ARCHITECTURE OF LIBRARY MANAGEMENT SYSTEM

1. General System Architecture

The architecture of applications is usually broken into logical chunks called "tiers", where every tier is assigned a role. A “tier” can also be referred to as a “layer”. There are three layers involved in the application namely Presentation Layer, Business Layer and Data Layer. Each layer is explained in detailed below:

Presentation Layer:

It is also known as Client layer. Top most layer of an application. This is the layer we see when we use a software. By using this layer, we can access the webpages. The main functionality of this layer is to communicate with Application layer. This layer passes the information which is given by the user in terms of keyboard actions, mouse clicks to the Application Layer. For example, login page of Gmail where an end user could see text boxes and buttons to enter user id, password and to click on sign-in. In simple words, it is to view the application.

Application Layer:

It is also known as Business Logic Layer which is also known as logical layer. As per the Gmail login page example, once user clicks on the login button, Application layer interacts with Database layer and sends required information to the Presentation layer. It controls an application’s functionality by performing detailed processing. This layer acts as a mediator between the Presentation and the Database layer. Complete business logic will be written in this layer. In simple words, it is to perform operations on the application.

Data Layer:

The data is stored in this layer. Application layer communicates with Database layer to retrieve the data. It contains methods that connects the database and performs required action e.g.: insert, update, delete etc. In simple words, it is to share and retrieve the data.

2. Database Architecture

Student Table:

Field	Type	Null	Key	Default	Extra
sid	int	NO	PRI	NULL	auto_increment
sname	varchar(50)	YES		NULL	
mailid	varchar(50)	YES		NULL	
contactno	varchar(13)	YES		NULL	
password	varchar(50)	YES		NULL	
gender	varchar(10)	YES		NULL	
department	varchar(30)	YES		NULL	
course	varchar(30)	YES		NULL	
admissionyear	varchar(10)	YES		NULL	
dob	varchar(10)	YES		NULL	

Admin Table:

Field	Type	Null	Key	Default	Extra
adminid	int	NO	PRI	NULL	auto_increment
fullname	varchar(50)	YES		NULL	
emailid	varchar(50)	YES		NULL	
contactno	varchar(13)	YES		NULL	
password	varchar(50)	YES		NULL	

Bookslimit Table:

Field	Type	Null	Key	Default	Extra
blid	int	NO	PRI	NULL	auto_increment
sid	int	YES	MUL	NULL	
limit	int	YES		NULL	

Library_Transactions Table:

Field	Type	Null	Key	Default	Extra
ltid	int	NO	PRI	NULL	auto_increment
sid	int	YES	MUL	NULL	
bid	int	YES	MUL	NULL	
issuedate	varchar(10)	YES		NULL	
duedate	varchar(10)	YES		NULL	
submitdate	varchar(10)	YES		NULL	
fine	int	YES		NULL	

Field	Type	Null	Key	Default	Extra
sid	int	NO	PRI	NULL	auto_increment
sname	varchar(50)	YES		NULL	
mailid	varchar(50)	YES		NULL	
contactno	varchar(13)	YES		NULL	
password	varchar(50)	YES		NULL	
gender	varchar(10)	YES		NULL	
department	varchar(30)	YES		NULL	
course	varchar(30)	YES		NULL	
admissionyear	varchar(10)	YES		NULL	
dob	varchar(10)	YES		NULL	

Field	Type	Null	Key	Default	Extra
bookid	int	NO	PRI	NULL	
bookname	varchar(30)	YES		NULL	
subject	varchar(30)	YES		NULL	
author	varchar(30)	YES		NULL	
title	varchar(30)	YES		NULL	
category	varchar(30)	YES		NULL	
qty	int	YES		NULL	

Books Table:

Field	Type	Null	Key	Default	Extra
bookid	int	NO	PRI	NULL	
bookname	varchar(30)	YES		NULL	
subject	varchar(30)	YES		NULL	
author	varchar(30)	YES		NULL	
title	varchar(30)	YES		NULL	
category	varchar(30)	YES		NULL	
qty	int	YES		NULL	

Librarian Table:

Field	Type	Null	Key	Default	Extra
libid	int	NO	PRI	NULL	auto_increment
fullname	varchar(30)	YES		NULL	
emailid	varchar(30)	YES		NULL	
contactno	varchar(13)	YES		NULL	
password	varchar(50)	YES		NULL	

3. Package Architecture and Flow