

Project Proposal

On

Library Management System

Guided By: -

Mr. Anuj Kumar

Created By: -

Shivanshu Tyagi,
Vivek Kumar Singh,
Rohan Kumar Prajapati
AF id: AF04991747,
AF04991732
AF04991754

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1. Title of the Project

Library Management System

2. Introduction

A Library Management System (LMS) is software designed to automate and manage the entire lifecycle of library operations such as book acquisition, cataloguing, issuing, returning, fine calculation, and member management. Traditional library management is time-consuming and prone to errors. This project aims to develop a computerized system that increases the efficiency of library operations, reduces manual workload, and maintains accurate records with up-to-date information.

3. Objective

- To Automate the manual operations of the library.
 - To maintain accurate records of books, members, issue/return transactions.
 - To make book search quick and efficient using search filters.
 - To generate automated reports (issued books, fines, stock availability).
 - To reduce paperwork and enable easy data retrieval.
 - To improve accuracy and transparency in library operations.
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4. Project Category

Application Development / Database Management System (DBMS) Project

5. Analysis

Modules and Description

1. Admin Module

- Manages librarians and user roles.
- Adds/updates/deletes books.
- Views reports on issued/returned books.

2. Librarian Module

- Issues and returns books.
- Manages book availability.
- Calculates fines automatically.

3. Student/Member Module

- Searches books by title, author, category
- Views issued books and due dates.
- Requests book reservations.

4. Book Management Module

- Stores and updates book details
- Tracks total stock and available copies.

5. Transaction Module

- Handles issue and return entries.
- Calculates fines.
- Maintains transaction logs.

Database Design

1. Books

Column	Datatype	Key / Constraints
Book_Id	INT	PK, Auto Increment
Title	VARCHAR[200]	Not Null
Author	VARCHAR(150)	Not Null
Category	VARCHAR(100)	
Publisher	VARCHAR(150)	
Total_Copies	INT	Not Null
Available_Copies	INT	Not Null

2. Members

Column	Datatypes	Key / Constrains
Member_id	INT	PK / Auto-increment
Name	VARCHAR(150)	Not Null
Email	VARCHAR(150)	Unique
Contact	VARCHAR(15)	
Address	VARCHAR(255)	

3. Librarians

Column	Datatypes	Key / Constrains
Librarian_ID	INT	PK / Auto-increment
Name	VARCHAR(150)	Not Null
Username	VARCHAR(100)	Unique

Password	VARCHAR(255)	Not Null
Role	VARCHAR(50)	Not Null

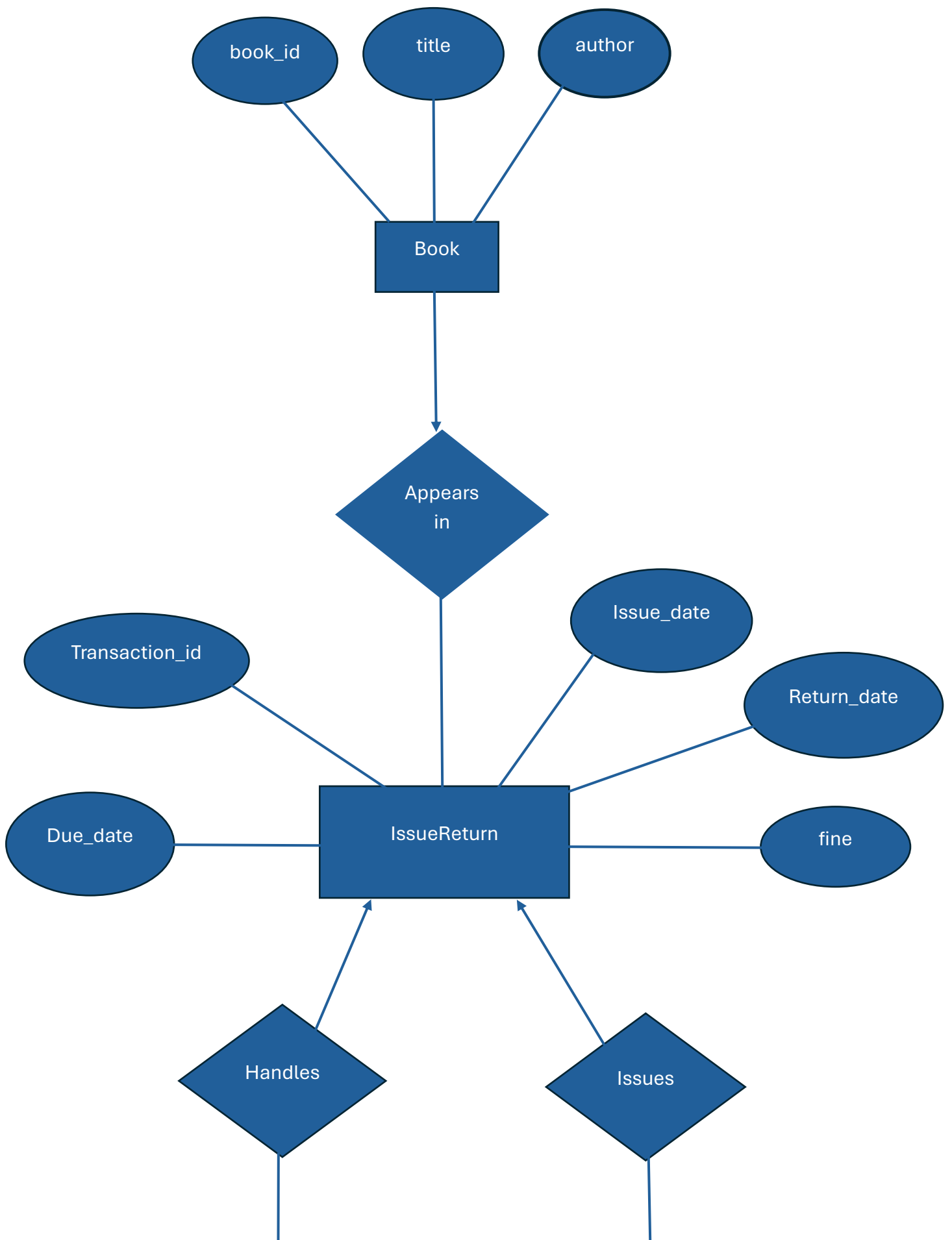
4. IssueReturn

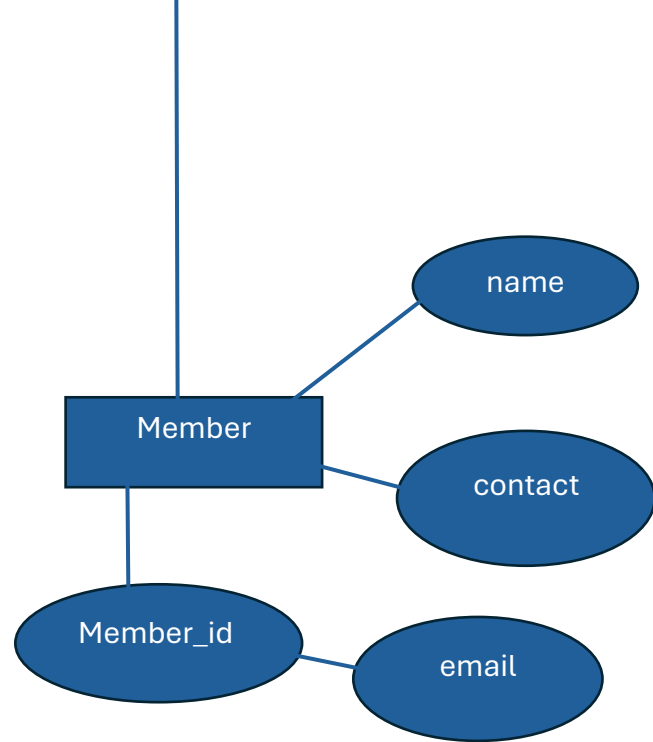
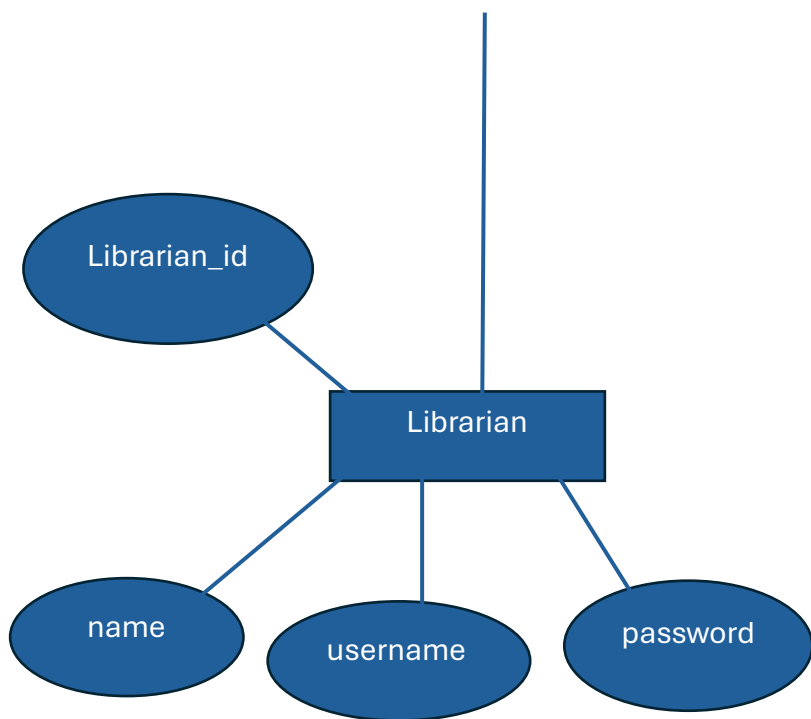
Column	Datatypes	Key / Constrains
Transaction_id	INT	PK / Auto-increment
Book_id	INT	Not Null
Member_id	INT	Not Null
IssueDate	DATE	Not Null
Duedate	DATE	Not Null
Returndate	DATE	Not Null
Fine	DECIMAL(10,2)	Default 0

5. Categories

Column	Datatypes	Key / Constrains
Category_id	INT	PK / Auto-increment
Category_name	VARCHAR(100)	Not Null

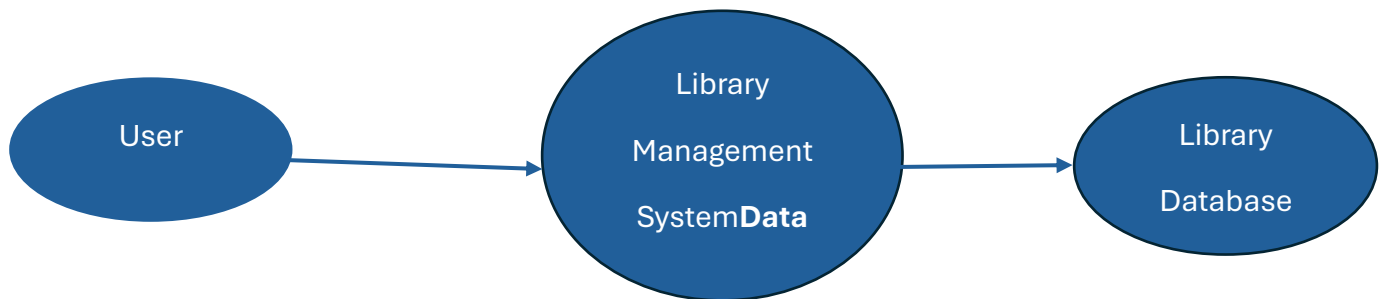
ER Diagram



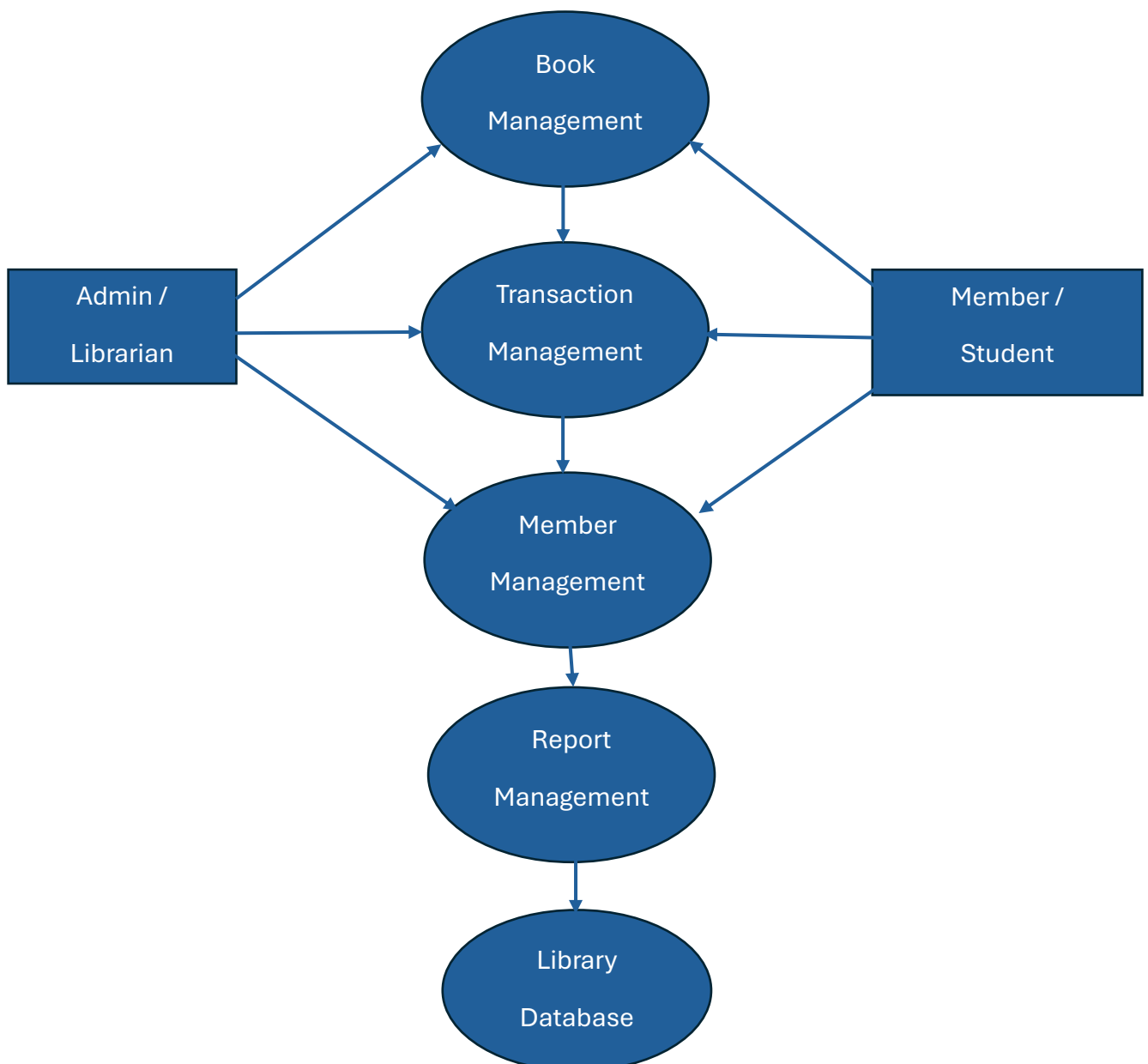


Data Flow Diagram (DFD)

Level 0



Level 1



6. Complete Structure

6. Complete Structure

Process Logical Diagram

A high-level representation of how different components interact:

- **Input:** Book details, Member details, Issue/Return entries
- **Processing:** Validation, availability check, update records, fine calculation
- **Output:** Book lists, due notices, reports, dashboards

7. Platform Used

Hardware Requirement

- Processor: Intel i3 or above
- RAM: 4 GB or more
- Hard Disk: Minimum 20 GB
- Input Devices: Keyboard, Mouse

Software Requirement

- Frontend: HTML, CSS, JavaScript (or Java/Python GUI)
- Backend: PHP / Java / Python
- Database: MySQL / SQL Server
- Tools: XAMPP / Eclipse / VS Code
- OS: Windows / Linux

8. Future Scope

- Integration with RFID/barcode scanners
- Mobile app for book search and reservation
- Online payment system for fines
- Automated overdue reminders via email/SMS
- AI-based book recommendations

- Cloud-based centralized library management
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9. Bibliography

- Online Tutorials (W3Schools, Java Point, GeeksforGeeks)
- DBMS Textbooks & Academic References
- Research papers on Library Automation