2025

Test Plan Document

LIBRARY MANAGEMENT SYSTEM

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1. Introduction

This test plan outlines the strategies, scope, objectives and activities for testing the Library Management System (LMS) to ensure that it meets the defined requirements and functions effectively.

2. Test Objectives

Functional Requirements

	Specification	Report
1	Book Management	CRUD operations successfully performed with implementation of data validation.
2	Member Management	CRUD operations successfully performed with implementation of data validation and dynamic filtering.
3	Circulation	Fee implementation upon circulation of a book.
4	Reports	Reports generated providing data on demographics and more.

Non-functional Requirements

	Specification	Report
1	Performance	The application performs all tasks with no runtime errors.
2	Security	Implementation of hashing techniques are used for extra security.
3	Reliability	Consistency in performance of intended functions without failures.
4	Usability	Easy and convenient for users to learn, understand and operate.
5	Scalability	Handles an increasing workload or number of users without significant performance degradation.
6	Maintainability	Can be easily modified, updated and maintained over its lifecycle.

3. Scope

The Library Management System includes the following functionalities:

- Book management (add, edit, delete, search books).
- Member management (register, update and search members).
- Book circulation (issue, return, calculate fines).
- Report generation.
- Authentication and role-based access control.

Exclusions: Integration with external systems and e-book management are out of scope.

4. Test Environment

Hardware: Devices meeting minimum requirements (e.g., PCs).

Software:

Operating System	Windows
Database	JDBC
Tools	JDBC Driver

Test Data: Sample datasets for books, members and transactions.

5. Types of Tests

	Test Type	Report
1	Functional Testing	○ Successful issuing of books ○ Successful capturing of book information ○ Successful altering of book information ○ Successful recording of new members (administrative & customers) ○ Successful capturing of customer information ○ Successful altering of customer information
2	Performance Testing	System runs required tasks with accuracy and efficiency.
3	Security Testing	○ Protection against data breaches

6. Test Cases

Test Case ID	Test Case Description	Pre-conditions	Steps	Expected Result
TC-1	Add a new book	Admin logged in	Navigate to 'Add Book' page, fill details, save	Book added successfully
TC-2	Issue a book	Member exists, book available	Search for book and member, click 'Issue'	Book issued, loan recorded
TC-3	Calculate overdue fines	Book overdue	Check loan details	Correct fine displayed
TC-4	Generate overdue report	Overdue books exist	Select report criteria, generate report	Accurate report displayed
TC-5	Login with invalid credentials	None	Enter wrong username/password, click 'Login'	Error message shown
TC-6	Test role-based access	Different user roles exist	Log in with each role	Role-appropriate access granted

7. Screenshots for Testing

During testing, screenshots were taken at the following stages:

- Upon login in
- At the various menus and sub-menus
- Upon filing in the various forms
- Upon performing search operations

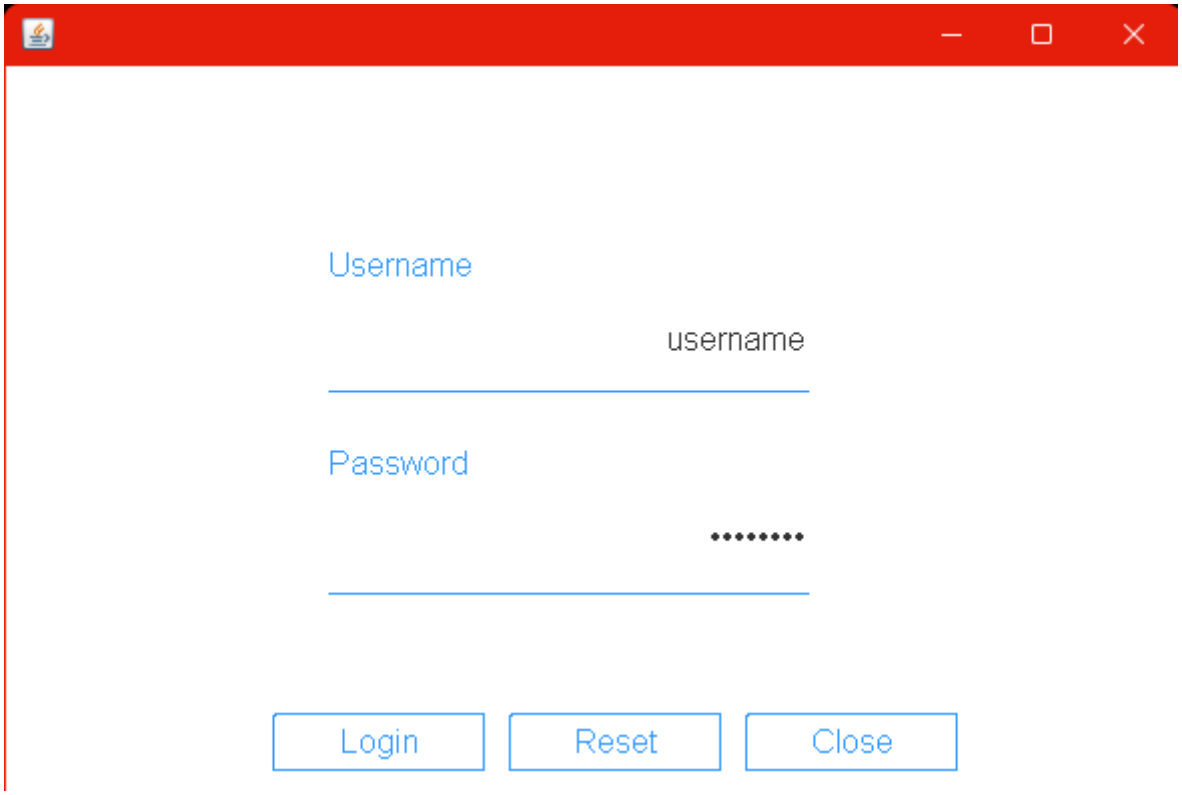

Figure 1: Login frame

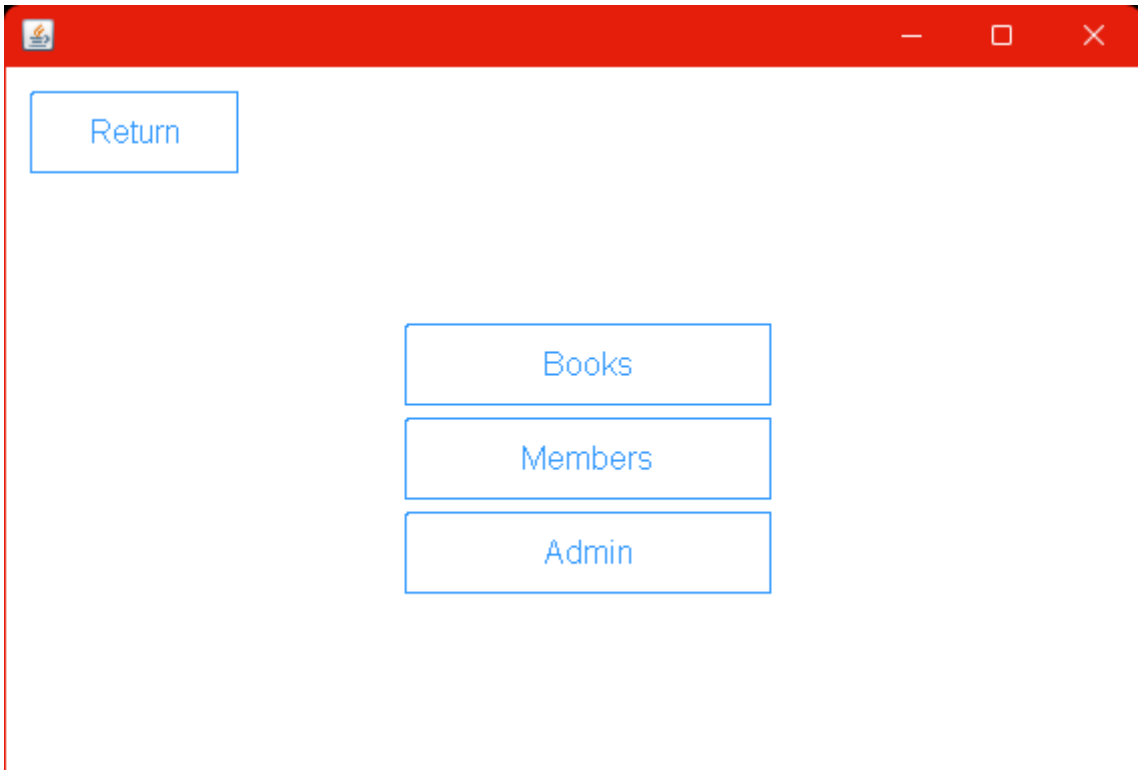

Figure 2: Main Menu

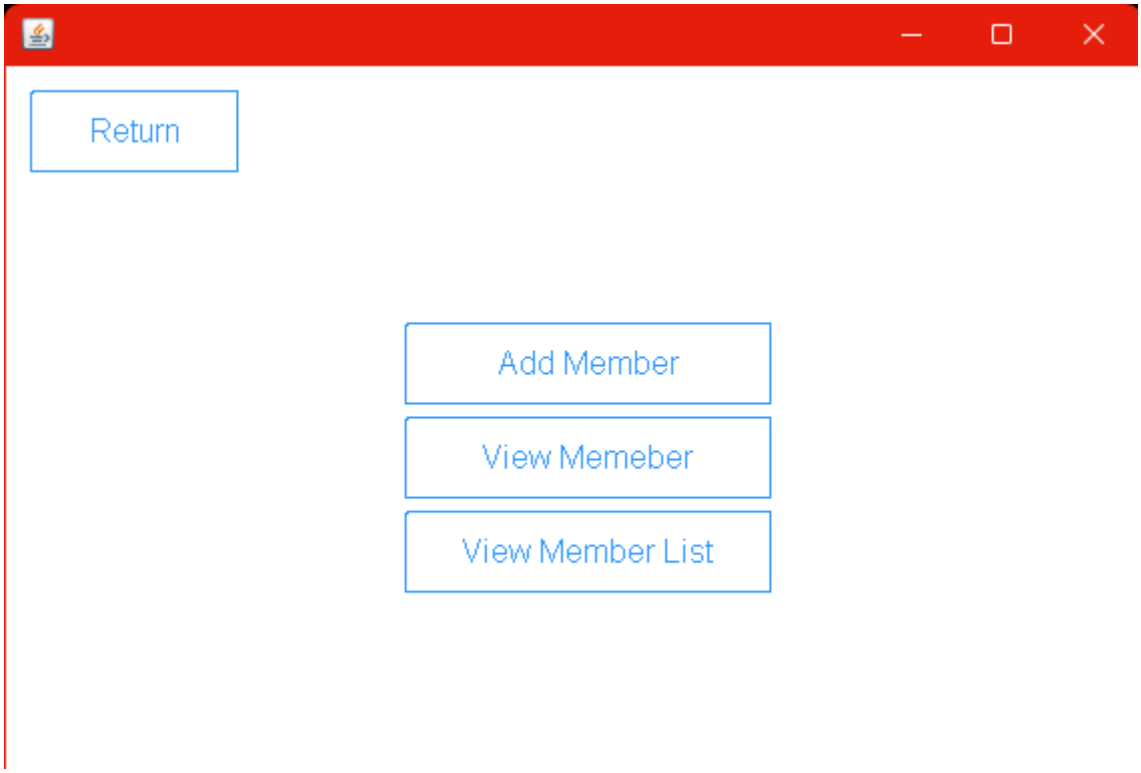

Figure 3: Member Menu

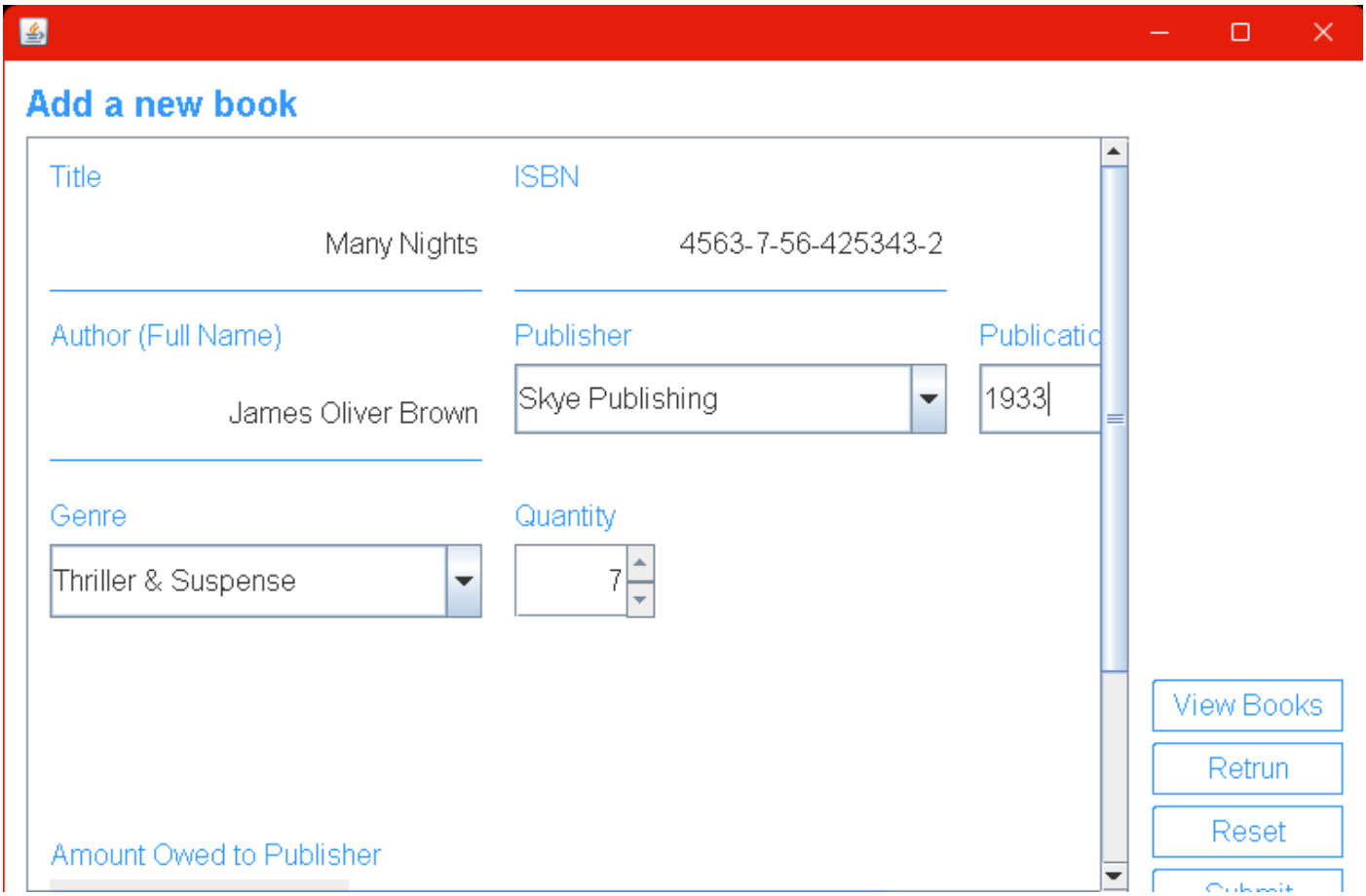

Figure 4: Book frame

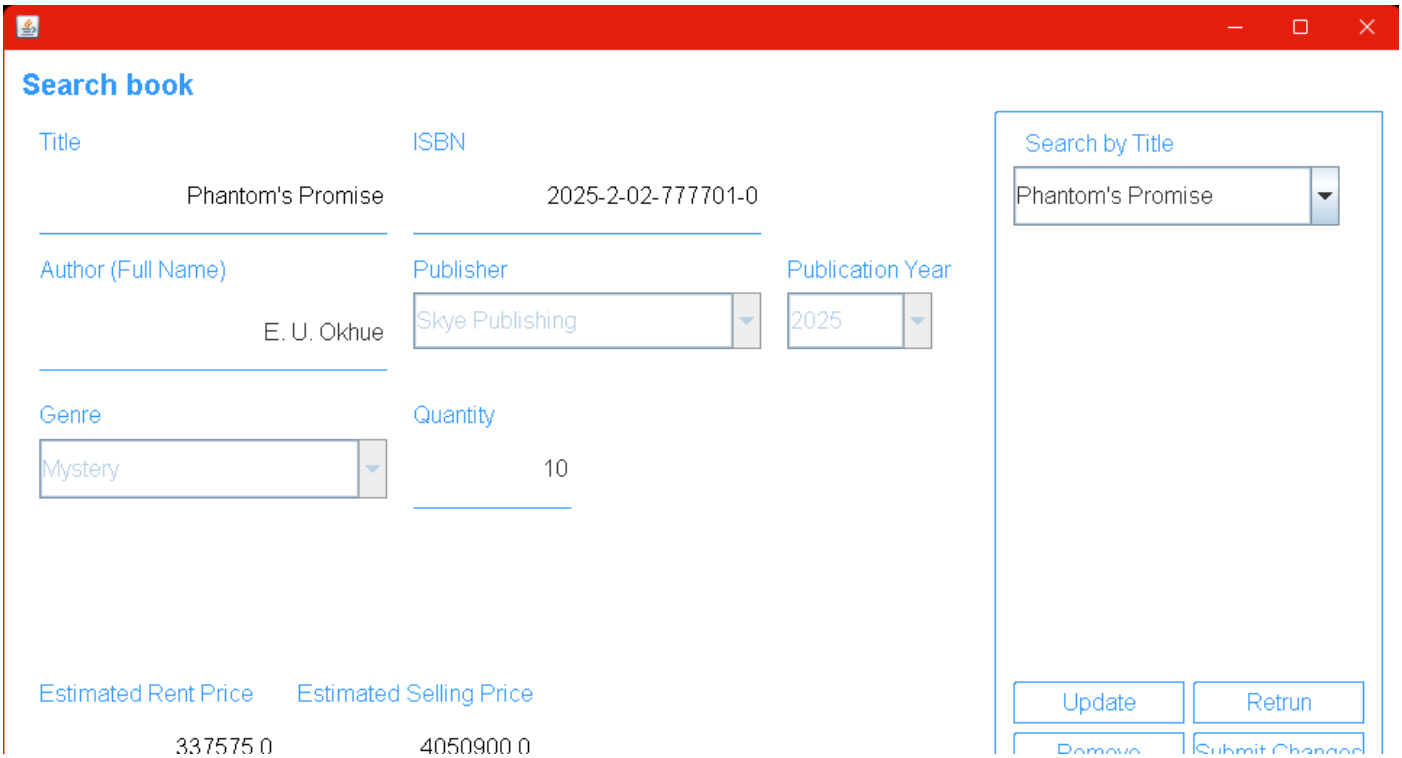

Figure 5: Book information frame

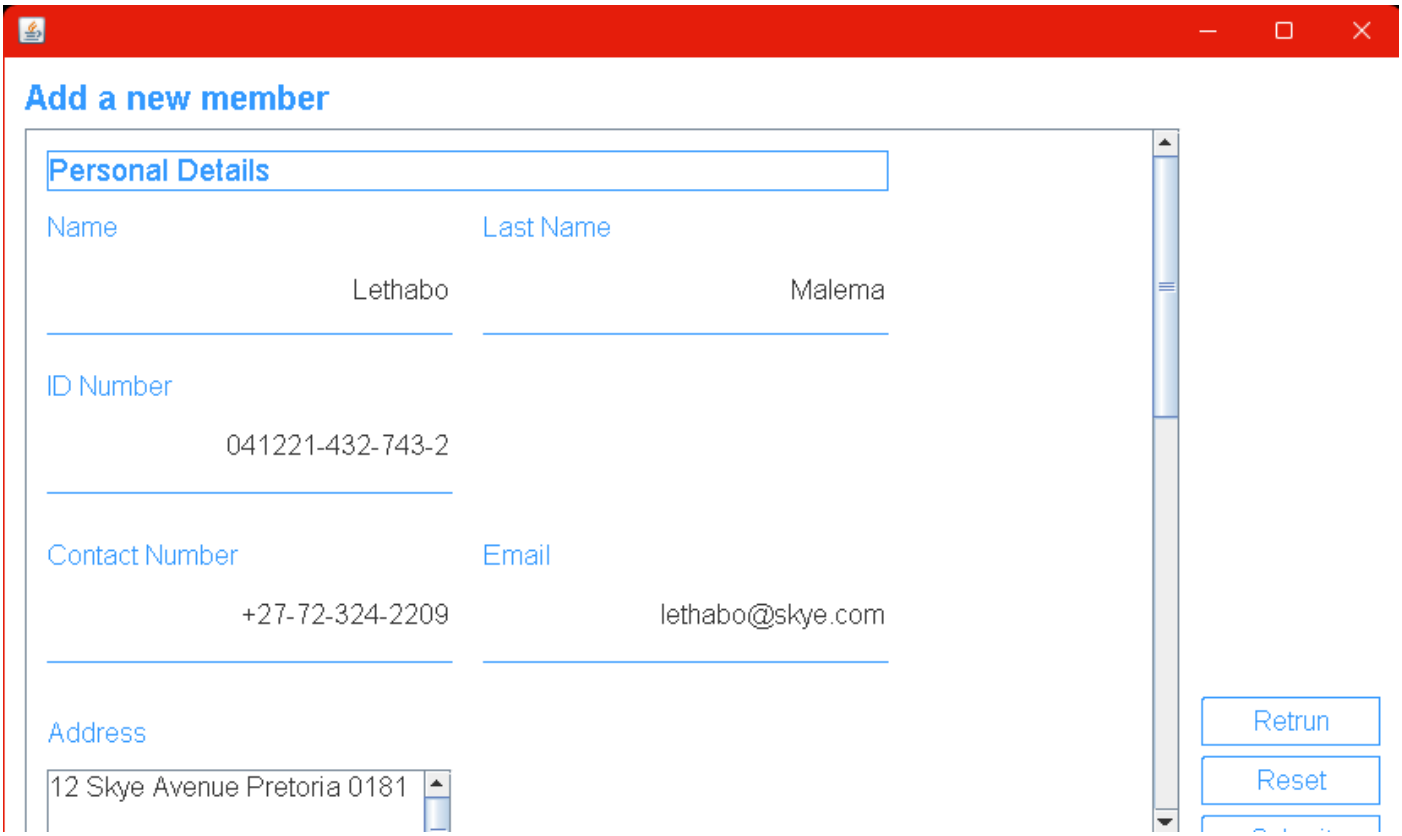

Figure 6: Member frame

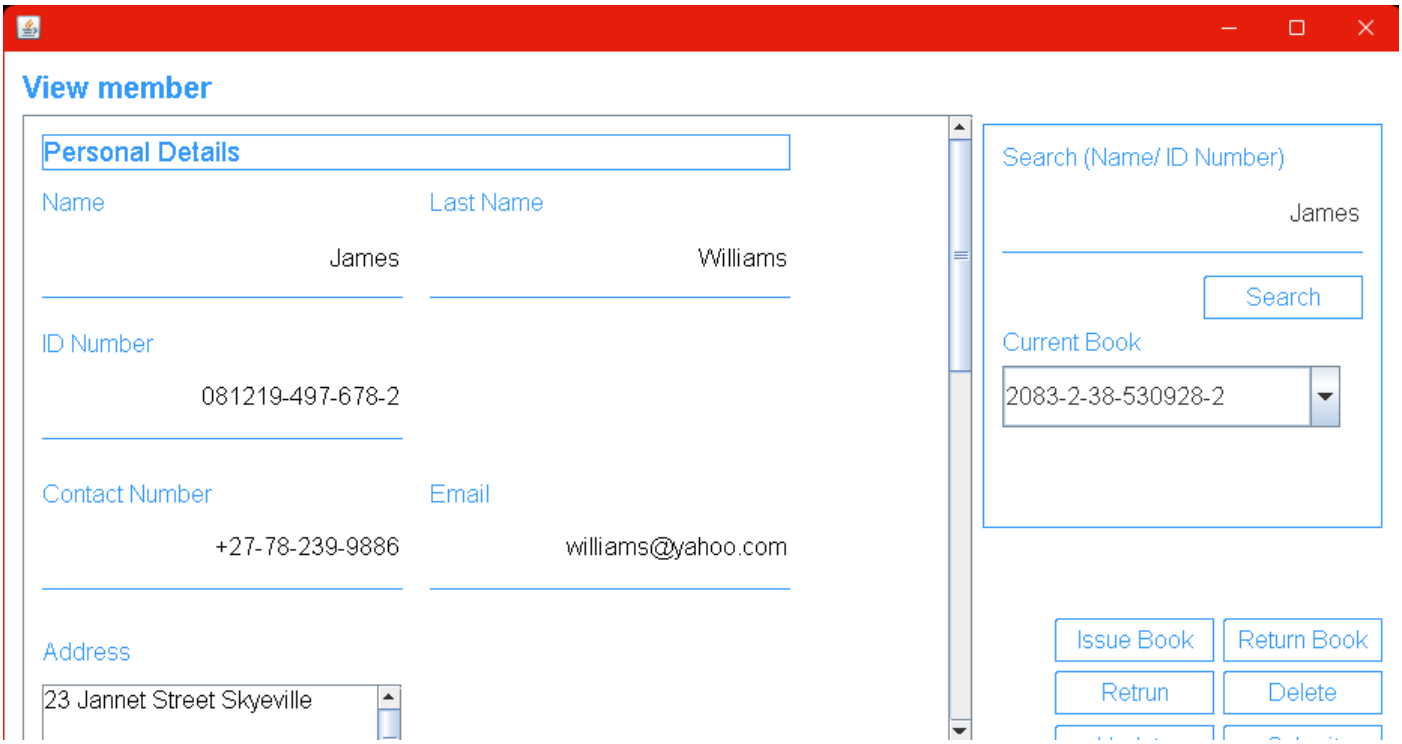

Figure 7: Member information frame

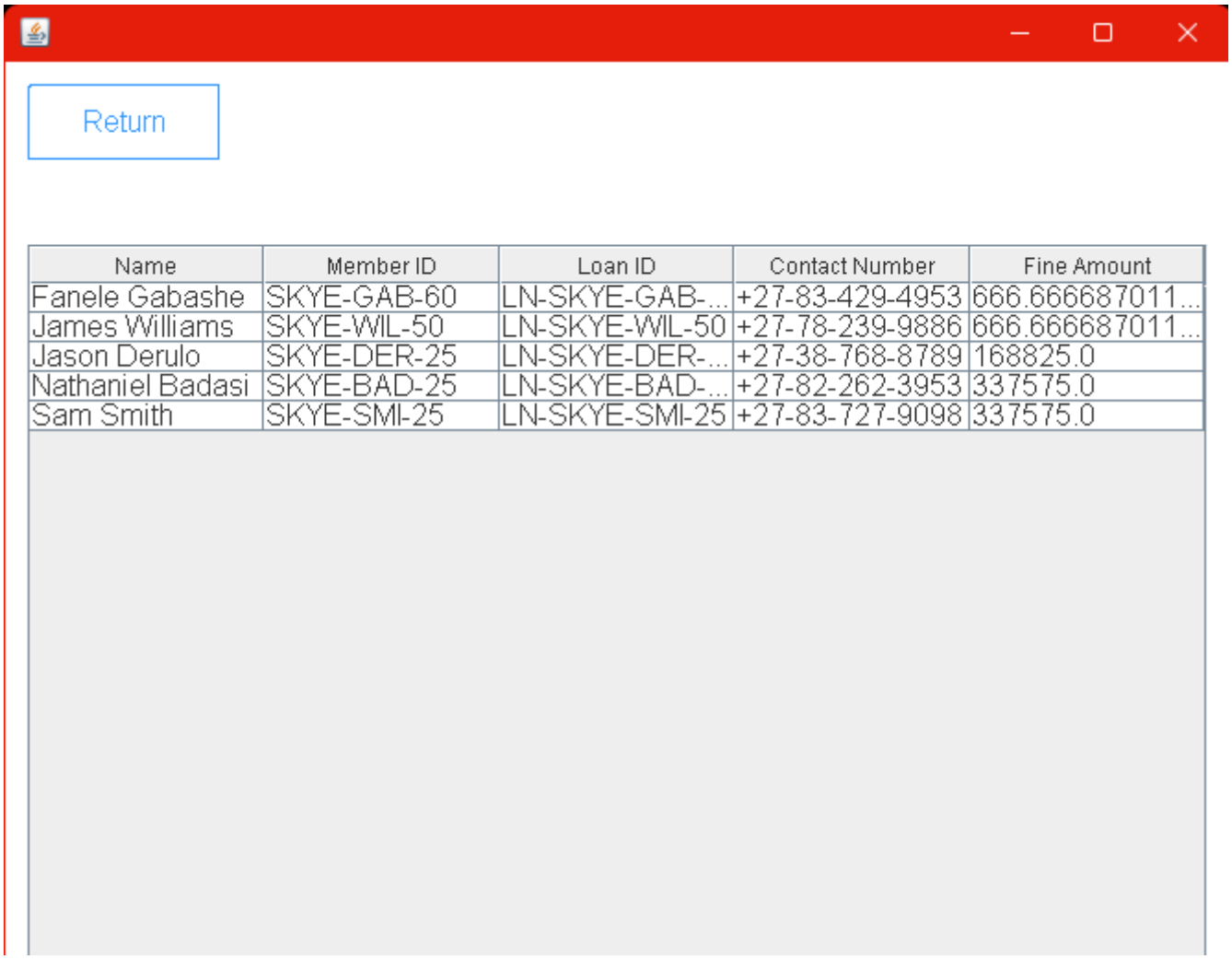

Figure 8: Member list frame

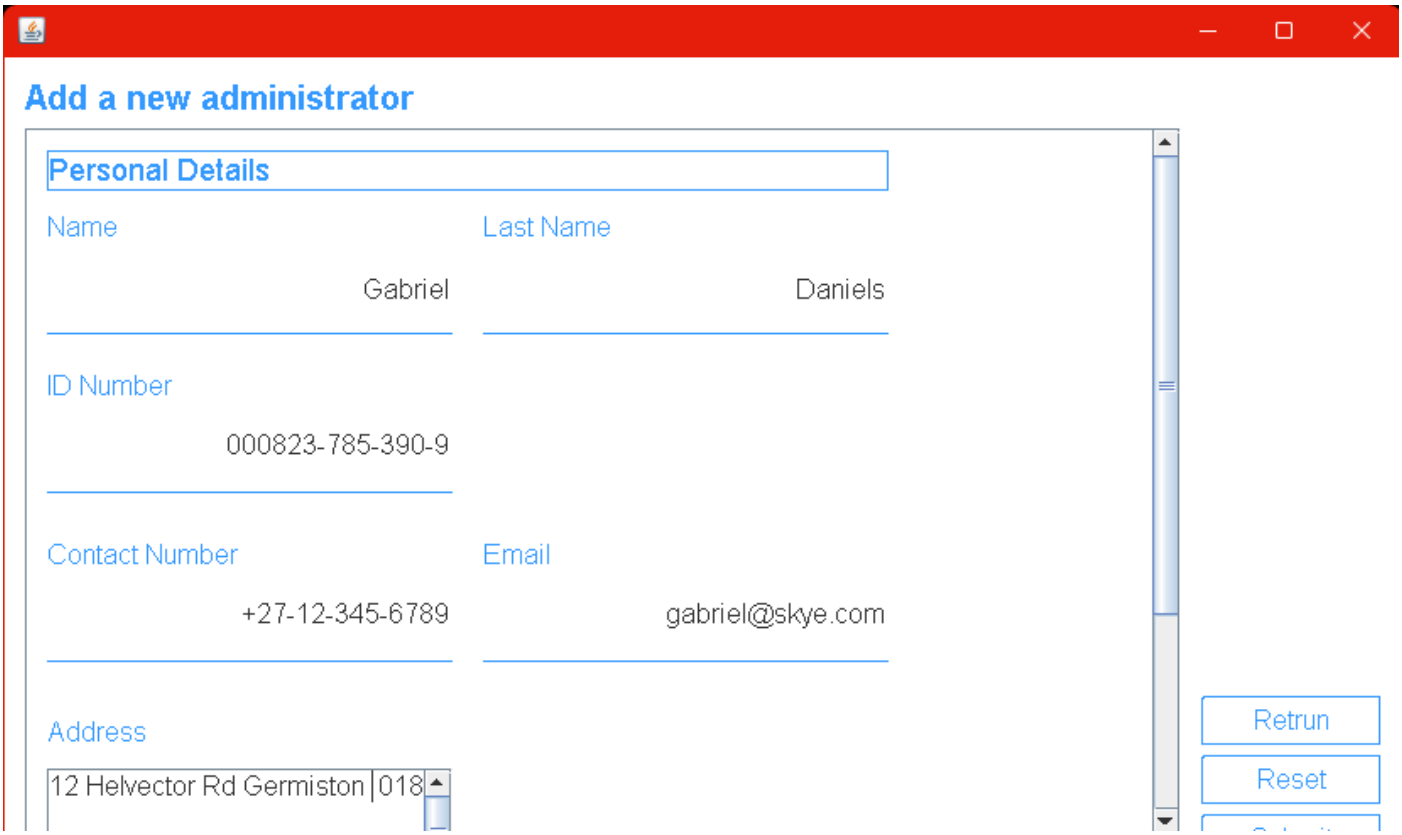

Figure 9: Administrative Member Frame

#	USERNAME	PASSWORD	BLOCKED	USERTYPE
1	user1	ywiv1	☐	LA
2	user2	ywiv2	☐	LU
3	SKYE-WIL-50	neqiw	☐	LU
4	ADMIN-DIK-448	kefvmip	☐	LA
5	SKYE-DER-25	newsr	☐	LU
6	SKYE-GAB-60	jeripi	☐	LU
7	SKYE-SMI-25	weq	☐	LU
8	ADMIN-JOH-301	oecpe	☐	LA
9	SKYE-BAD-25	rexlermip	☐	LU

Figure 10: Login table (tblAdmin)