Sequence diagram

Participant	
User	System	DiseasePrediction	Medication	HealthcareProvider

- User → System: inputSymptoms()
- System → DiseasePrediction: analyzeSymptoms()
- DiseasePrediction → System: providePrediction()
- System → Medication: recommendMedication()
- Medication → System: provideRecommendations()
- System → User: displayPredictionAndMedication()
- User → HealthcareProvider: consult()

Library Management System - Activity Diagram (Borrow Book)

Login to system

Search for book

Check availability

Book available?

yes → Request to borrow book

no → Show 'Book not available' message

Librarian verifies member

Issue book

Update book status

Create transaction record

Show confirmation to member
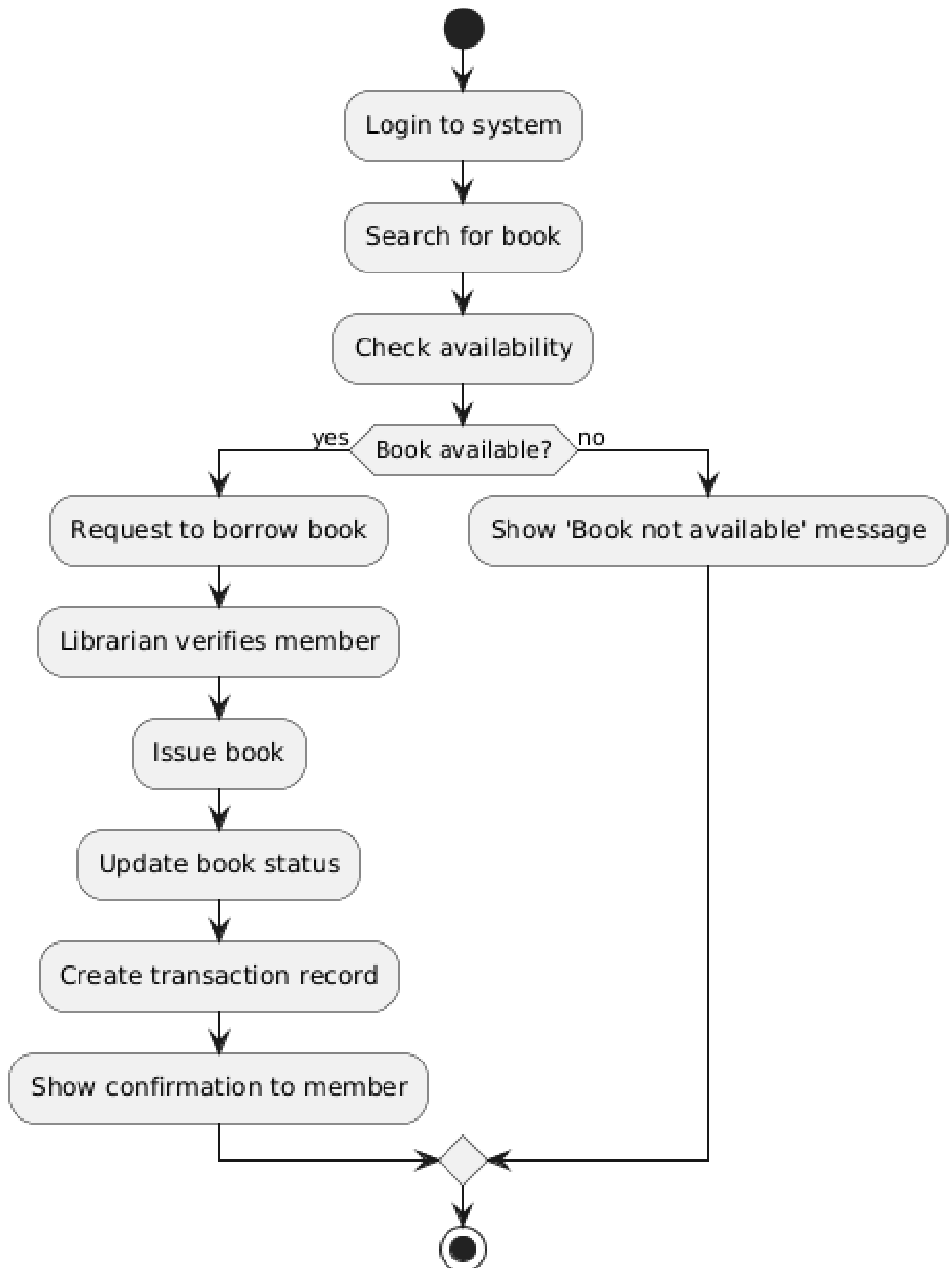
Library Management System - Use Case Diagram

Member   Librarian   Admin

Search Book   Return Book   Borrow Book   Login   Register Member   Manage Inventory   Generate Report
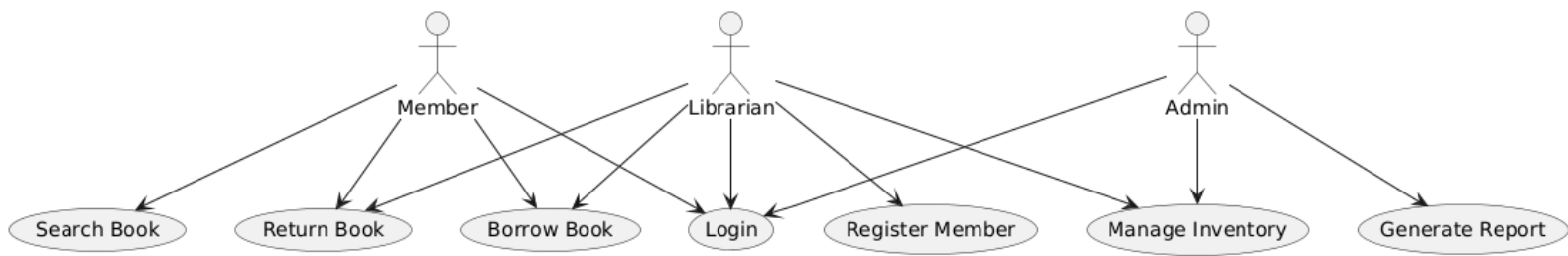
Library Management System - State Machine Diagram (Book)

Available

reserveBook()

cancelReservation()

issueBook()

Reserved

issueBook()

Issued

restock()

returnBook()

Returned
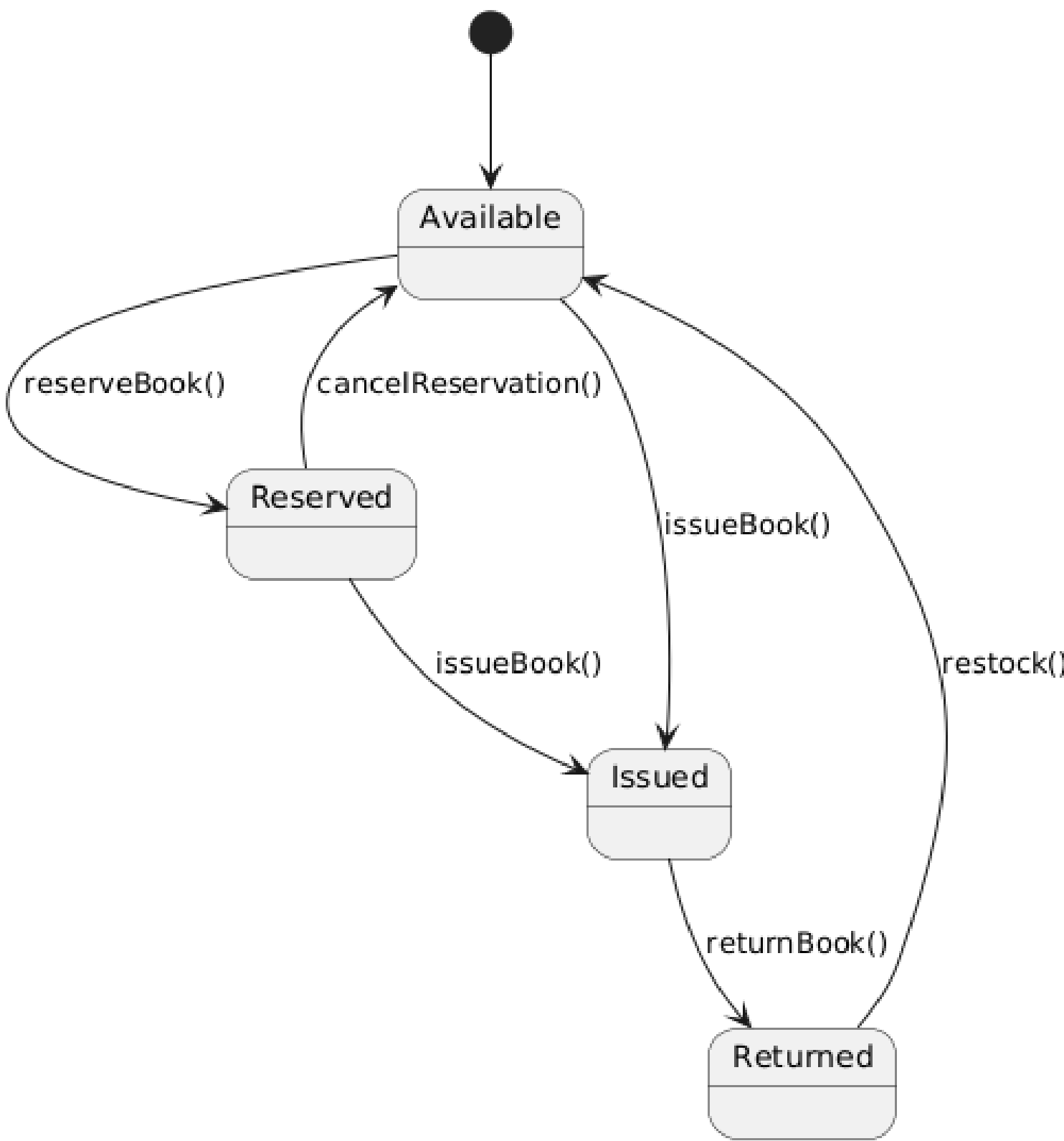
Library Management System - Component Diagram

Library Management System

User Interface

Database
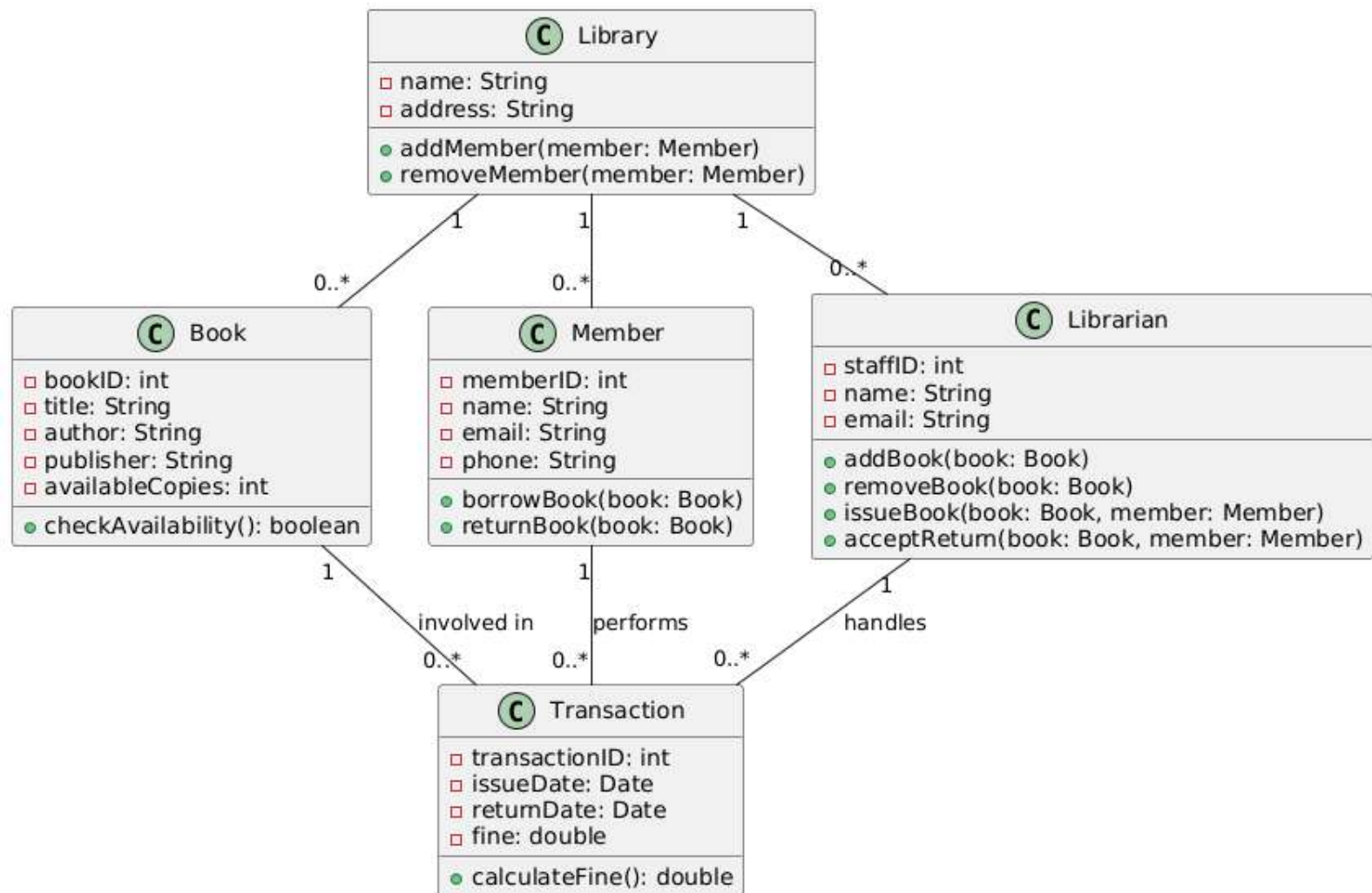
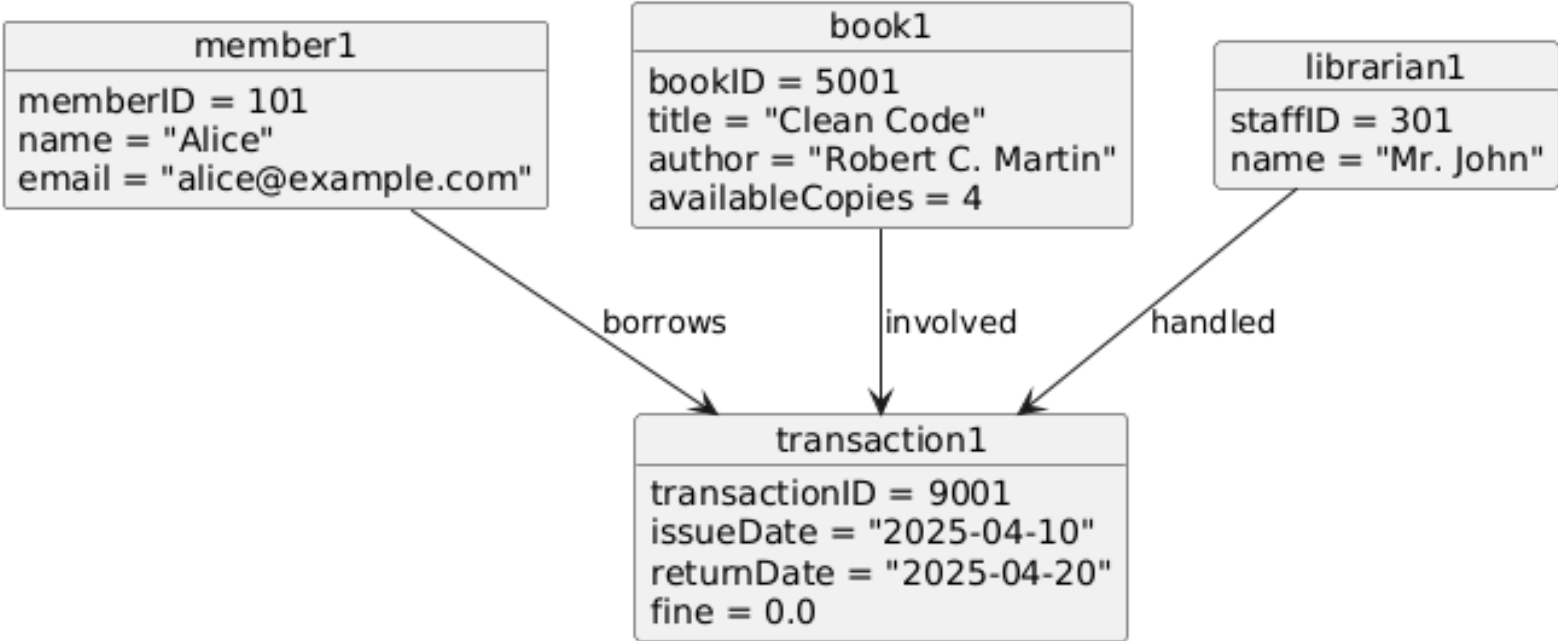**Authentication Service**

Book Management

Member Management

Database
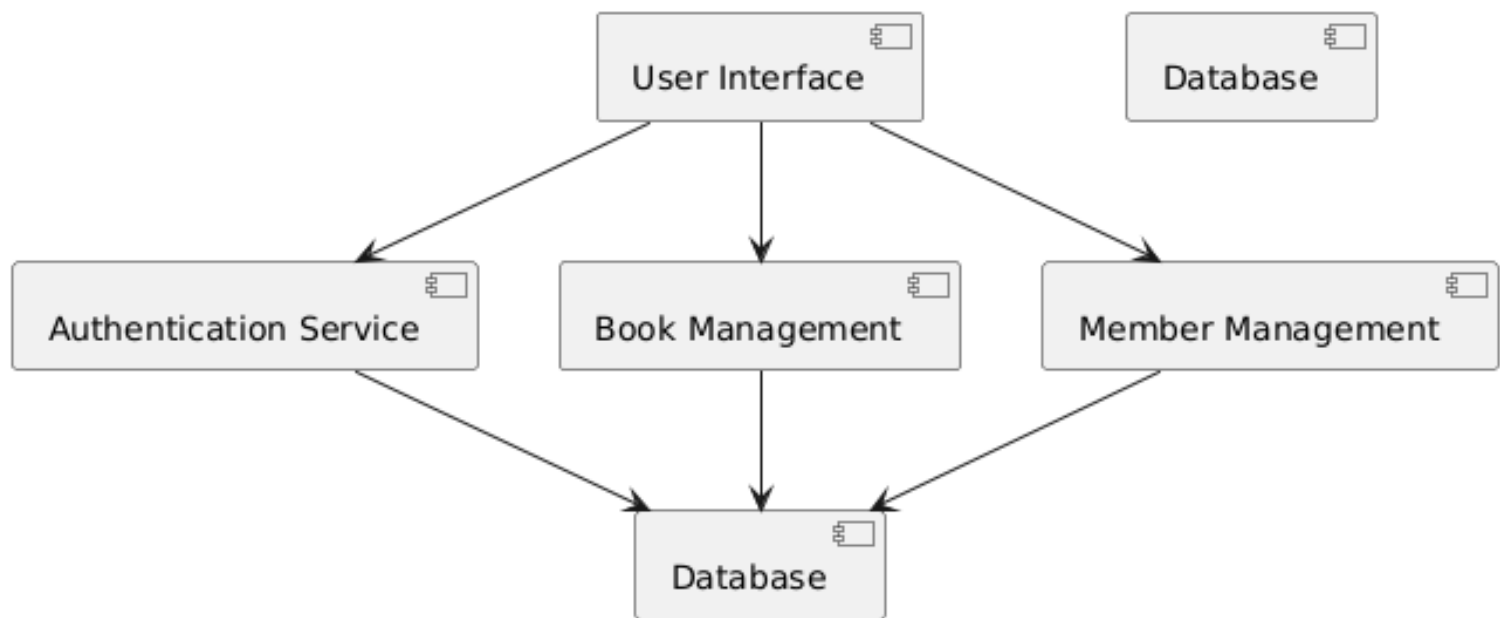
Library Management System - Collaboration Diagram (Borrow Book)
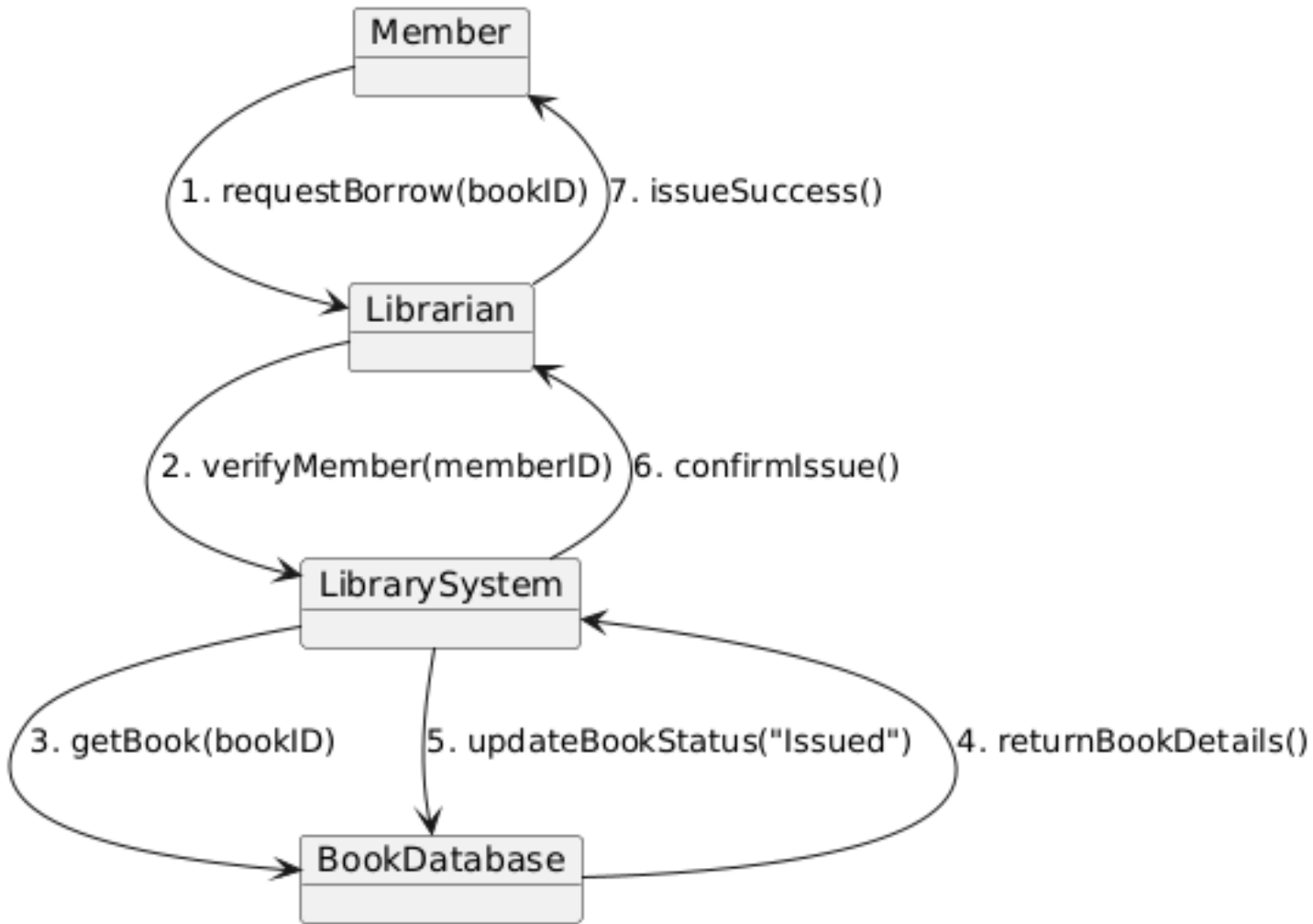
Library Management System - Class Diagram

Library
- name: String
- address: String
- addMember(member: Member)
- removeMember(member: Member)

Book
- bookID: int
- title: String
- author: String
- publisher: String
- availableCopies: int
- checkAvailability(): boolean

Member
- memberID: int
- name: String
- email: String
- phone: String
- borrowBook(book: Book)
- returnBook(book: Book)

Librarian
- staffID: int
- name: String
- email: String
- addBook(book: Book)
- removeBook(book: Book)
- issueBook(book: Book, member: Member)
- acceptReturn(book: Book, member: Member)

Transaction
- transactionID: int
- issueDate: Date
- returnDate: Date
- fine: double
- calculateFine(): double

1 — 0..*
1 — 0..*
1 — 0..*

1 — involved in — 0..*
1 — performs — 0..*
1 — handles — 0..*

Library Management System - Object Diagram

member1

memberID = 101
name = "Alice"
email = "alice@example.com"

book1

bookID = 5001
title = "Clean Code"
author = "Robert C. Martin"
availableCopies = 4

librarian1

staffID = 301
name = "Mr. John"

borrows

involved

handled

transaction1

transactionID = 9001
issueDate = "2025-04-10"
returnDate = "2025-04-20"
fine = 0.0

Library Management System - Deployment Diagram

Client Machine

Web Browser

Library Web App

Application Server

Business Logic Service

JDBC/API Call

Database Server

Database