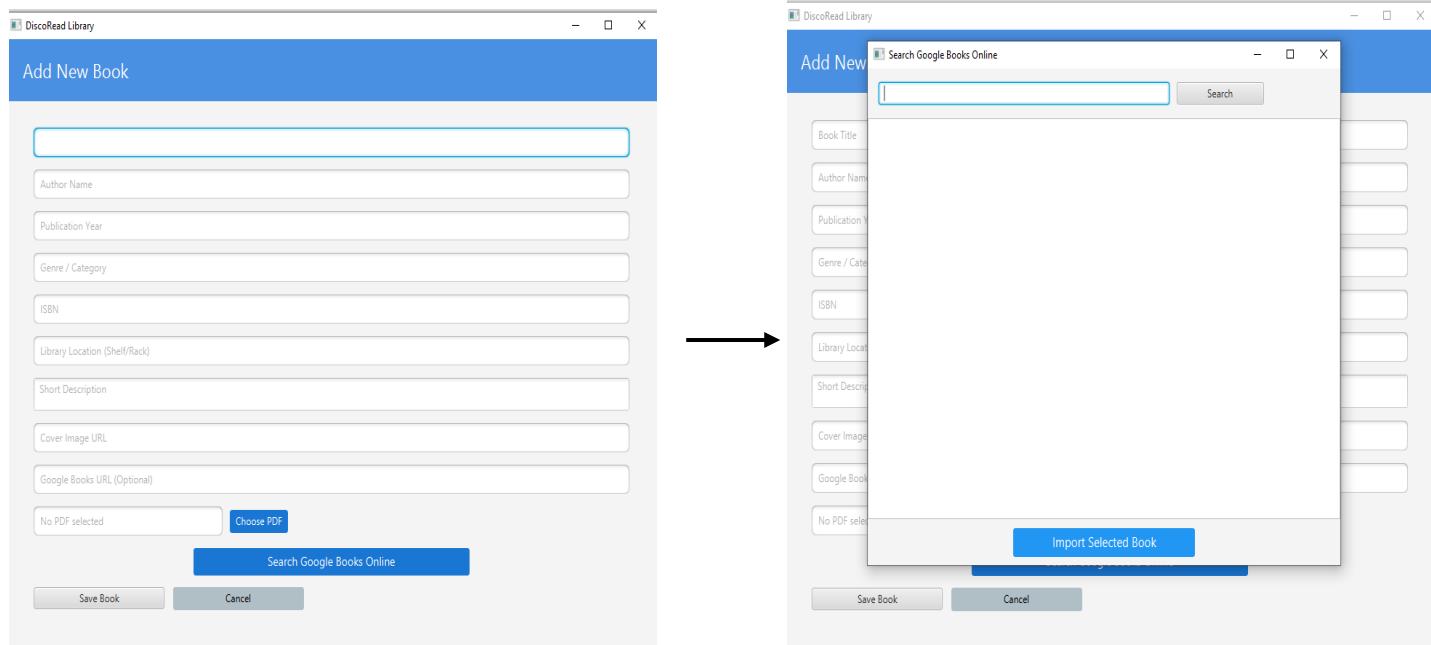
Explanation:

Typing in the search bar filters results instantly by Title

Search uses dynamic filtering for fast and responsive results.

3.5 Google Books Online Import

GoogleSearchController.java
GoogleBooksService.java
google-search-view.fxml



Explanation:

User searches online, selects a book, and details auto-fill instantly.

Reduces manual entry time and increases accuracy.

Add New Book

Search Google Books Online

Book Title
Author Name
Publication
Genre / Category
ISBN
Library Location
Short Description
Cover Image
Google Books
No PDF selected

Import Selected Book

Save Book **Cancel**

Add New Book

Harry Potter és a Halál ereklyéi
J.K. Rowling
2016
Juvenile Fiction
ISBN
Library Location (Shelf/Rack)

Amint beszáll Hagrid motorjának oldalkocsijába és utoljára repül el a Privet Drive-ról, Harry tudja, hogy Voldemort nagyúr és a halálfalók a sarkában vannak. Az eddig biztonságot nyújtó védőbújai hatása ellent, de nem folytathatja a bujkálást. A Sötét Nagyúr Harry minden szerettét félelemmel itatja át, és hogy megállítsa, Harrynek meg kell találnia és el kell pusztítania az összes megmaradt horcruxot. A végső harc elkerülhetetlen - Harrynek ki kell állnia, és meg kell küzdenie az ellenségeivel...

http://books.google.com/books/content?id=A199QAAAQBA&printsec=frontcover&img=1&zoom=1&source=gbs_api

https://play.google.com/store/books/details?id=A199QAAAQBA&source=gbs_api

No PDF selected **Choose PDF**

Save Book **Cancel**

Search Google Books Online

DiscoRead Library

Search by Title / Author / ISBN... **Search**

Title	Author	Year	Genre	ISBN	Available
My book	Me	2025	Science		true
mySecondBook	me2	2015			true
myBook2	me2	2015		9780451524935	true
Harry Potter és a Halál ereklyéi	J.K. Rowling	2016	Juvenile Fiction		true

Add Book **View Details** **Edit Book** **Delete Book**

3.6 Edit a Book Entry

Book Details

Harry Potter és a Halál ereklyéi

Author: J.K. Rowling

ISBN:

Year: 2016

Genre: Juvenile Fiction

Location:

[View on Google Books](#)

Amint beszáll Hagrid motorjának oldalkocsijába és utoljára repül el a Privet Drive-ról, Harry tudja, hogy Voldemort nagyúr és a halálfalók a sarkában vannak. Az eddig biztonságot nyújtó védőbújai hatása ellent, de nem folytathatja a bujkálást. A Sötét Nagyúr Harry minden szerettét félelemmel itatja át, és hogy megállítsa, Harrynek meg kell találnia és el kell pusztítania az összes megmaradt horcruxot. A végső harc elkerülhetetlen - Harrynek ki kell állnia, és meg kell küzdenie az ellenségeivel...

Edit Book **Close**

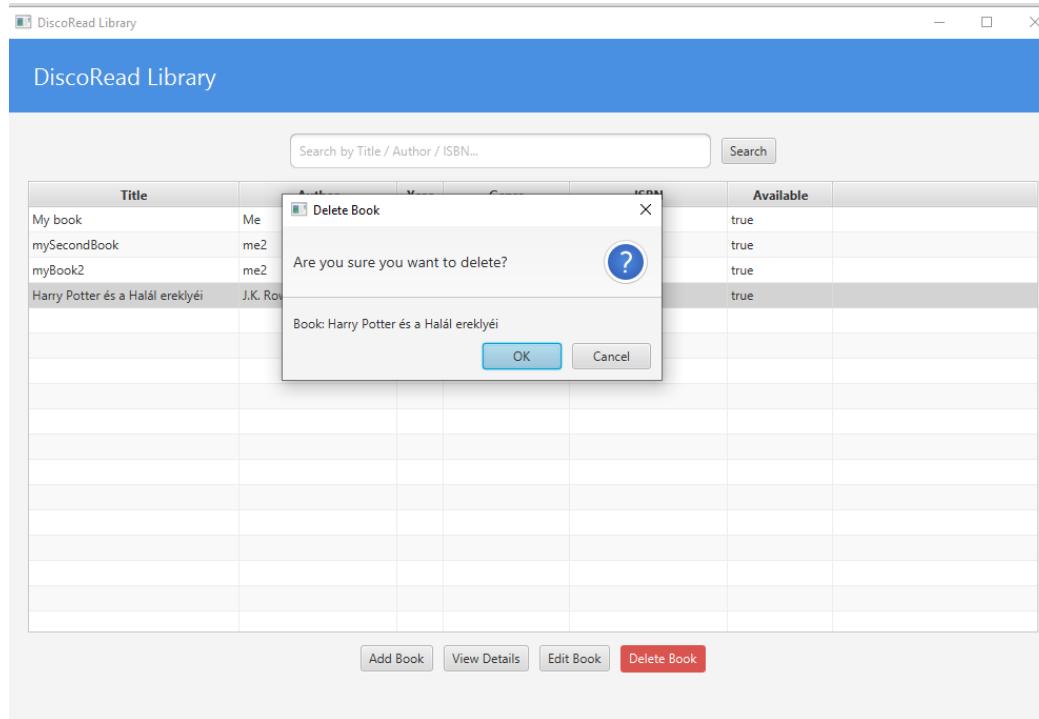
EditBookController.java
BookDAO.java
edit-book-view.fxml

Explanation:

The user opens details → updates fields → saves changes.

SQLite updates and UI refreshes immediately.

3.7 Delete Book (ID-based safe delete)



Explanation:

Selected book is deleted permanently from SQLite using unique ID.

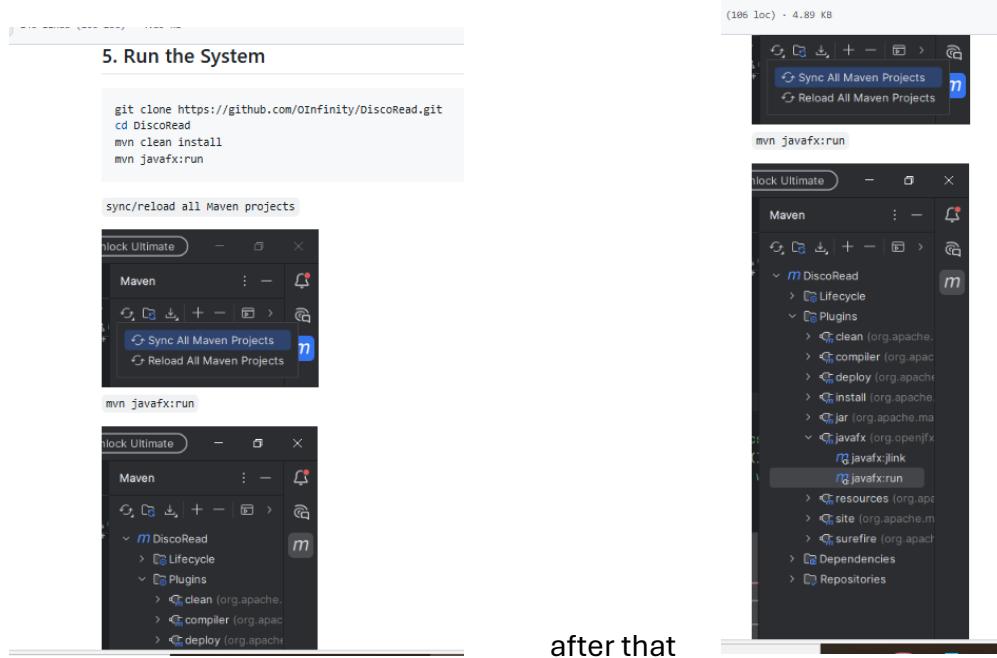
3.8 PDF Upload & Open

A screenshot of the DiscoRead Library application. The main window shows a "Book Details" view for a book titled "mybook2". On the left, there is a sidebar with "PDFImportService.java", "BookDetailsController.java", and "book-details-view.fxml". The main content area displays a PDF document titled "Preliminary project specification". The PDF contains sections like "Application Name : DiscoRead - Digital Library System.", "Topic and Introduction:", "Use-Cases of the Application:", "Data Model Structure", and "User Story". On the right, there is a summary of the book: Author: me, ISBN: , Year: 2025, Genre: , Location: . At the bottom, there are buttons for "Open PDF", "Edit Book", and "Close".

Explanation:

User selects a PDF → stored locally → one-click access to open.

Allows reading resources directly from the system.



after that

4. Project Summary

DiscoRead successfully implements a digital library with user authentication, online book importing, local storage and PDF support.

It allowed practical application of JavaFX GUI design, database integration and API communication. The system is efficient, scalable and open for future upgrades including cloud-sync and in-app PDF viewing.

Overall, the project achieved its purpose and demonstrates a full working software solution.

5. Course Summary

Through this course, I strengthened my skills in Java, MVC structure, UI development and database persistence.

I also learned API integration, JSON processing, version control and debugging with real GUI workflow. The project improved my ability to design complete applications from backend to interface. It was both challenging and enjoyable, and prepared me for larger real-world development.