ARCHITECTURE OF LIBRARY MANAGEMENT SYSTEM

I.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.

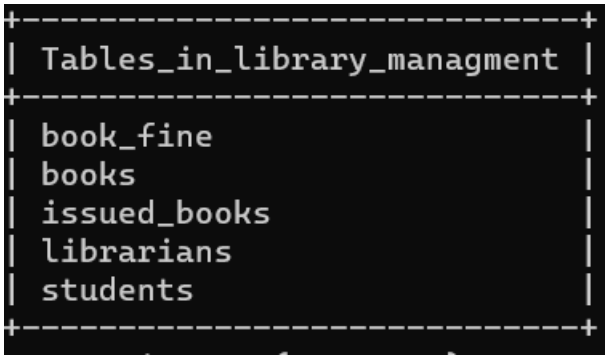
Data Layer:

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.

II.Database Architecture

Total tables in Library_Managment:



Tables_in_library_managment
book_fine
books
issued_books
librarians
students

Librarian Table

Field	Type	Null	Key	Default	Extra
lid	int	NO	PRI	NULL	auto_increment
lname	varchar(45)	YES		NULL	
lemail	varchar(45)	YES	UNI	NULL	
lcontact	bigint	YES		NULL	
lpassword	varchar(45)	YES		NULL	

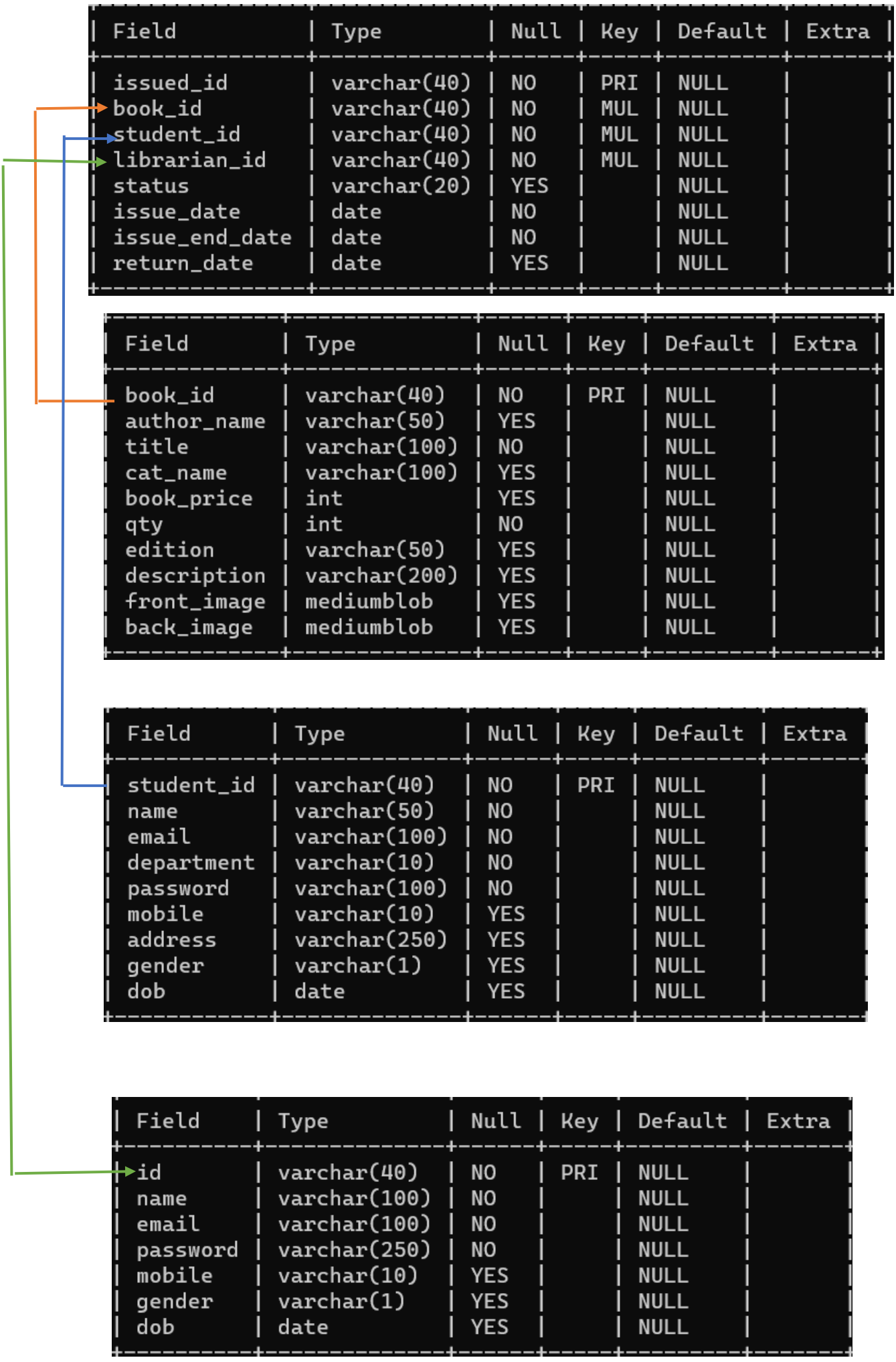
Student Table

Field	Type	Null	Key	Default	Extra
sid	int	NO	PRI	NULL	auto_increment
sname	varchar(45)	YES		NULL	
semail	varchar(45)	YES	UNI	NULL	
scontact	bigint	YES		NULL	
spassword	varchar(45)	YES		NULL	
booklimit	int	YES		0	

Book Table

Field	Type	Null	Key	Default	Extra
book_id	varchar(40)	NO	PRI	NULL	
author_name	varchar(50)	YES		NULL	
title	varchar(100)	NO		NULL	
cat_name	varchar(100)	YES		NULL	
book_price	int	YES		NULL	
qty	int	NO		NULL	
edition	varchar(50)	YES		NULL	
description	varchar(200)	YES		NULL	
front_image	mediumblob	YES		NULL	
back_image	mediumblob	YES		NULL	

Issued_books Table



Field	Type	Null	Key	Default	Extra
issued_id	varchar(40)	NO	PRI	NULL	
book_id	varchar(40)	NO	MUL	NULL	
student_id	varchar(40)	NO	MUL	NULL	
librarian_id	varchar(40)	NO	MUL	NULL	
status	varchar(20)	YES		NULL	
issue_date	date	NO		NULL	
issue_end_date	date	NO		NULL	
return_date	date	YES		NULL	

Field	Type	Null	Key	Default	Extra
book_id	varchar(40)	NO	PRI	NULL	
author_name	varchar(50)	YES		NULL	
title	varchar(100)	NO		NULL	
cat_name	varchar(100)	YES		NULL	
book_price	int	YES		NULL	
qty	int	NO		NULL	
edition	varchar(50)	YES		NULL	
description	varchar(200)	YES		NULL	
front_image	mediumblob	YES		NULL	
back_image	mediumblob	YES		NULL	

Field	Type	Null	Key	Default	Extra
student_id	varchar(40)	NO	PRI	NULL	
name	varchar(50)	NO		NULL	
email	varchar(100)	NO		NULL	
department	varchar(10)	NO		NULL	
password	varchar(100)	NO		NULL	
mobile	varchar(10)	YES		NULL	
address	varchar(250)	YES		NULL	
gender	varchar(1)	YES		NULL	
dob	date	YES		NULL	

Field	Type	Null	Key	Default	Extra
id	varchar(40)	NO	PRI	NULL	
name	varchar(100)	NO		NULL	
email	varchar(100)	NO		NULL	
password	varchar(250)	NO		NULL	
mobile	varchar(10)	YES		NULL	
gender	varchar(1)	YES		NULL	
dob	date	YES		NULL	

III.Package architecture and flow