

# Project Report

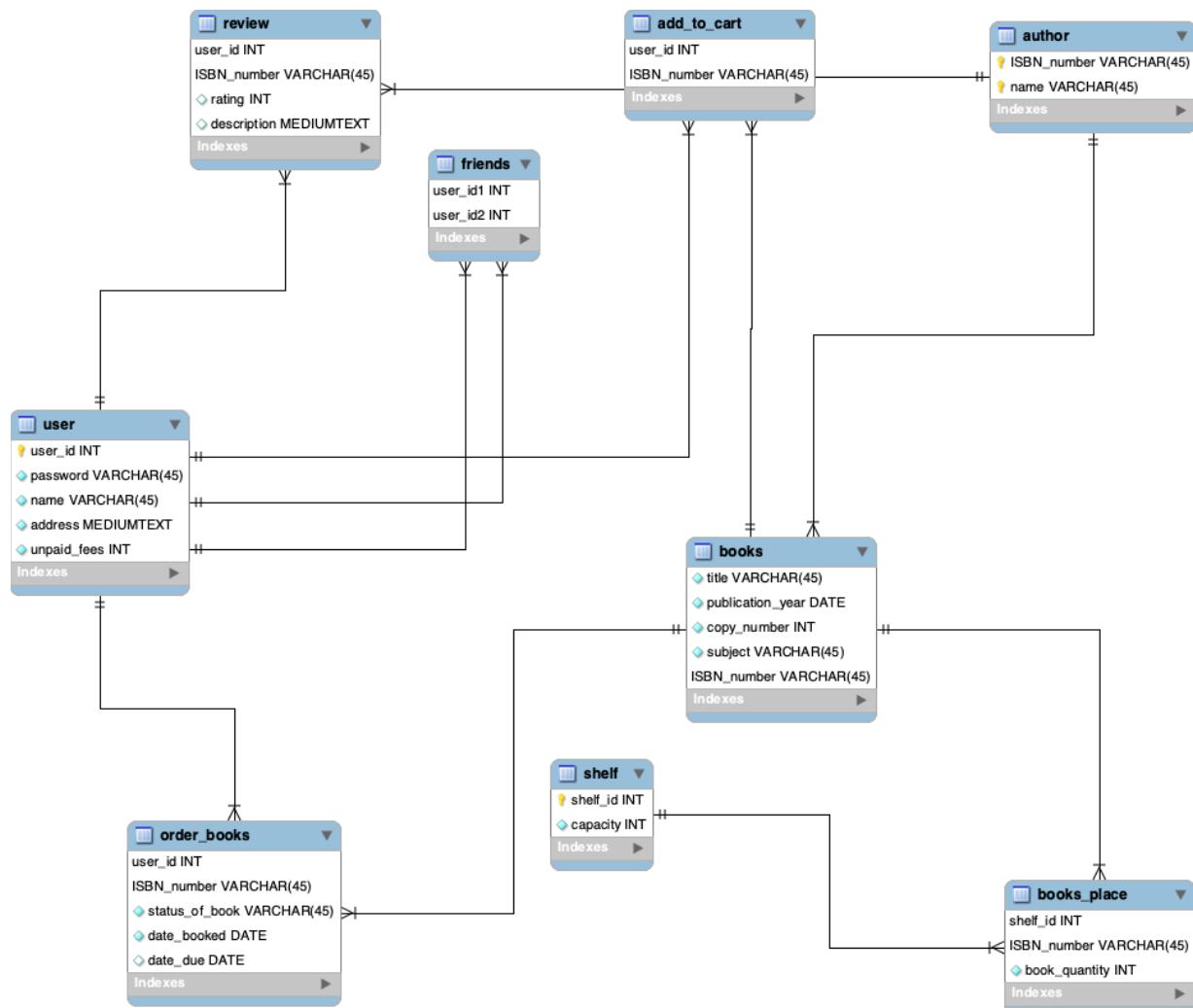
Name : Nunemunthala Shiva,

Roll No : 190001041,

Kethavath Jagadeesh

190001024

The following ER diagram shows how our database is organised.



ER diagram

The major entities here are

- a) user(student/teacher)
- b) Author
- c) Librarian
- d) Books
- e) Shelf

Lets discuss briefly about the above entities and relationship present between them

Please note that the following schema is little bit written as ‘some like’ as sql to illustrate which is primary key and which is foreign key and which references what.

1) user(user\_id , password , name , address , unpaid\_fees , isStudent)

So the “user” entity represents the person’s attributes (either student/teacher ) Librarian creates an account for user with some user\_id and password later user can change his password.

**user\_id** is unique for every person and it is **PK** which is of type int .

Password is of type VARCHAR(45)

‘name’ is of type VARCHAR(45)

‘Address’ is what person’s corresponding address (MEDIUM TEXT)

‘isStudent’ is BINARY(1) if ‘1’ then he is student else teacher.

‘unpaid\_fees’ is the due amount of a student

2) author (`ISBN\_number` , `name` ,  
PRIMARY KEY (`ISBN\_number` , `name`))

One ISBN\_number can have multiple authors and vice versa.

3) `books` (  
`title` , `publication\_year` , `copy\_number` , `subject` , `ISBN\_number` ,

PRIMARY KEY (`ISBN\_number`), CONSTRAINT `ISBN\_numberc`  
FOREIGN KEY (`ISBN\_number`)  
REFERENCES `library\_dbms`.`author` (`ISBN\_number`)  
ON DELETE CASCADE ON UPDATE CASCADE)ISBN\_number is  
unique and this need to refer to in author table.

4)`librarian` (`librarian\_id`, `password`, `name`, `address`,  
PRIMARY KEY (`librarian\_id`),

Librarian here is like admin he adds users, books etc.. which can't be  
shown in er diagram and hence we isolated him.

5)`shelf` (`shelf\_id`, `capacity`,  
PRIMARY KEY (`shelf\_id`),

One of the small assumption is we had only one library and hence we  
are using only shelf\_id as primary key and capacity is the one that how  
many books can a shelf can store.

6)`order\_books` (`user\_id`, `ISBN\_number\_1`, `status\_of\_book`,  
`date\_booked`, `date\_due`,  
PRIMARY KEY (`ISBN\_number\_1`, `user\_id`),

7)`friends` (`user\_id1`, `user\_id2`,  
PRIMARY KEY (`user\_id2`, `user\_id1`),

8)`review` (`user\_id`, `ISBN\_number`,  
`rating` INT NULL,  
`description` MEDIUMTEXT NULL,  
PRIMARY KEY (`user\_id`, `ISBN\_number`),  
FOREIGN KEY (`user\_id`)  
REFERENCES `library\_dbms`.`user` (`user\_id`)

9)`add\_to\_cart` (`user\_id`, `ISBN\_number`,  
PRIMARY KEY (`user\_id`, `ISBN\_number`),  
FOREIGN KEY (`user\_id`)  
REFERENCES `library\_dbms`.`user` (`user\_id`)  
FOREIGN KEY (`ISBN\_number`)  
REFERENCES `library\_dbms`.`books` (`ISBN\_number`)

10)`order\_books` (`user\_id`, `ISBN\_number\_1`, `status\_of\_book`,

```
`date_booked`,`date_due` DATE NULL,  
PRIMARY KEY (ISBN_number_1`, `user_id`),  
FOREIGN KEY (user_id`)  
REFERENCES `library_dbms`.`user` (user_id`)
```

Please note that there are some other integrity constraints such as unpaid\_fees <1000rupee etc.... These can't be shown in er diagram as well as schema statements . These can be only shown in when we are writing sql insertions , updations , deletions.... As that is not part of our question hence not showing those queries .

## Part A

From the starting of the project we segregated different things as different entities such that other than primary key there is no partial dependency .

In the above schemas we have written that ISBN\_number as primary key and a simple assumption we took was copy\_number is number of copies present in library . As a book contains multiple authors to maintain first normal form we made it as separate table making ISBN\_number and author\_name as primary key . One of the approximate reasonable assumption is that author name is different for a single ISBN(thinking of not to overcomplicate.)

This was one of the case we got to normalise and the second case is

```
books(title`, `publication_year`, `copy_number`, `subject`, `ISBN_number`, )
```

Here we normalised as 2 tables(ISBN is PK above valid assumption)

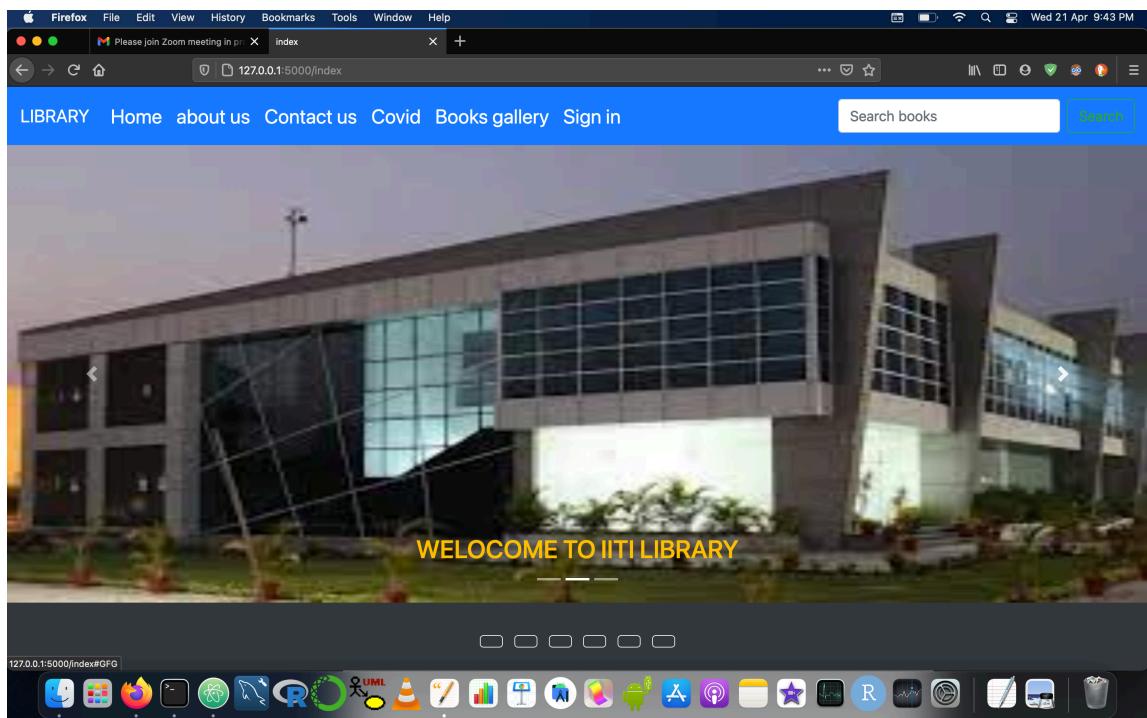
books(ISBN\_number , copy\_number , publication\_year ,title) and  
subjects(ISBN\_number , subject)

The above where the only cases made to BCNF  
and rest are in BCNF itself!!!

Reason why we chose BCNF even though in  
some times 3rd Normal Form is preferred(relatively less tables which  
make less comfortable to jump through tables) because if our database  
has let suppose 1000 users at that time I would like to use memory at  
expense of hardware .

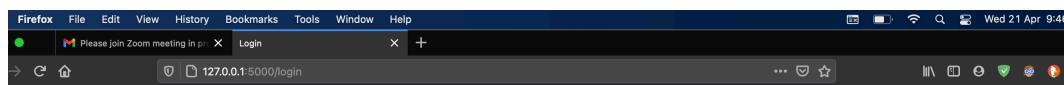
## Part B

1) When a user just enter website he sees this



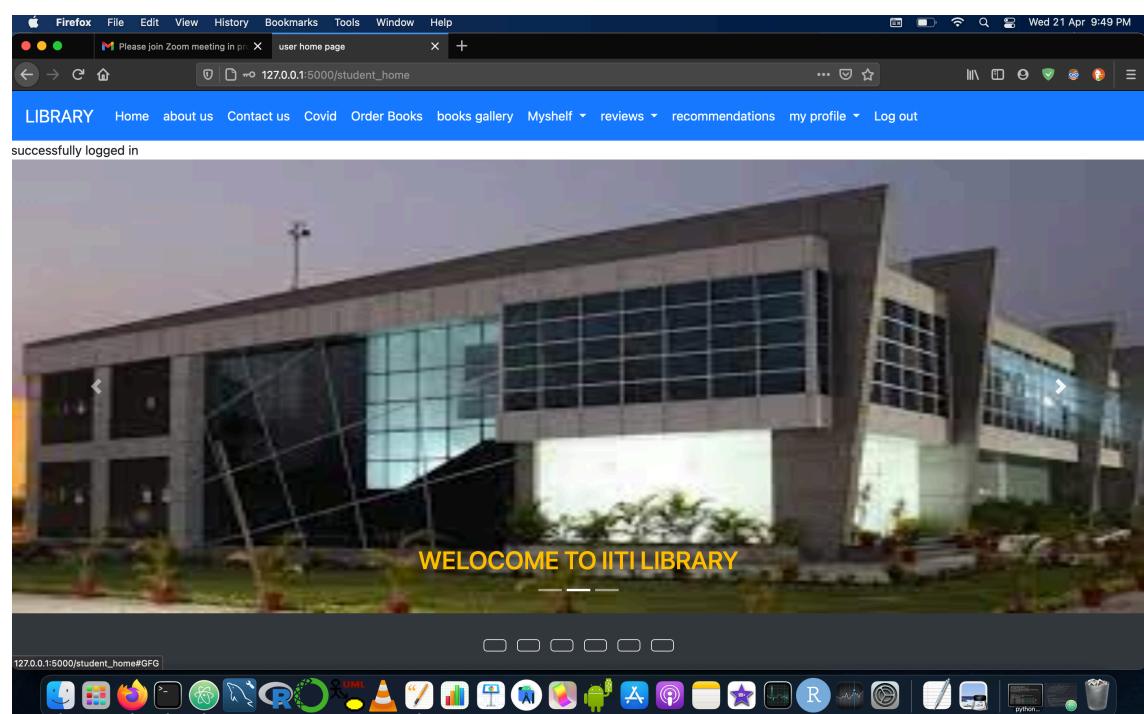
Index page

2. When user clicks on sign in button he sees below page depends on user id he may either go to student/teacher home page or librarian home page.

A screenshot of a "Login" form. It features two input fields: one for "Enter Your id" and another for "Enter Your Password", both with placeholder text. Below the fields is a blue "Login" button.

Login page

### 3 . Student/teacher home page



Caption

4 ) If student/teacher wants to order book he enters isbn and status we thought of making more user friendly but because of time constraint we are not able to do



Order books

Enter ISBN number

Enter status

order



Caption

5. As he can add to his favourites he clicks my shelf and he can add to his favourites by clicking add to shelf



add\_to\_shelf

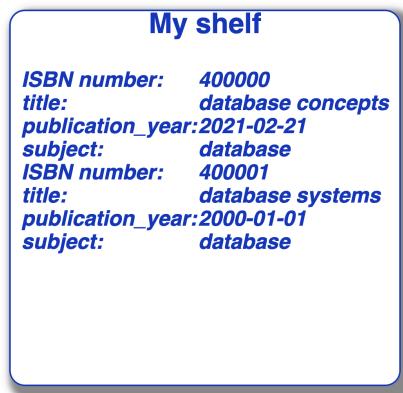
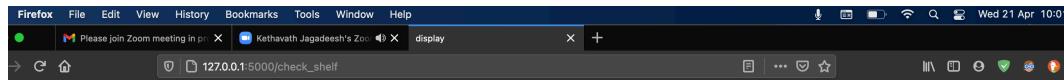
Enter ISBN\_number

add



Caption

## 6. He can see his favourites



Caption

## 7 . User can also give feedback by filling the form

A card with a blue border and rounded corners, titled 'review'. It contains three input fields and a send button:

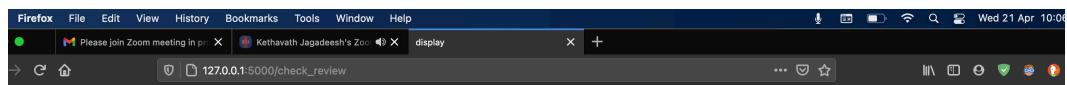
Enter ISBN\_number  
Enter rating out of 5  
write your discription

**send**

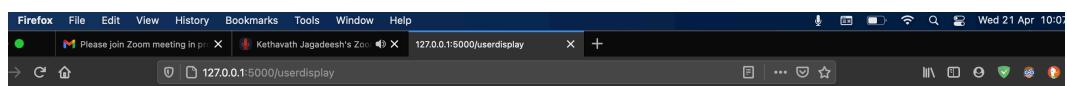


Caption

## 8 User can also check reviews by click book reviews



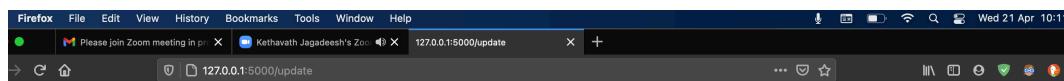
Caption



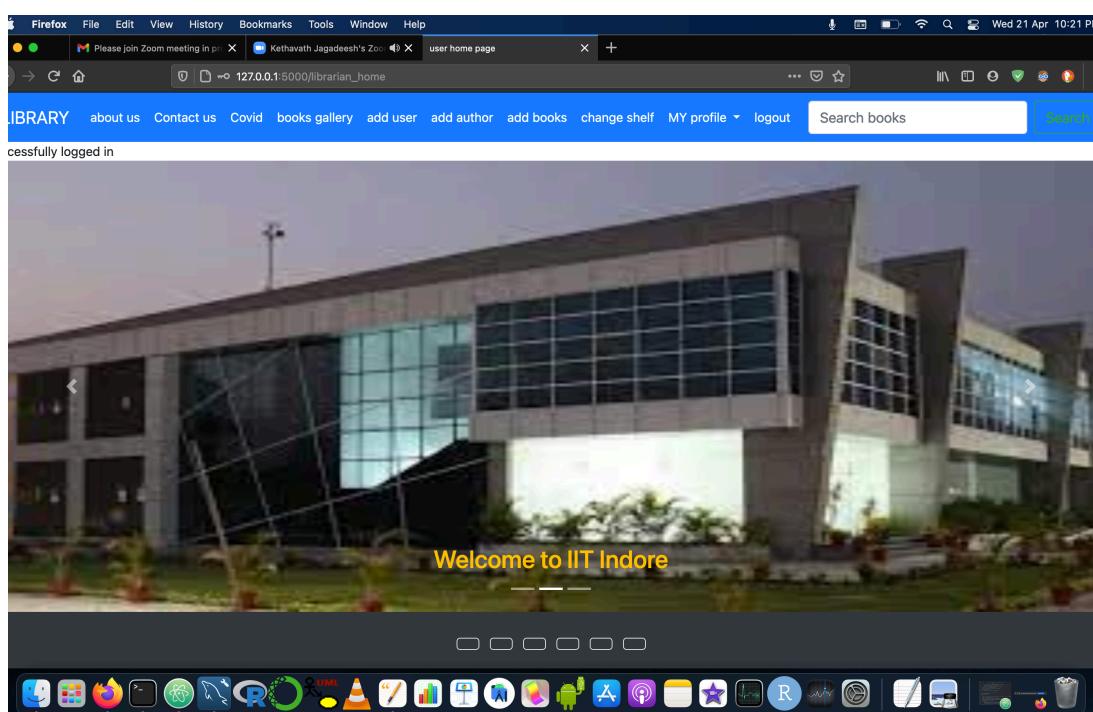
Caption

## 9. User can see his details

## 10 . Update his details

A screenshot of a 'Login' form window. It has two input fields: 'Enter new password' and 'Enter Your address', and a blue 'update' button. The window has a blue border.

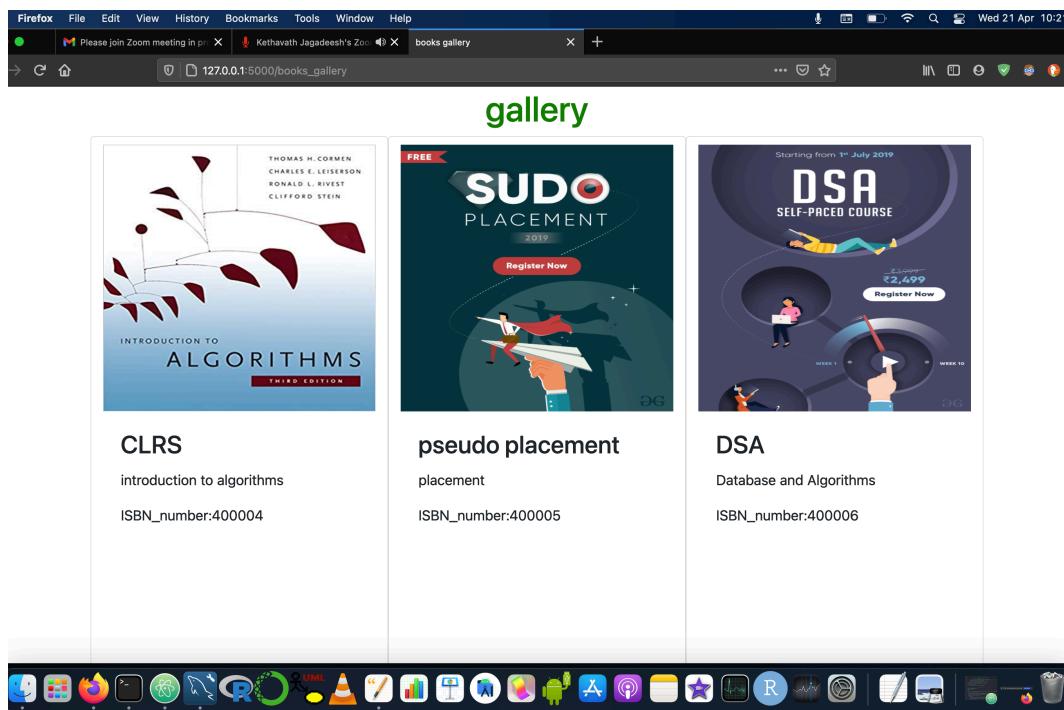
Caption



Caption

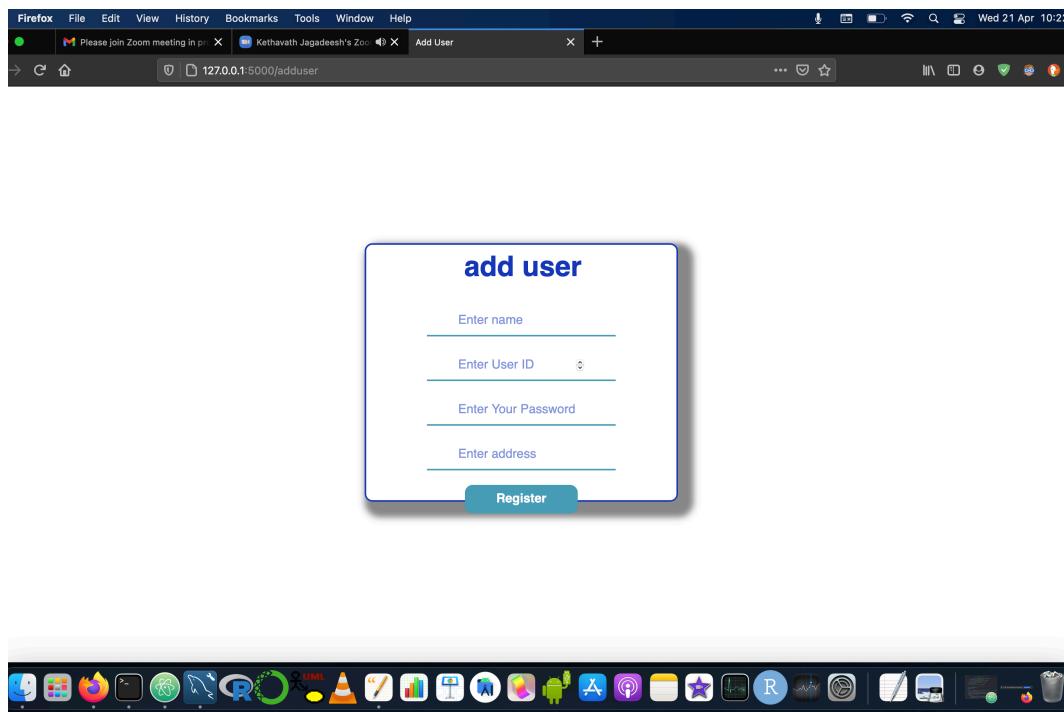
## 11 . Librarian home

## 12 . Books gallery



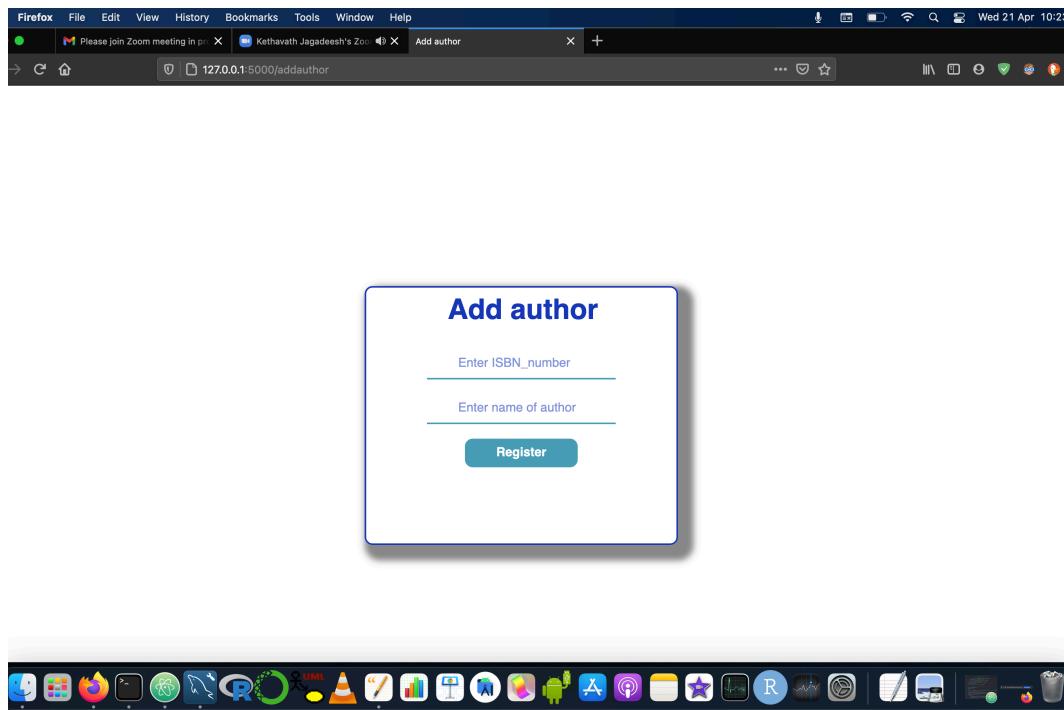
Caption

## 13 . Librarian adds users with default password



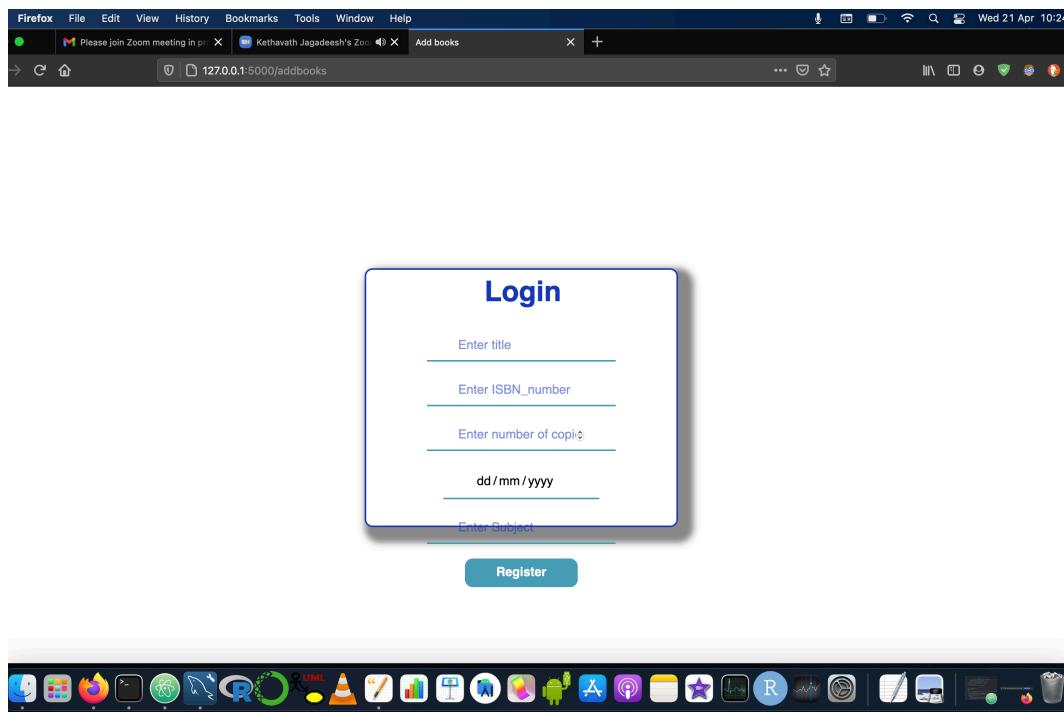
Caption

## 14. Librarian add authors



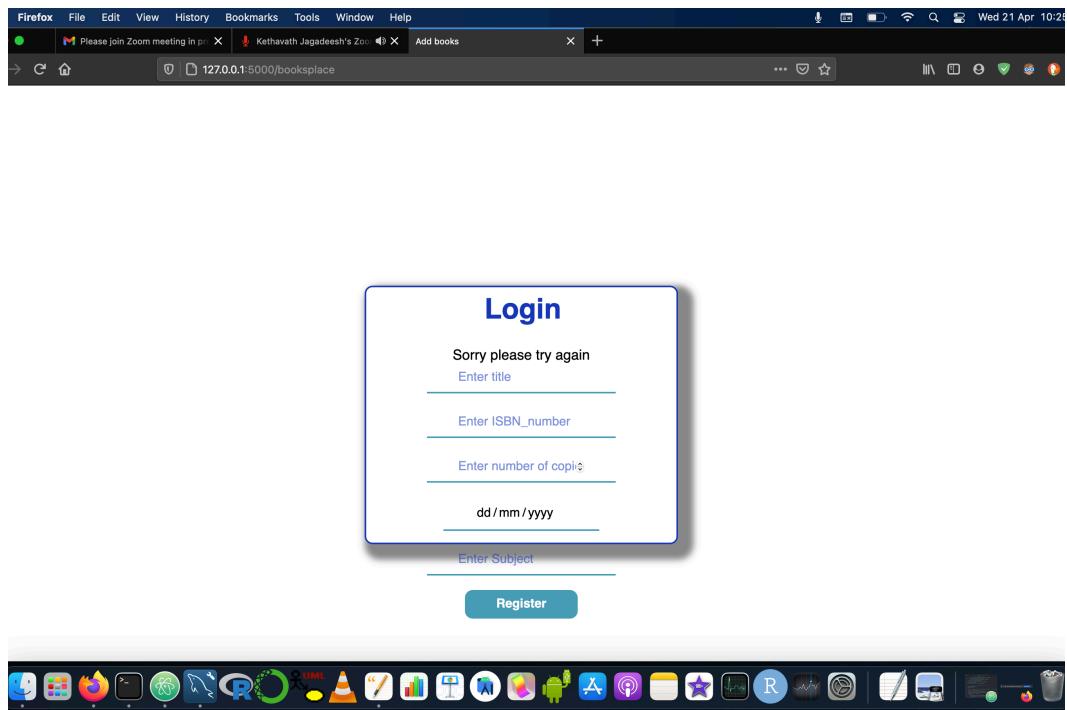
Caption

## 15 . Librarian increase/decrease/delete books



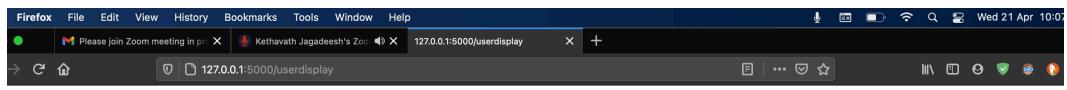
Caption

## 16. Change books shelf



Caption





**Your Details**

<b>User ID :</b>	100000
<b>Address :</b>	hyd ts
<b>Name :</b>	shiva
<b>Unpaid fee :</b>	0



Caption