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Theme: LIBRARY MANAGEMENT SYSTEM

**Introduction:** A library management system is a computerized system that helps manage a library’s resources and operations. It can help with :

Maintaining records: Keeping track of the number of books in the library, how many are issued and when they are due.

Finding Books: Quickly locating books and other materials

Managing transactions: Issuing and returning books.

Organizing Resources: Keeping track of what is checked out and organizing books and other resources.

Reducing Paperwork: Reducing the risk of lost or damaged files.

**Entities and Attributes:**

**Book Entity :** It has authno, isbn number, title, edition, category, price. ISBN is the Primary Key for Book Entity.

**Reader Entity :** It has UserId, Email, address, phone no, name. Name is composite attribute of firstname and lastname. Phone no is multi valued attribute. UserId is the Primary Key for Readers entity.

**Publisher Entity :** It has PublisherId, Year of publication, name. PublisherID is the Primary Key.

**Authentication System Entity :** It has LoginId and password with LoginID as Primary Key.

**Reports Entity :** It has UserId, Reg\_no, Book\_no, Issue/Return date. Reg\_no is the Primary Key of reports entity.

**Staff Entity :** It has name and staff\_id with staff\_id as Primary Key.

Reserve/Return Relationship Set : It has three attributes: Reserve date, Due date, Return date.

**Relationships:**

A reader can reserve N books but one book can be reserved by only one reader. The relationship 1:M.

A publisher can publish many books but a book is published by only one publisher. The relationship 1:M.

Staff keeps track of readers. The relationship is M:M.

Staff maintains multiple reports. The relationship 1:M.

Staff maintains multiple Books. The relationship 1:M.

Authentication system provides login to multiple staffs. The relation is 1:M

ER-Diagram

Password

Login\_Id

Authentication System

Issue/Return User\_ID

M

M

M

M

M

M

M

M

M

M

M

M

M

M

M

M

M

M

M

M

M

M

M

M

M

Reg\_no Name Year of publication

Login

Reports

Book\_no Publisher\_id

Publisher

Staff

Publishes

Category

Maintain

Maintain

Manages

Price

Name

Return Date

Books

ISBN

Keeps track of

Staff\_Id Edition

Auth\_No

Readers

F\_name

Address

Name

L\_name

Email\_Add Ph\_No

Reverse ER Diagram