



សាកលវិទ្យាល័យភូមិន្ទភ្នំពេញ
ROYAL UNIVERSITY OF PHNOM PENH

Library Management System (Phase 2)

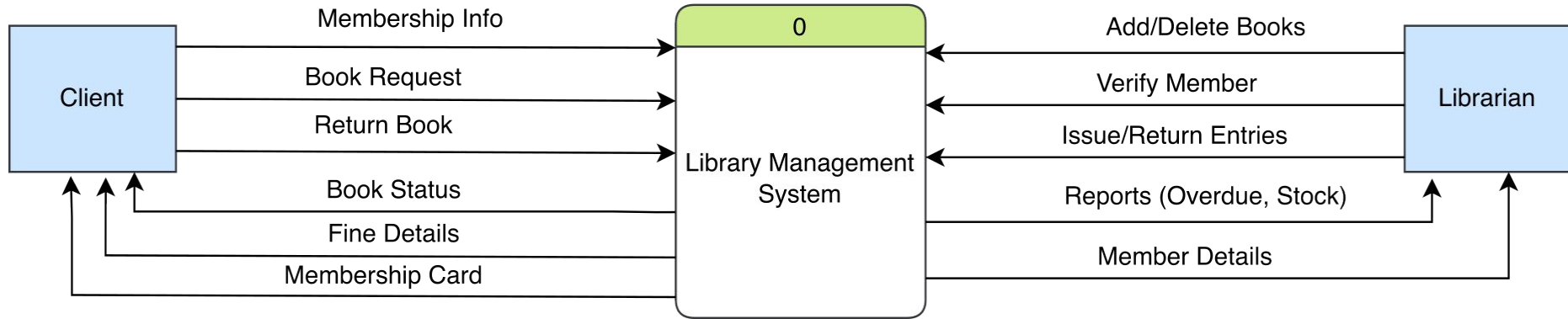
Software Engineering
Professor: Lim Lyheng
Class: M1
Group: 8

Group Member

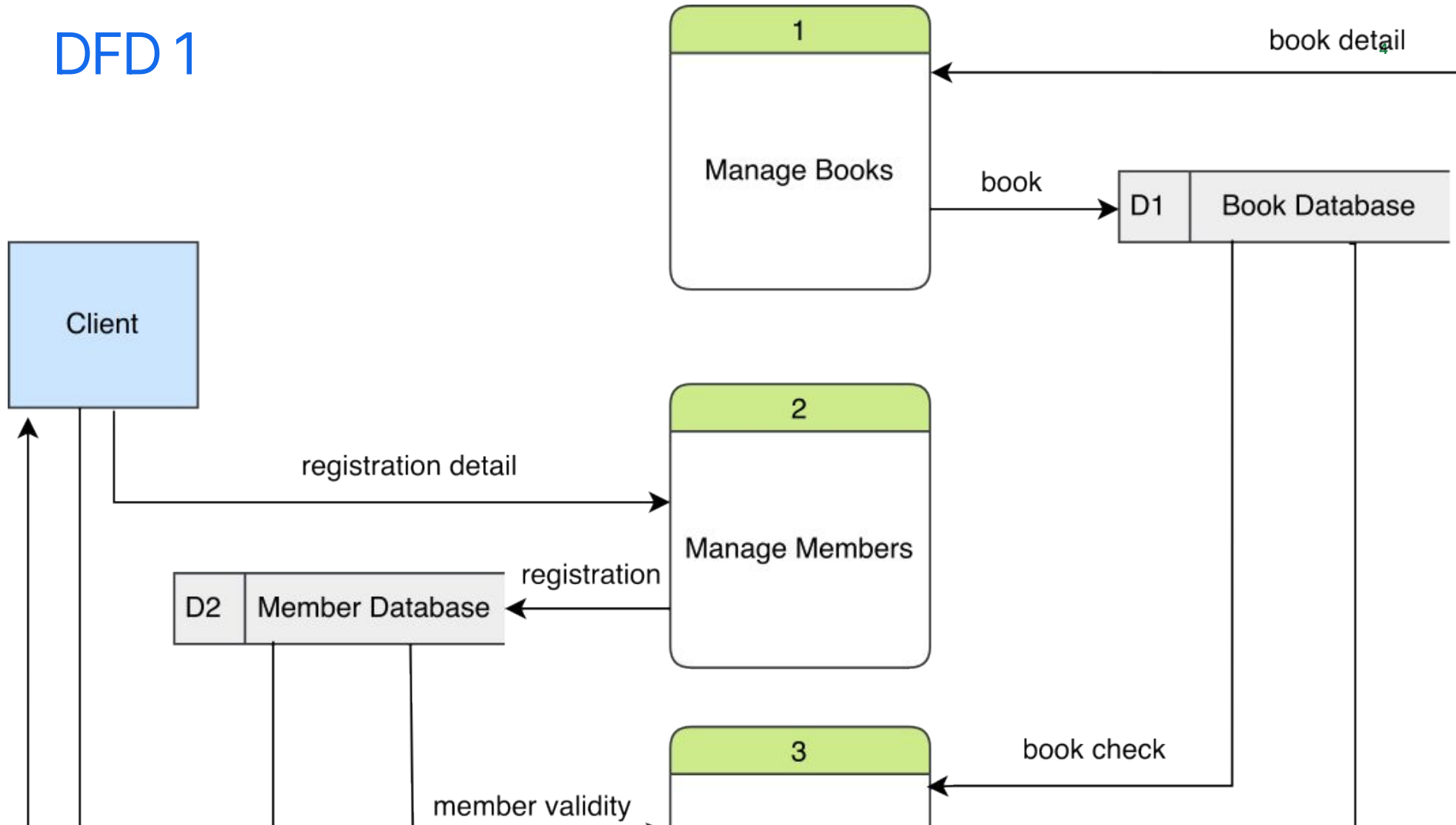


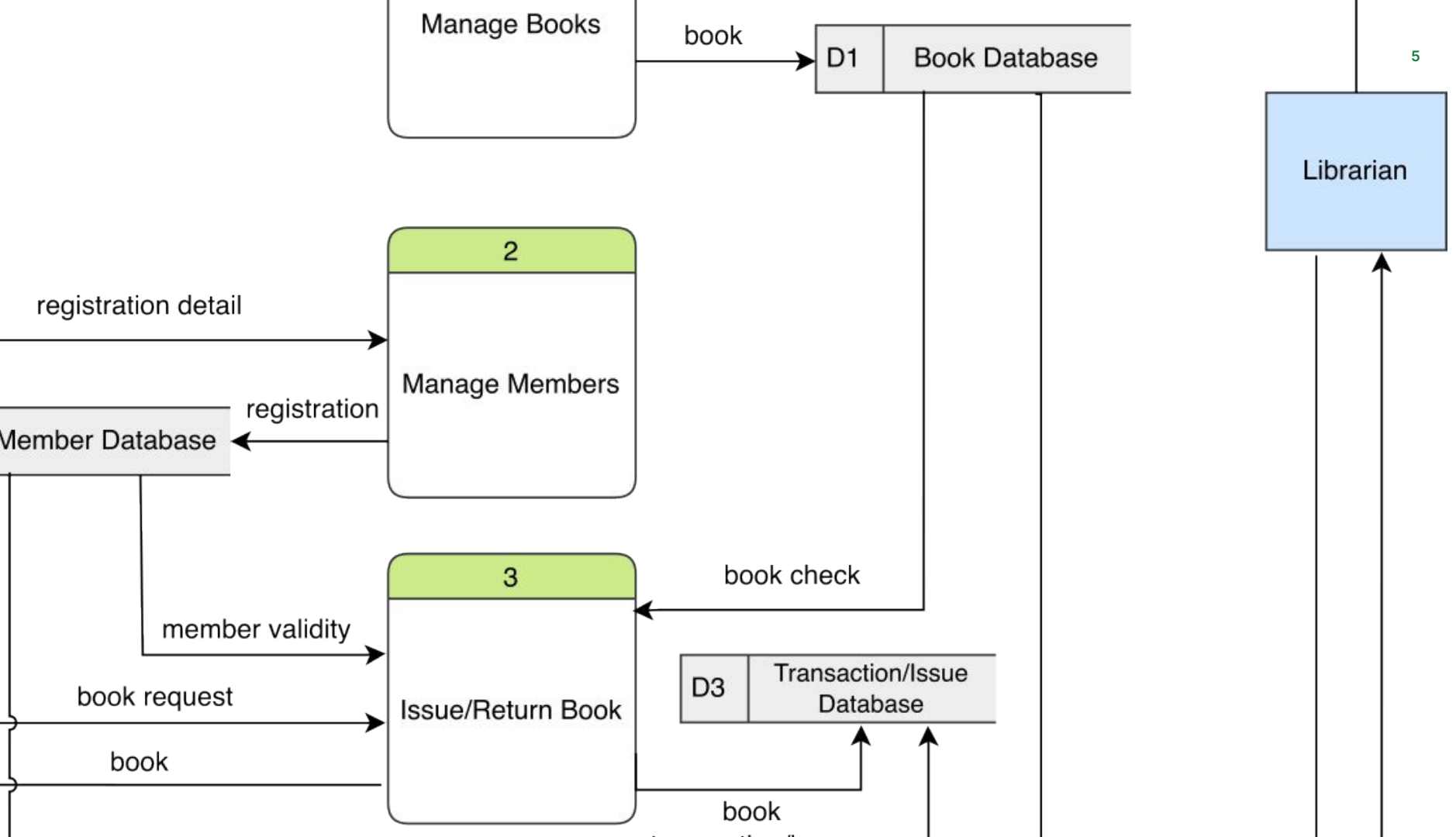
Name	Name in khmer	Role
Sou Chanrojame	ស៊ី ចាន់រ៉ូជ័ម	Leader
Orn Pheakdey	អន ភក្តី	Follower
Long Neron	ឡុង និរន្ត	Follower
Sokkong Somnang	សុខគង់ សំណាង	Follower

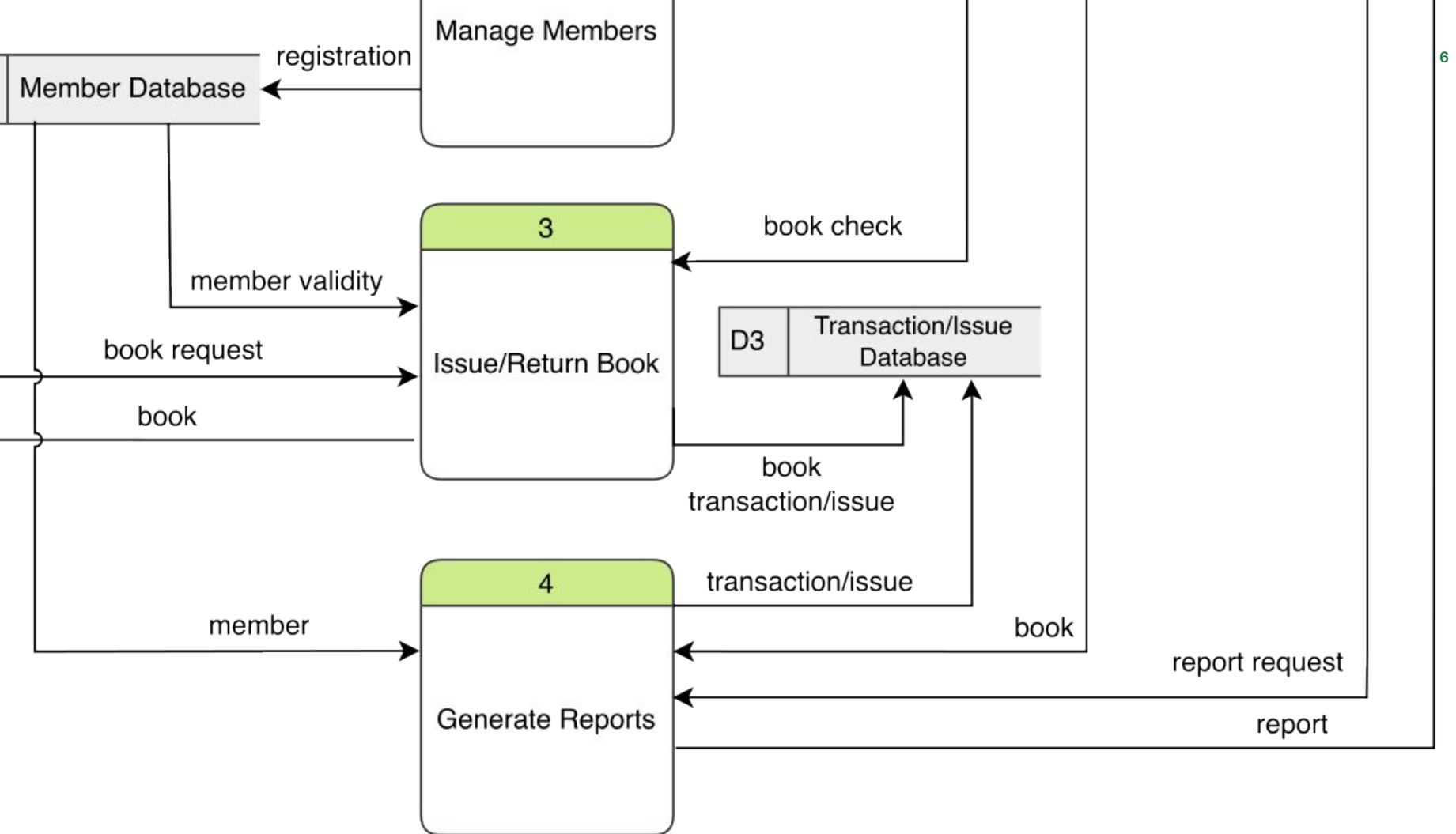
DFD 0 (Context Diagram)



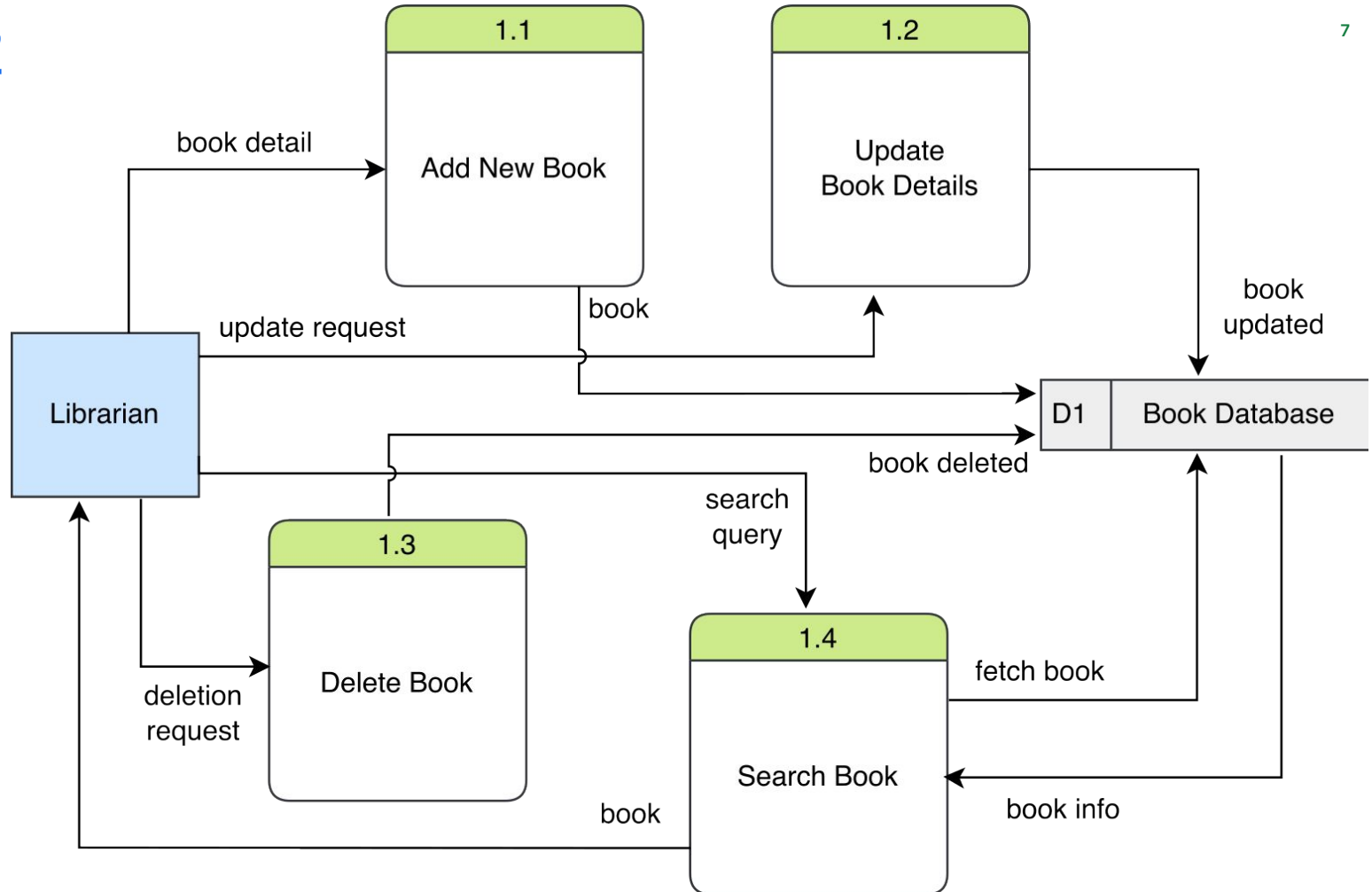
DFD 1

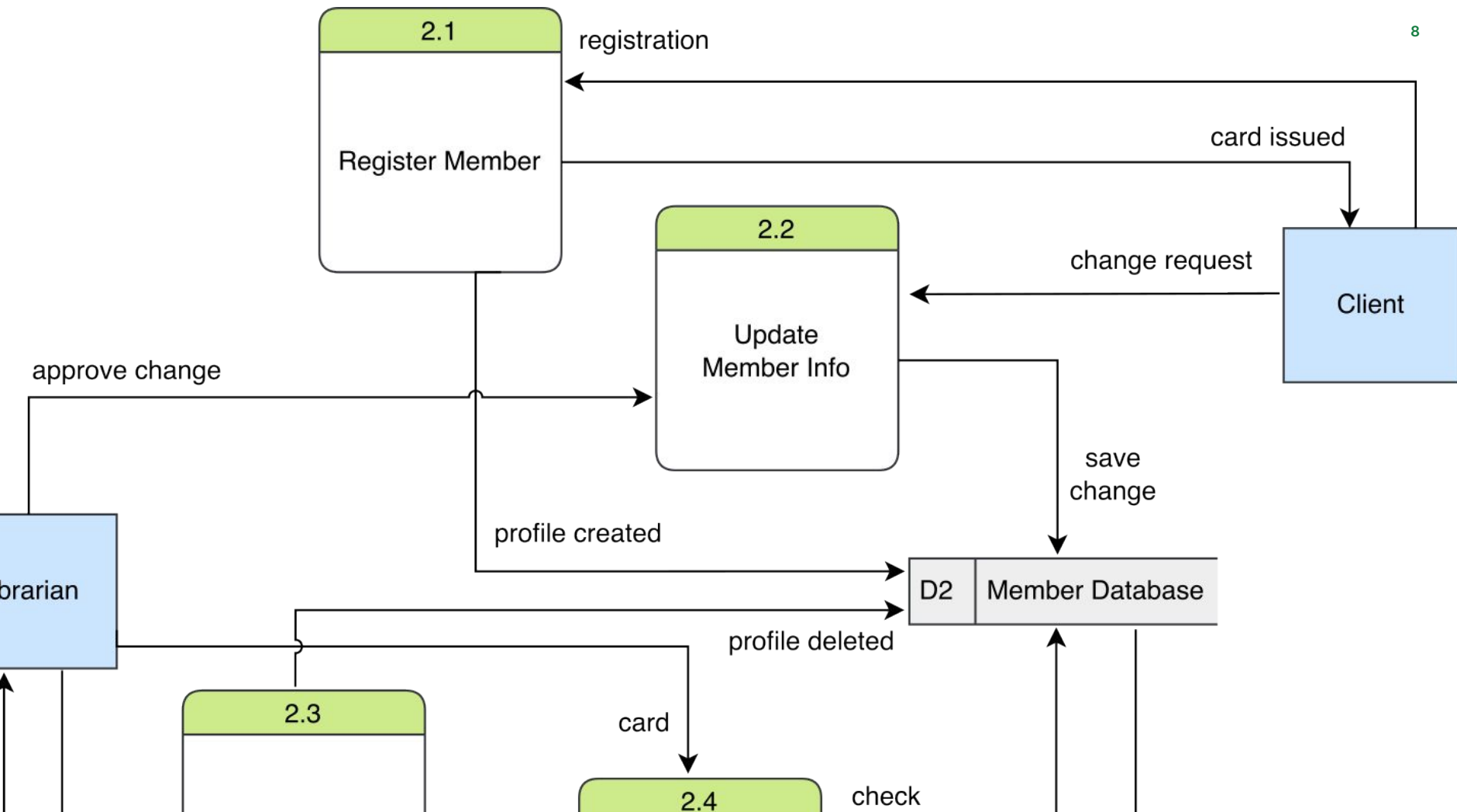


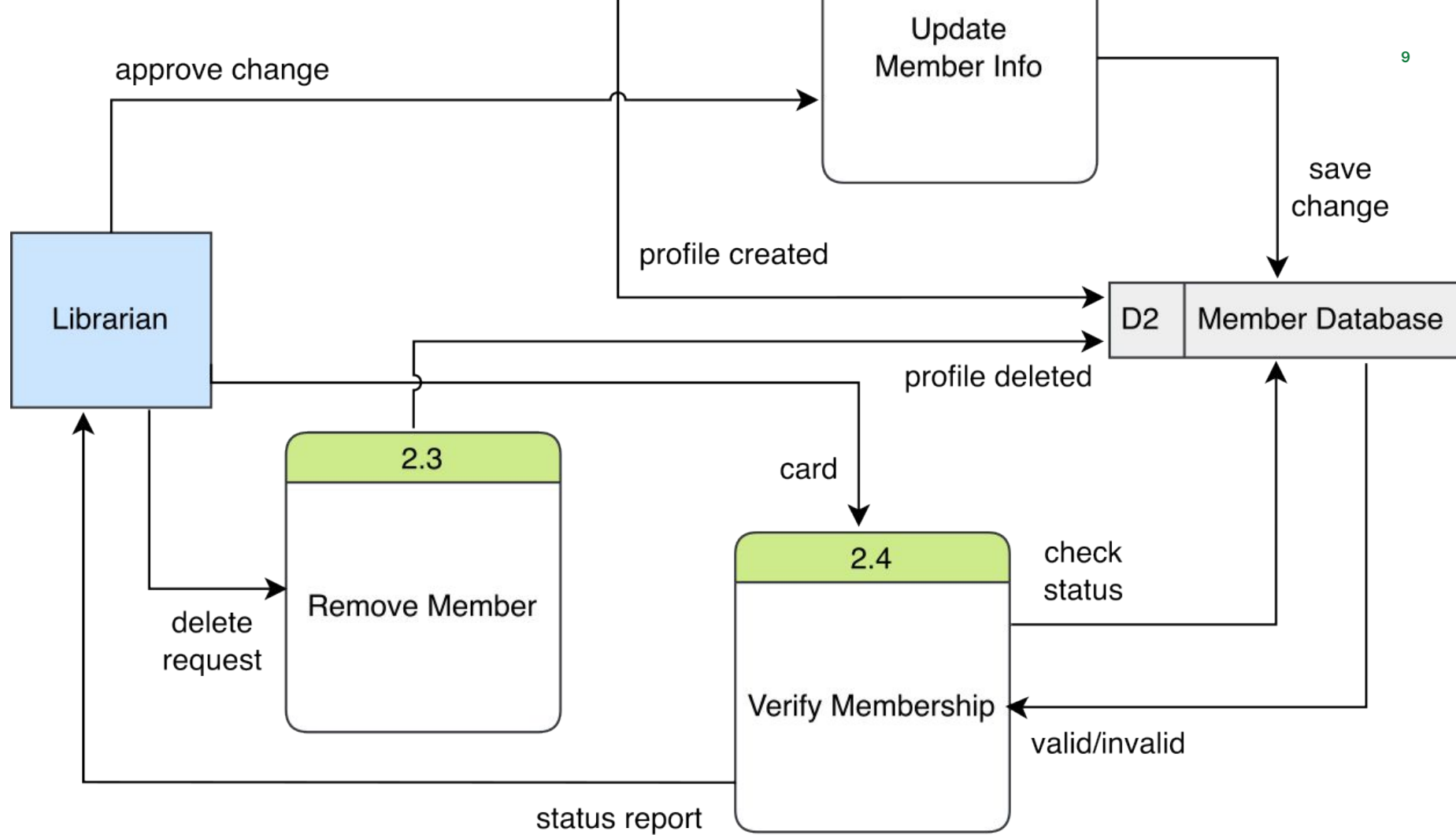


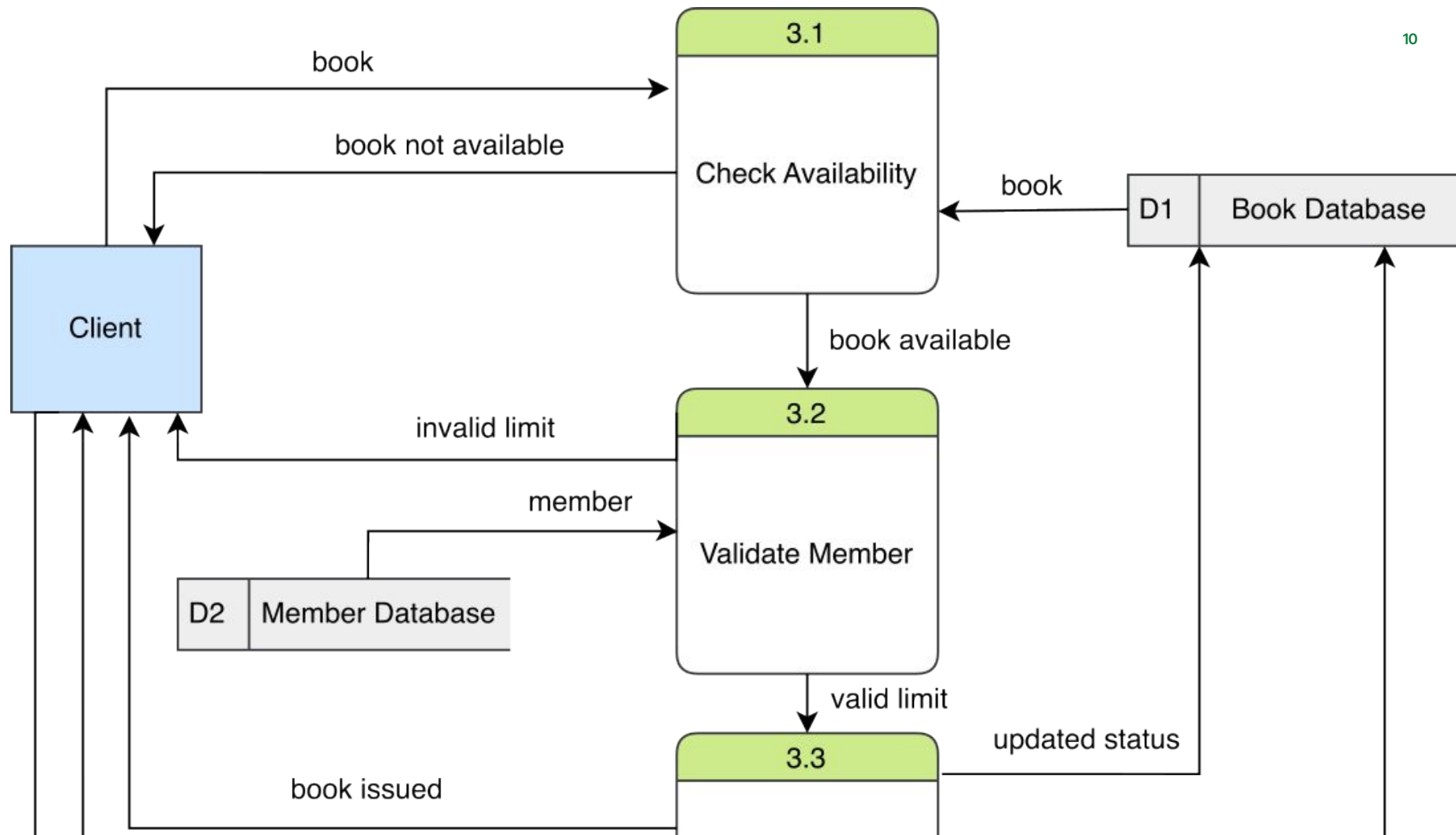


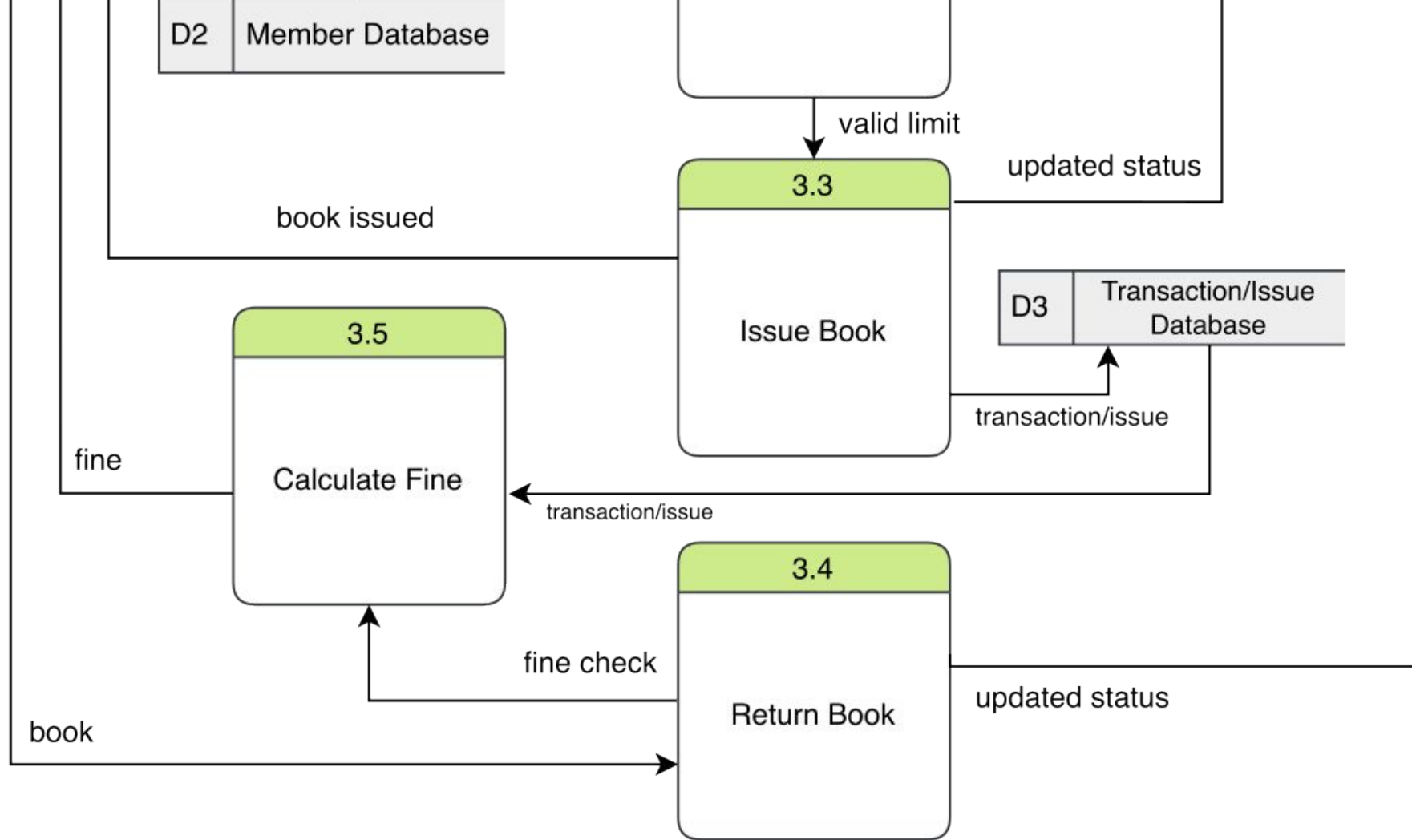
DFD 2

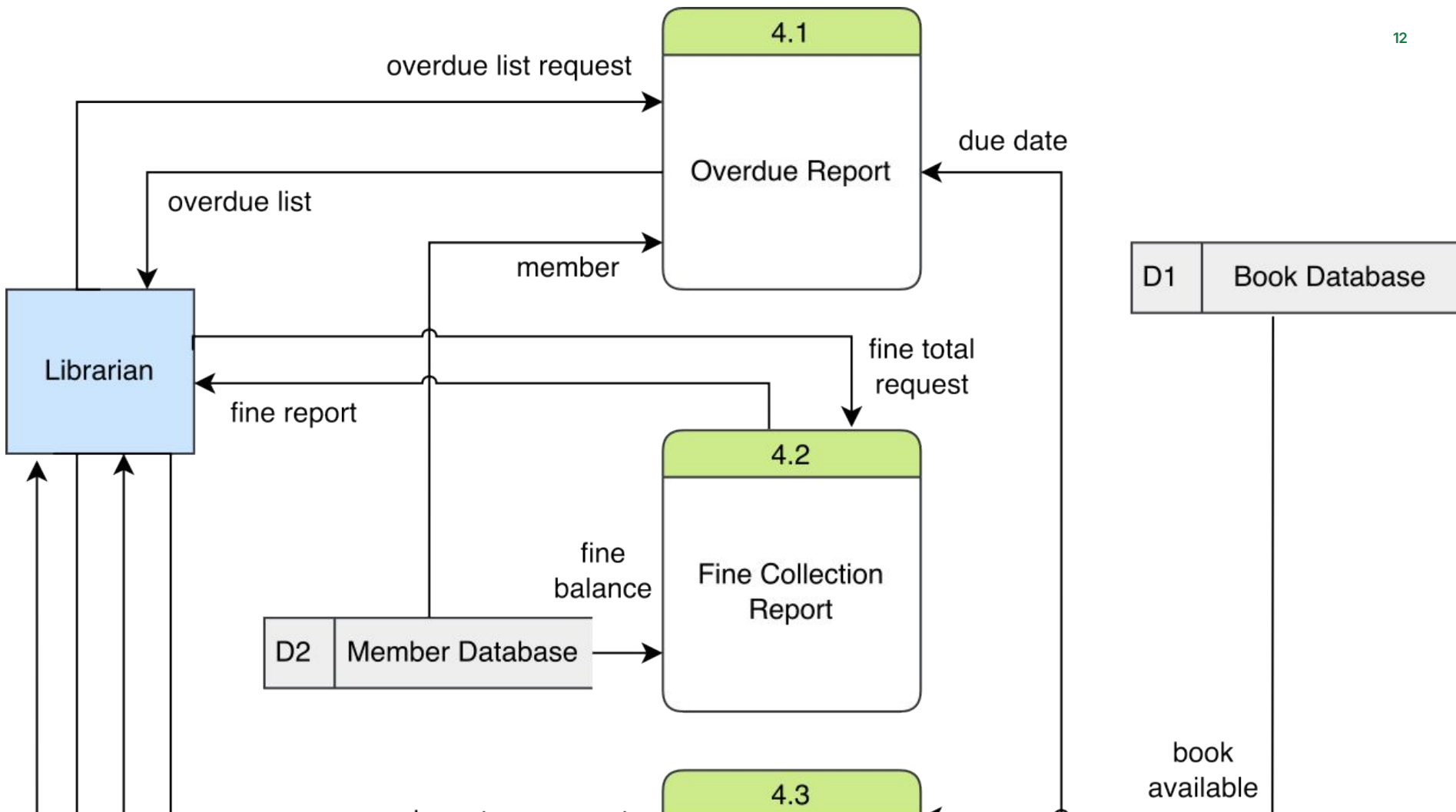


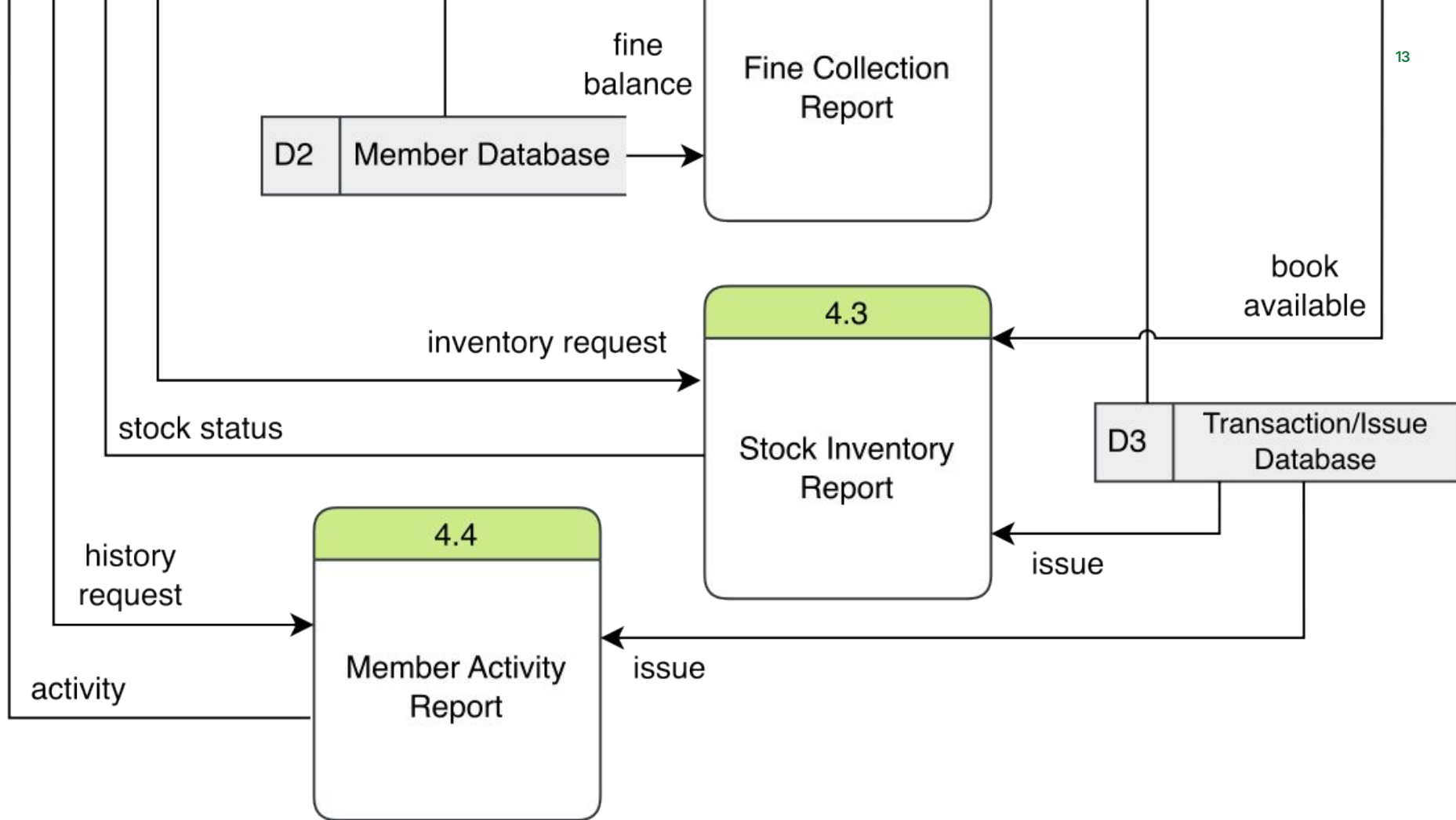












Use Case Diagram

Library Management

Member Services

Register Membership

Update Member Info

View Membership Card

View Fine Details

Book Services

Search Book

Return Book

Calculate Fine

Issue Book

«extend»

«include»

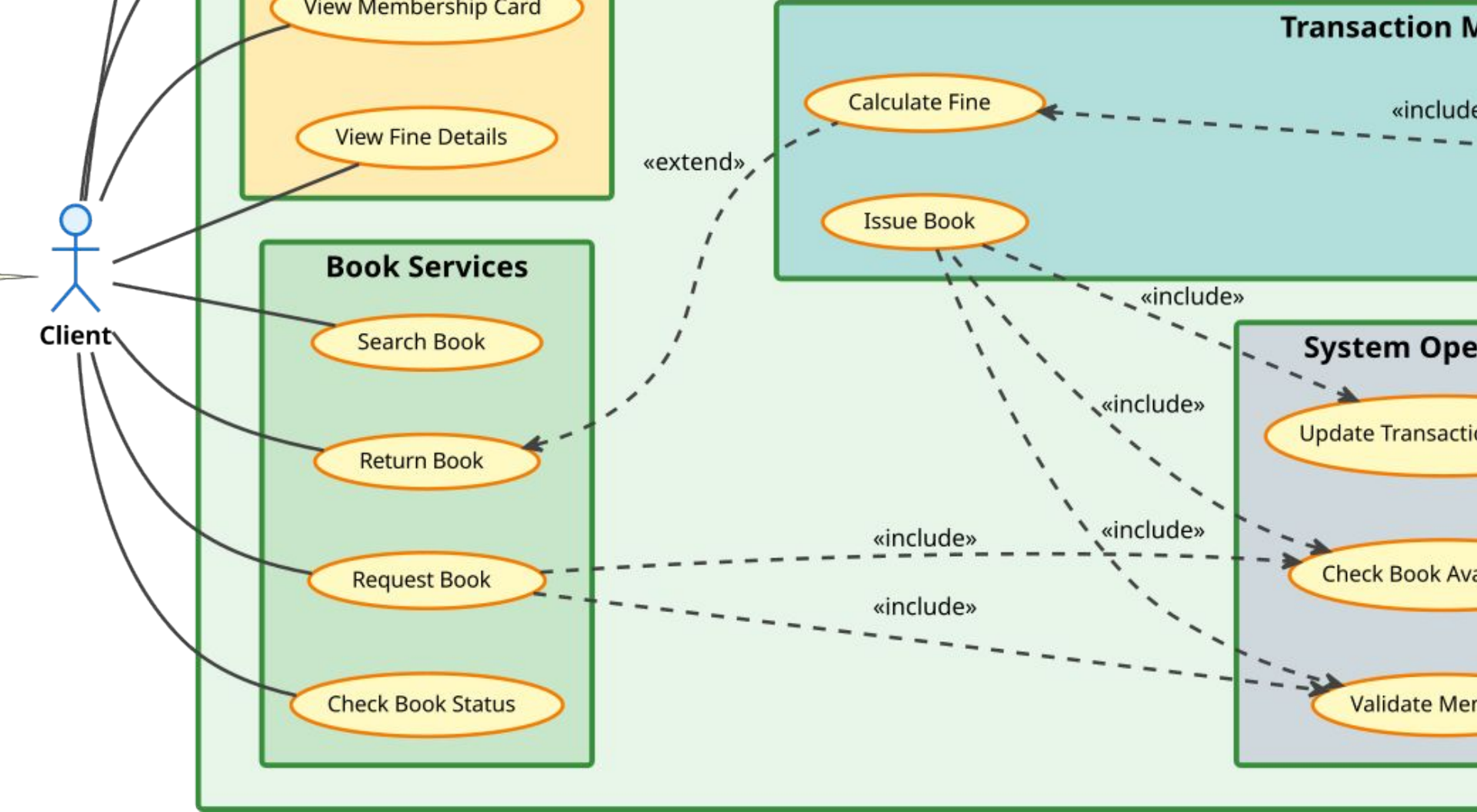
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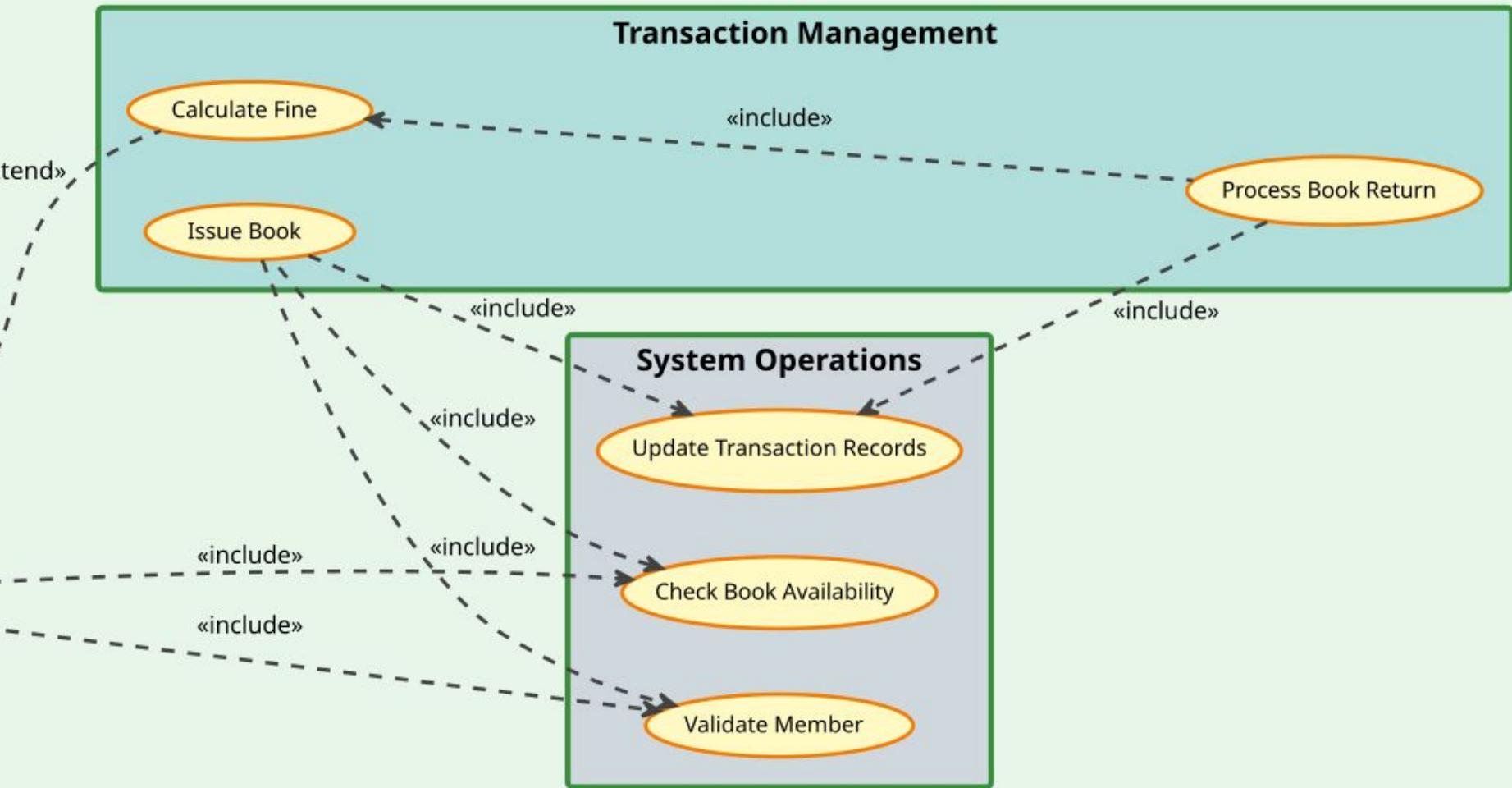
Client

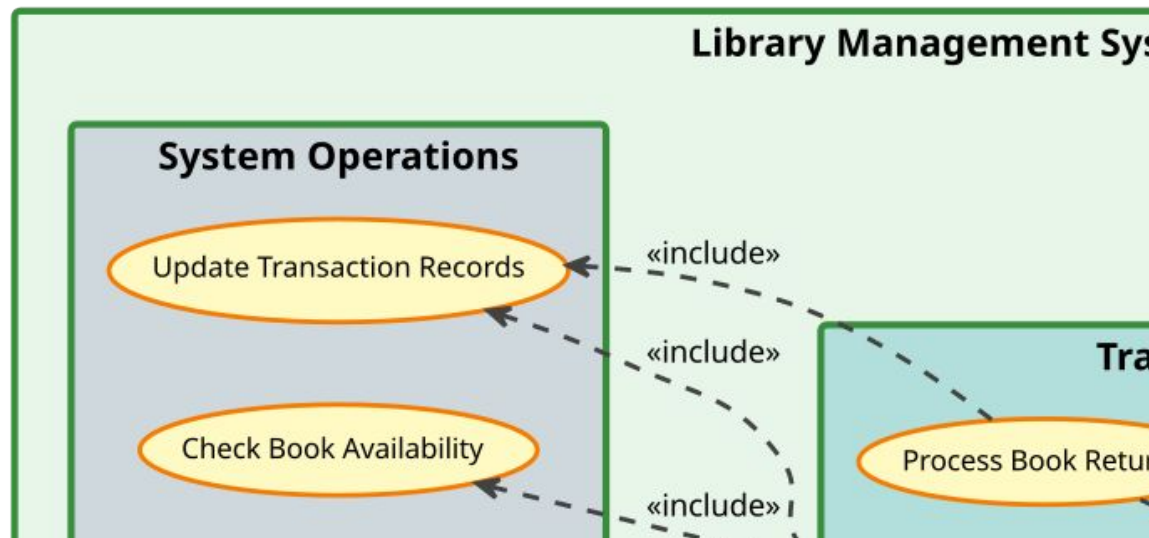
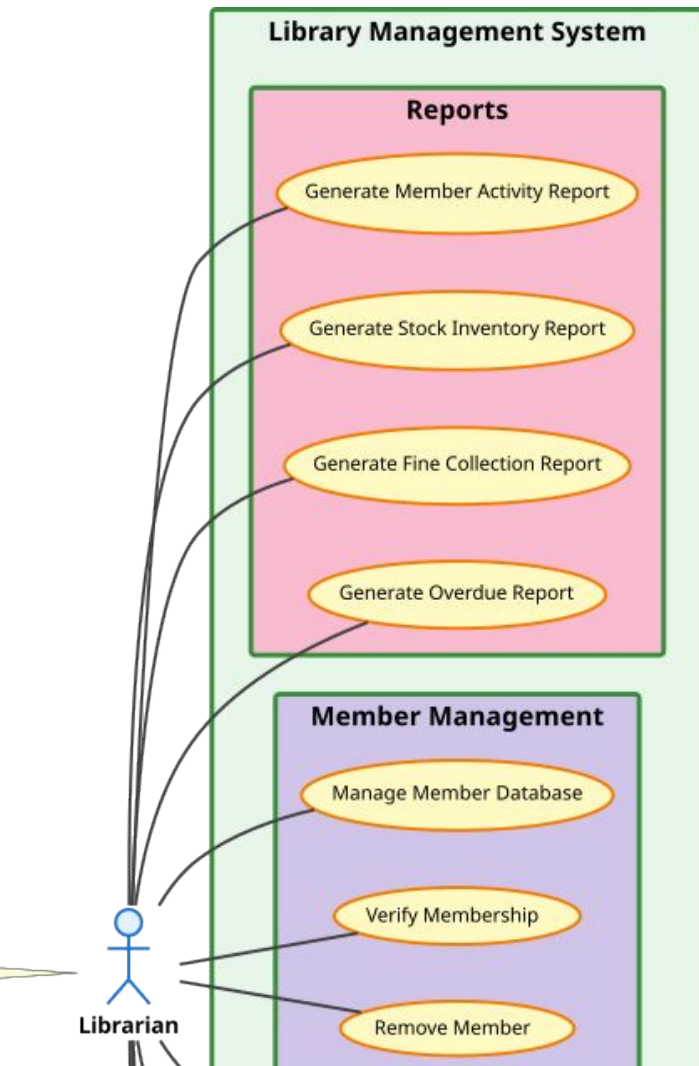
Client Functions:

- Register & manage profile
- Search & borrow books
- View status & fines









Librarian Functions:

- Manage books & members
- Handle transactions
- Generate reports

Librarian

Generate Fine Collection Report

Generate Overdue Report

Member Management

Manage Member Database

Verify Membership

Remove Member

Register Member

Book Management

Manage Book Database

System Operations

Update Transaction Records

Check Book Availability

Validate Member

Librarian Functions:

- Manage books & members
- Handle transactions
- Generate reports

Librarian

Verify Membership

Remove Member

Register Member

Book Management

Manage Book Database

Delete Book

Update Book Details

Add New Book

Check Book Availability

Validate Member

Library Management System

System Operations

Update Transaction Records

Check Book Availability

Validate Member

Transaction Management

Process Book Return

Issue Book

Calculate Fine



Librarian

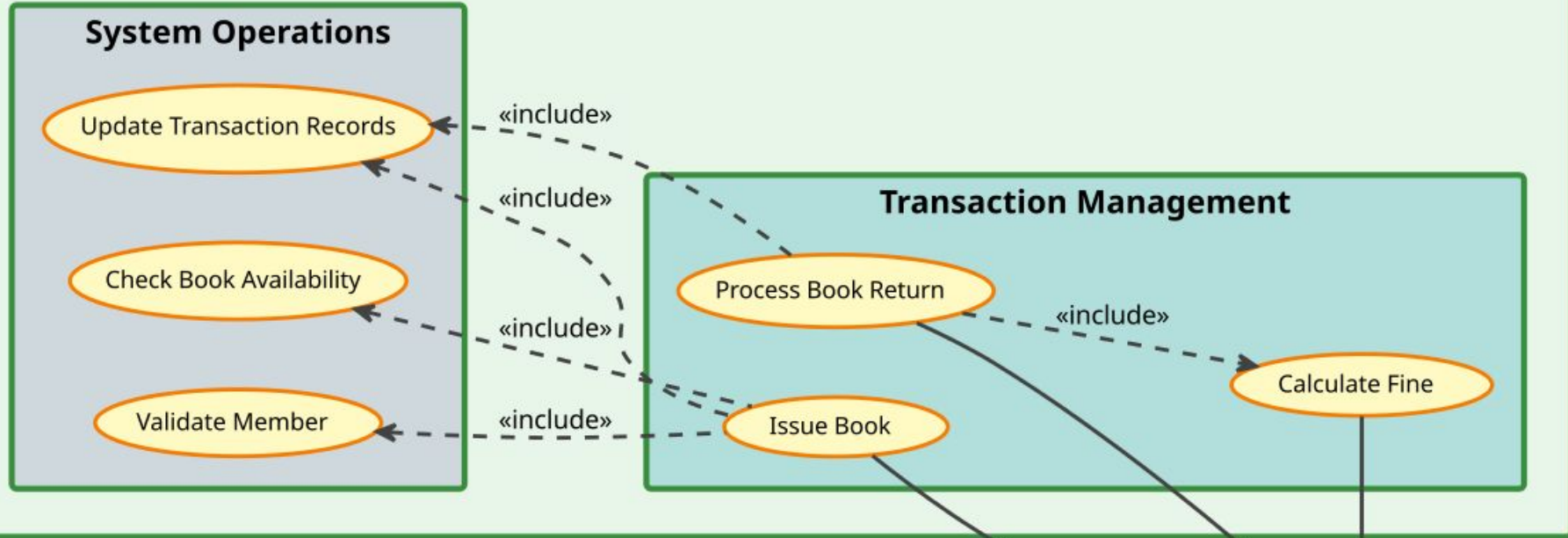
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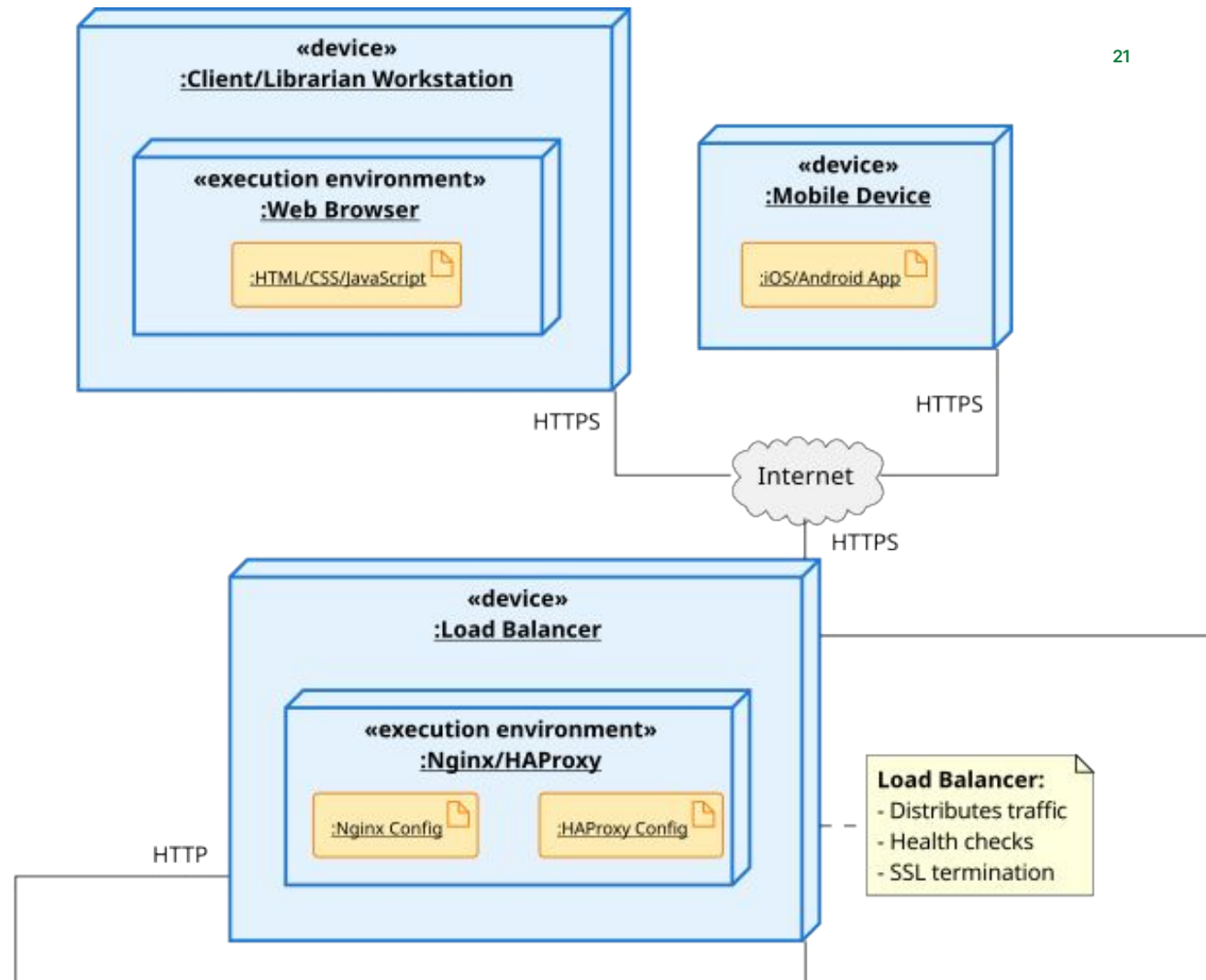
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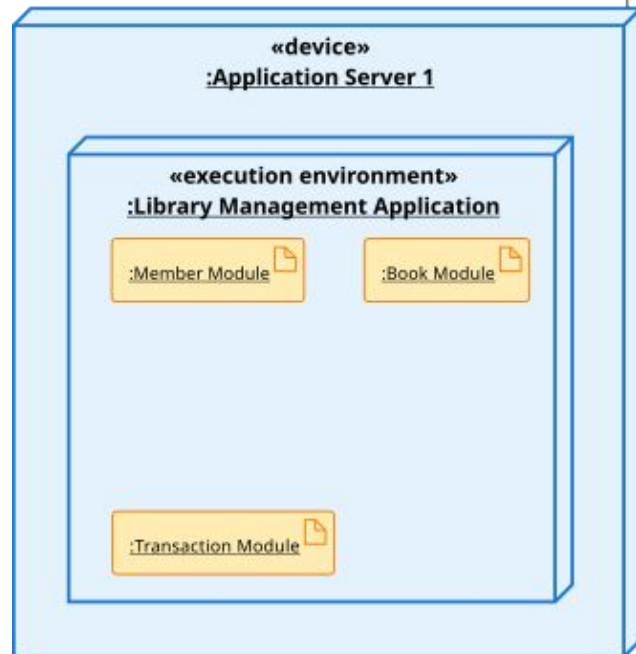
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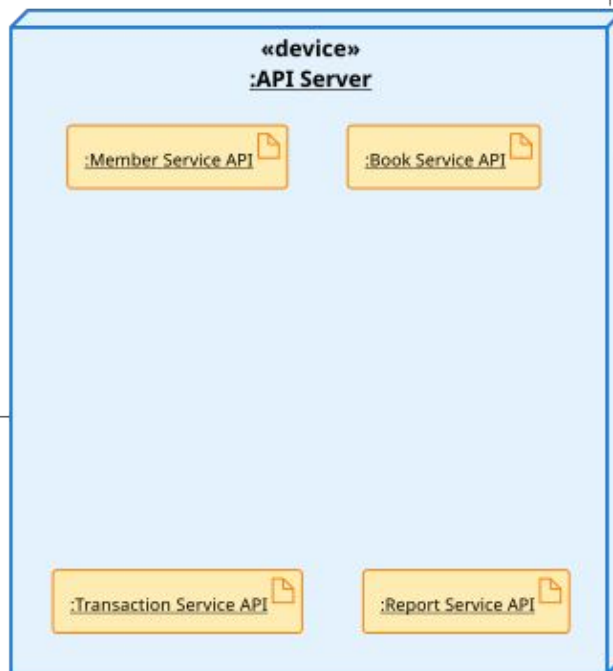
Deployment Diagram

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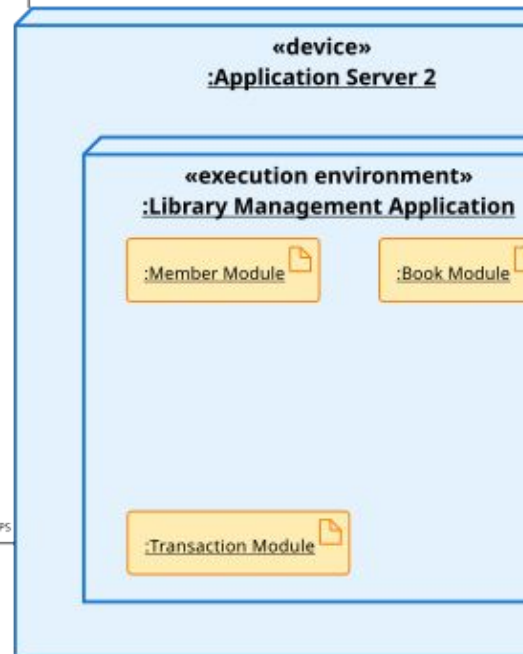
REST/HTTPS

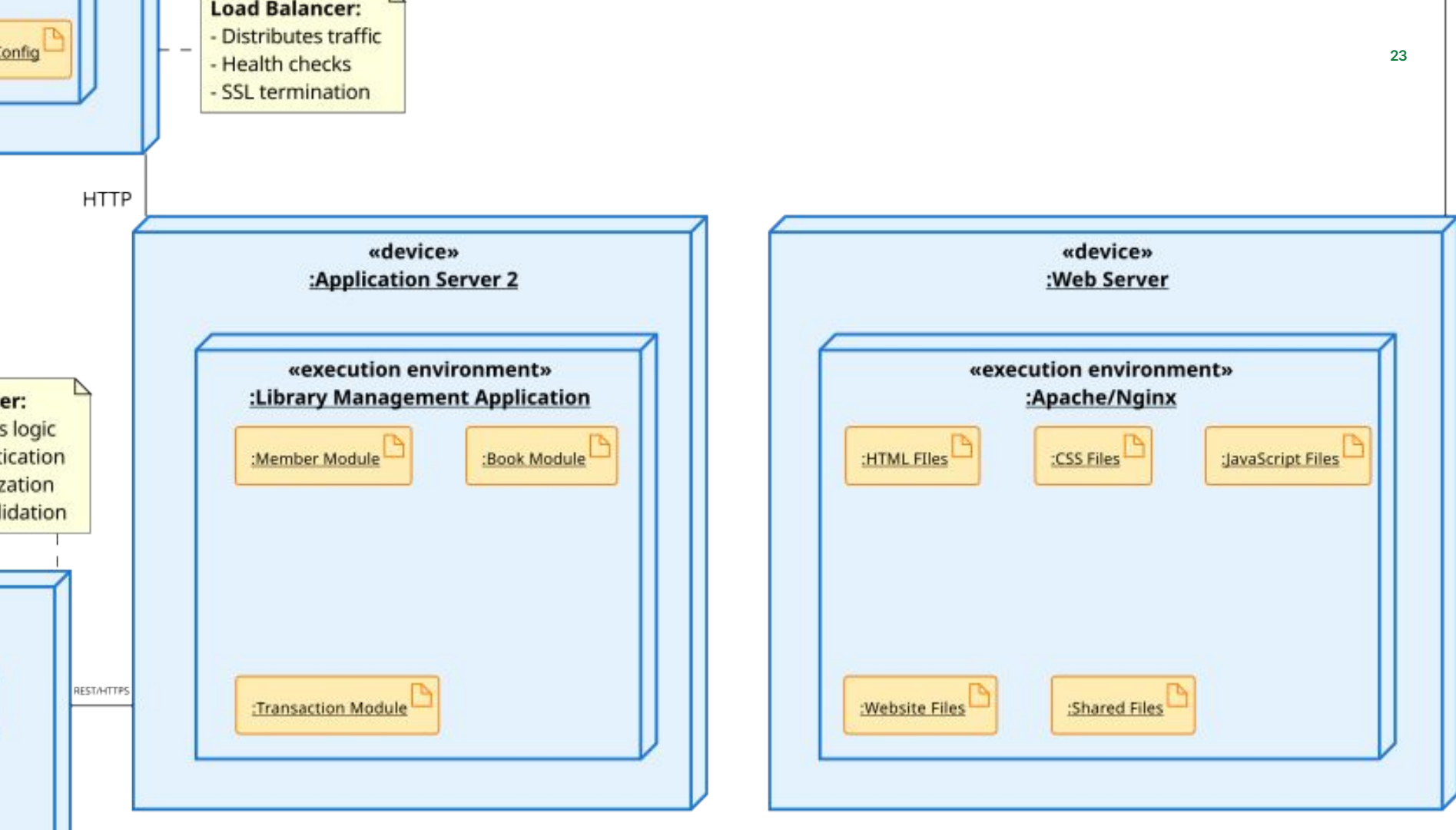


API Server:

- Business logic
- Authentication
- Authorization
- Data validation

REST/HTTPS





API Server:

- Business logic
- Authentication
- Authorization
- Data validation

**«device»
:API Server**

:Member Service API

:Book Service API

:Transaction Service API

:Report Service API

NFS/HTTP

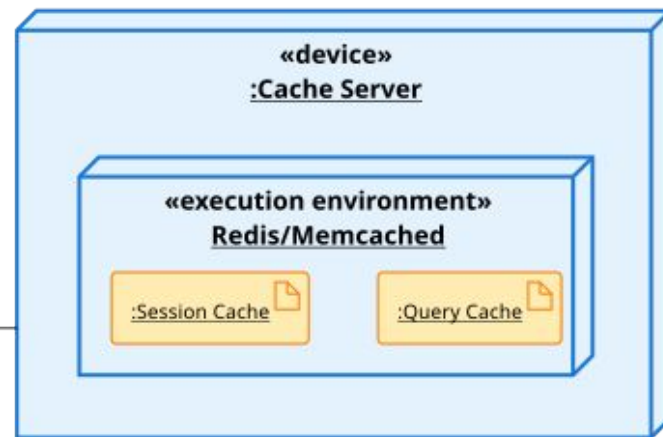
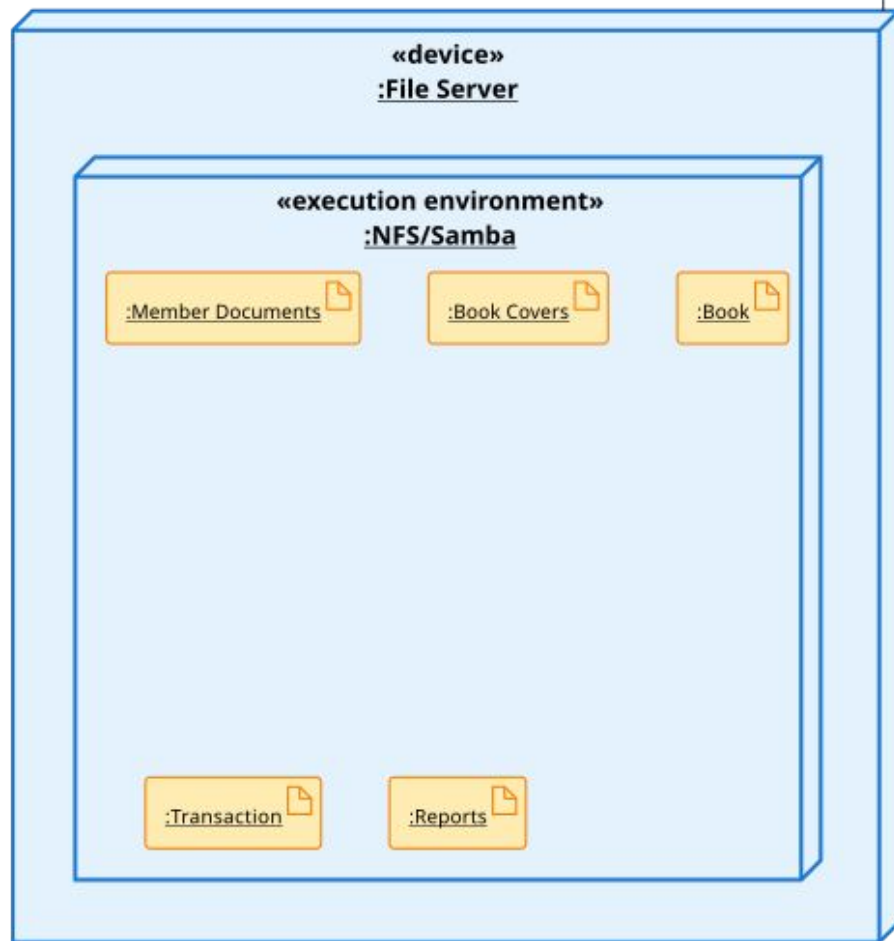
**«device»
:File Server****«execution environment»
:NFS/Samba**

:Member Documents

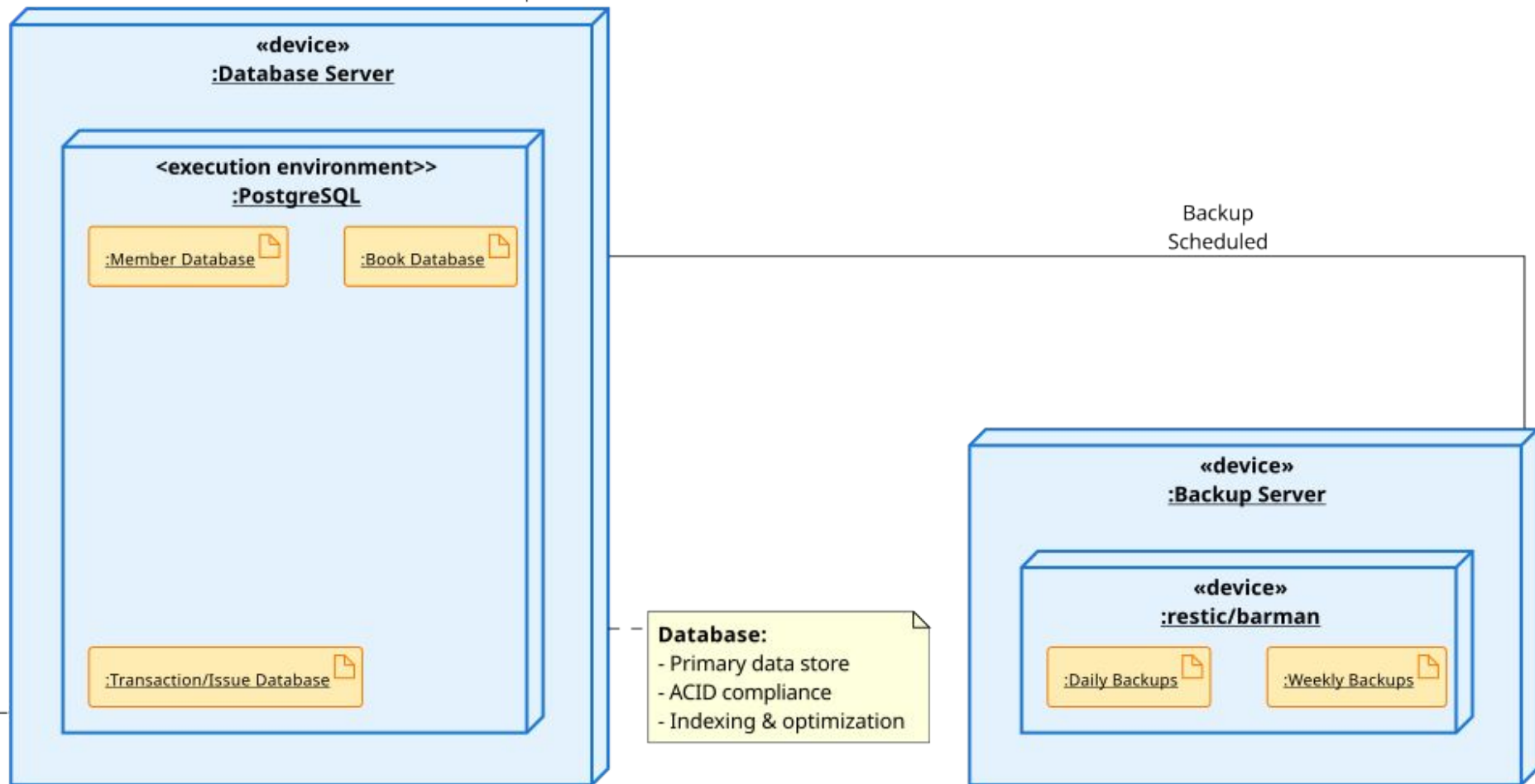
:Book Covers

:Book

:Ses



Cache
- Se
- Q
- Pe

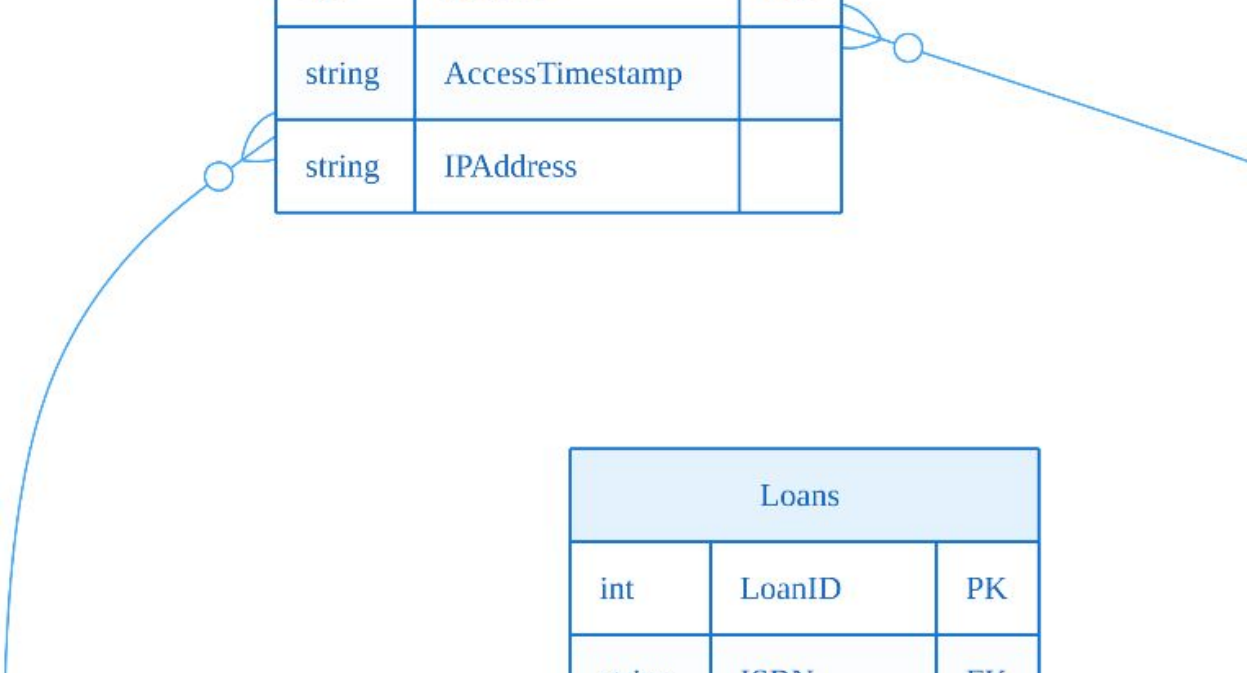


ERD (Entity Relationship Diagram)

Book_Authors	
string	ISBN
PK_FK	int
AuthorID	PK_FK

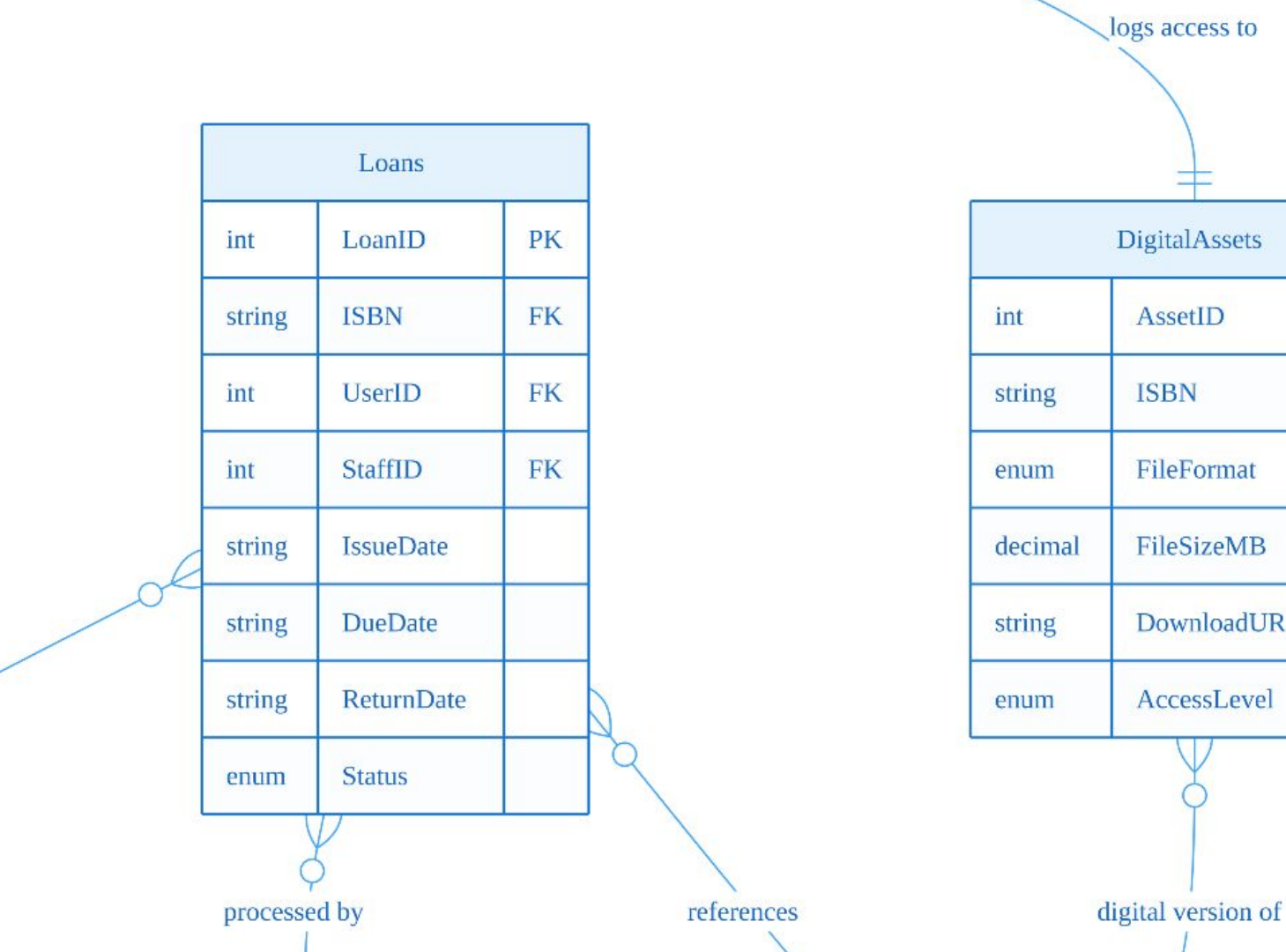
DigitalAccessLogs		
int	AccessID	PK
int	UserID	FK
int	AssetID	FK
string	AccessTimestamp	
string	IPAddress	

Loans		
int	LoanID	PK
string	ISBN	FK



Loans		
int	LoanID	PK
string	ISBN	FK
int	UserID	FK
int	StaffID	FK
string	IssueDate	
string	DueDate	
string	ReturnDate	
enum	Status	

DigitalAssets		
int	AssetID	PK
string	ISBN	FK
enum	FileFormat	
decimal	FileSizeMB	
string	DownloadURL	
enum	AccessLevel	



Readers		
int	UserID	PK
string	FirstName	
string	LastName	
string	Email	UK
string	PhoneNumber	
string	Address	
string	JoinDate	

Staffs		
int	StaffID	PK
string	StaffName	
string	LoginID	UK
string	Password	
bool	CanManageDigital	

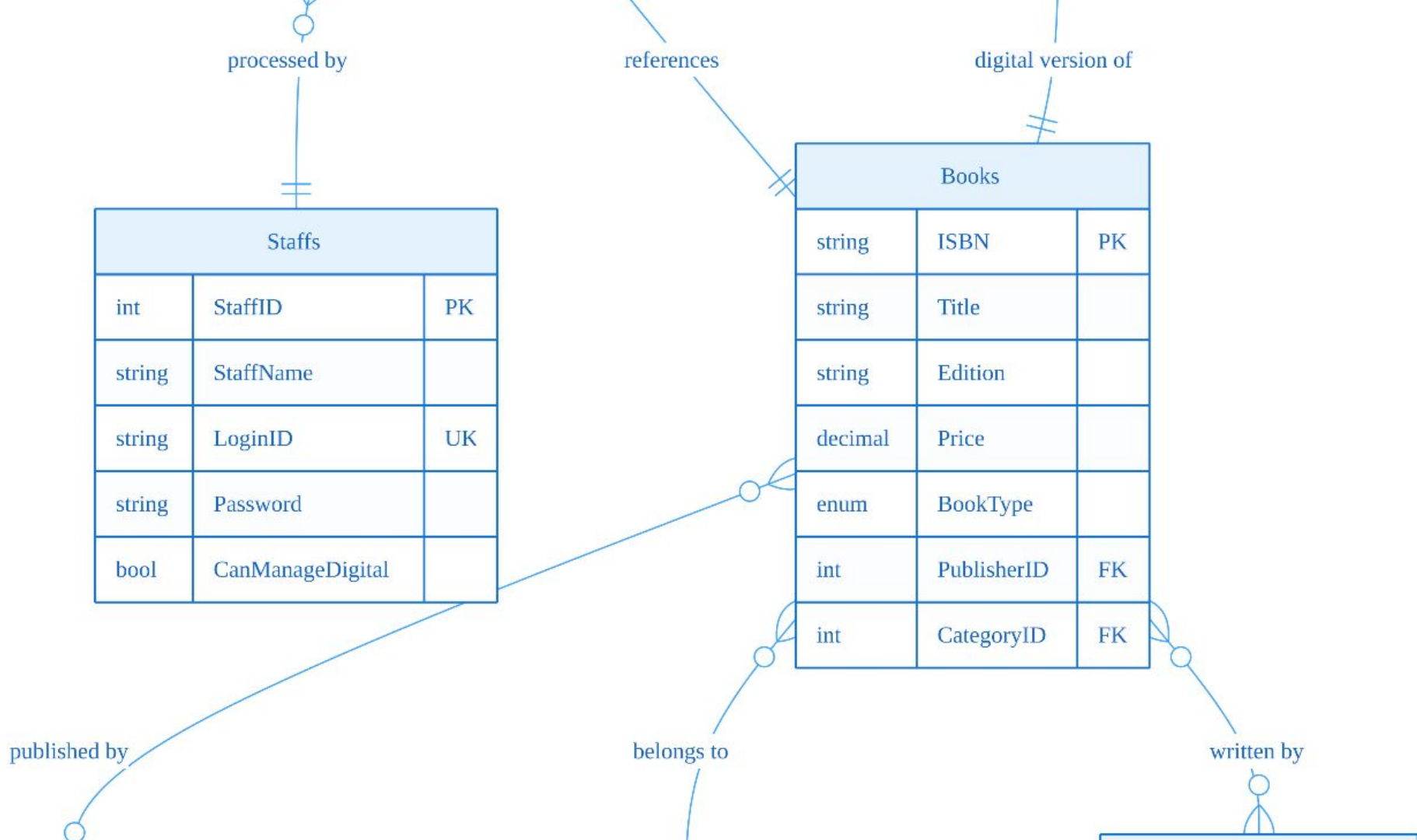
Books	
string	ISBN
string	Title
string	Editor
decimal	Price
enum	BookType
int	PublisherID
int	Cat

published by

processed by

references

belongs to



UK

string	LoginID	UK
string	Password	
bool	CanManageDigital	

decimal	Price	
enum	BookType	
int	PublisherID	FK
int	CategoryID	FK

published by



Publishers		
int	PublisherID	PK
string	PublisherName	
int	YearOfPublication	

belongs to



Categories		
int	CategoryID	PK
string	CategoryName	

ng	Password	
ol	CanManageDigital	

enum	BookType	
int	PublisherID	FK
int	CategoryID	FK

belongs to

written by

	PK
on	

Categories		
int	CategoryID	PK
string	CategoryName	

Authors		
int	AuthorID	PK
string	FirstName	
string	LastName	
string	Biography	