

A PROJECT PRESENTATION
FOR THE SUBJECT OF
030010611 & DSE10-PROJECT
ON

Smart Library Shelf Management System(Using RFID)

PRESENTED ON : 15/4/2020

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Introduction

- Library is an important part of the academic sector.
- Mainly Library Management System includes-
 - Issuing books and returning books.
 - Managing users and book information.

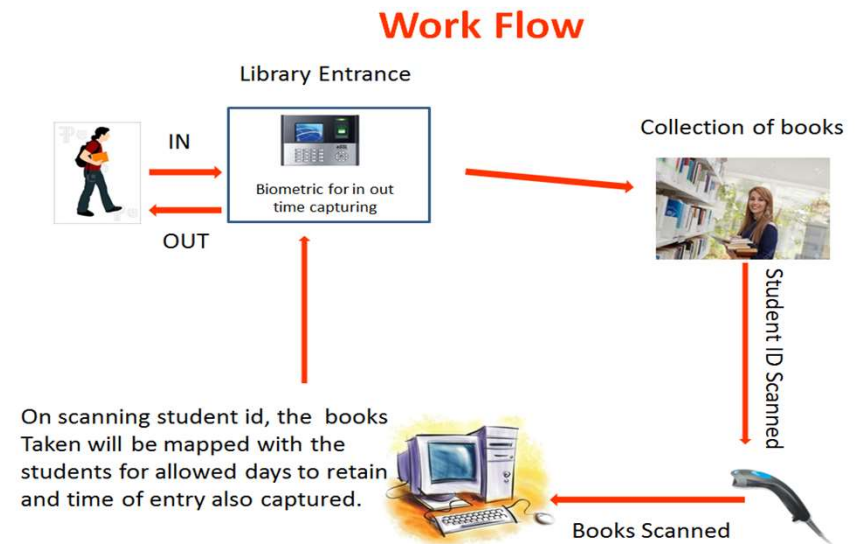


Figure 1:Workflow of Library

Introduction(cont..)

- The efficiency of a library lies on-
 - Way of arranging the books.
 - Ease of access to the books.
- Physically a library management process is hectic due to
 - Demand management.
 - Issue and return during peak seasons
 - Books arrangement on the shelves.

Proposed System : Definition

- The Library Shelf Management System is developed to maintain the reliability of the books on the shelves and to get easy access to the desired books as well as to get the location of the misplaced book.

Proposed System : Objective

- The main objective is to manage location of book.
 - Manage book slot and shelf details.
- To reduce the man power.
 - Save the physical efforts of the staff.
- To save the time of the reader.
 - Get location of book as per search query.

Proposed System : Scope

- The scope of the proposed system is limited to configuring RFIDs on books and shelves and reading information from them.
- Provide search facilities on different criteria such as author-wise, book title-wise, publisher-wise, ISBN-wise.
- The scope of the proposed system is limited to academic institutions only.

User Characteristics & their Functionalities

Administrator

Login

Generate RFID

Managing Shelf
Information

Add

Update

Delete

Generating Reports

Total Generated RFID tags, Total shelves configured on each floor, Audit logs of every action perform by any user.

User Characteristics & their Functionalities

Librarian

Login

Managing Book Information

Add

Update

Delete

Alert for Misplaced books

Librarians shall be able to get alert for the misplaced books every 30 minutes.

Generating Reports

Frequently searched book titles, Statistical Reports of registered students, faculty and total configured books.

User Characteristics & their Functionalities

Members

Login & Registration

Search Book

ISBN

Book Title

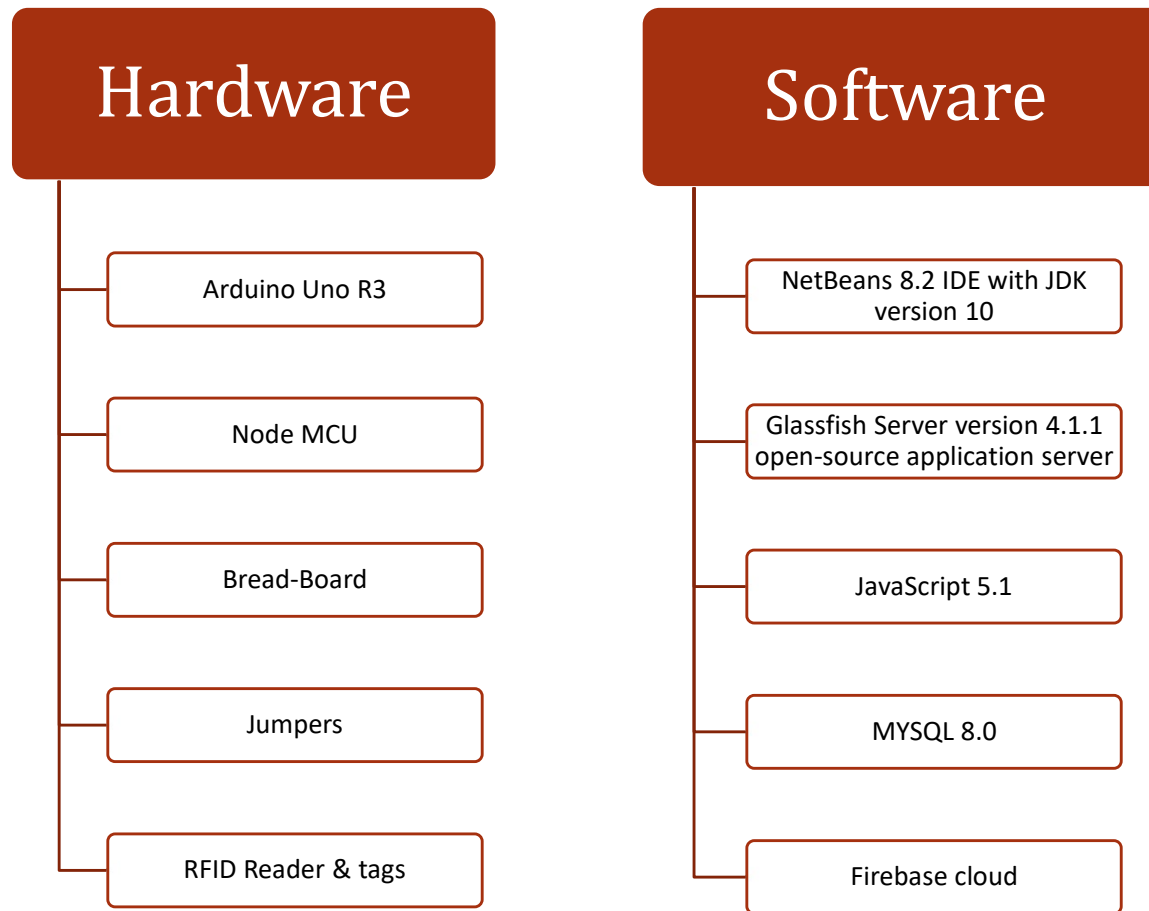
Author

Keyword

Graphical Representation of Location

provide the graphical interface to display the actual location of the shelf and the books.

Tools & Technology



System Design: Data Dictionary with Constraints

Table Name: tbl_nativeuserinfo_master_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
Username	VARCHAR	256	Primary Key, Not Null	Admin_@12	This represent unique username of the admin	
password	VARCHAR	20			This represent the password.	
u_role	VARCHAR	13		Admin, Librarian	This represent role assigned to particular user	

Continue..

System Design: Data Dictionary with Constraints

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
email_id	VARCHAR	256		xyz@gmail.com	This represent the email id of the user which is further used for the password verification.	
last_login	TIMESTAMP			2020-4-15 9:23:23	This represent the last login attempt of the user	
last_logout	TIMESTAMP			2020-4-15 10:23:23	This represent the last logout attempt of the user	
Status	BIT	1 BIT		0,1	This represent the enable & disable status of the user	

Table 1 tbl_nativeuserinfo_master_slms

System Design: Data Dictionary with Constraints

Table Name: - tbl_studentinfo_master_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
enrollment_no	CHAR	15	Primary Key, Not Null	201703100110080	This represents the unique identification number of Students.	
course_id	CHAR	4	Not null	C101, C102	This represents in which course student is enroll.	tbl_coursedetails_sl sms
student_name	VARCHAR	256	Not Null	Akhilesh K. Solanki	This represents name of student.	

Continue..

System Design: Data Dictionary with Constraints

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
student_birthdate	DATE	3	Not Null	04/08/1999	This represents the birthdate of the Student.	
student_password	VARCHAR	10	Not Null	abcd@072	This represents the password of student. The length of the password must be a minimum 8 character and a maximum of 10 characters. The password must contain a combination of alphanumeric and at least one special character.	

Table 2 tbl_studentinfo_master_slms

System Design: Data Dictionary with Constraints

Table Name: - tbl_studentregistered_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
enrollment_no	CHAR	15	Primary Key, Not Null, Foreign Key	201703100110080	This represents the unique identification number of Students.	tbl_studentinfo_master_slms
student_email	VARCHAR	256		mrugeshmodi.mm@gmail.com	This represents the email address of Students.	
student_phone_number	CHAR	14		+919099075613	This represents the Contact number of Student	

Table 3 tbl_studentregistered_slms

System Design: Data Dictionary with Constraints

Table Name: -tbl_facultyinfo_master_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
faculty_username	VARCHAR	20	Primary Key, Not Null	abc@utc.ac.in	This represents the unique identification of Faculty.	
course_id	CHAR	4	Not null	C101.C102	This represents in which course student is enroll.	tbl_coursedetails_slms
faculty_name	VARCHAR	256	Not Null	Jigenesh Modi	This represents the name of the Student.	

System Design: Data Dictionary with Constraints

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
faculty_birthdate	DATE	3	Not Null	20/12/1986	This represents the birthdate of Faculty	
faculty_password	VARCHAR	20	Not Null	abcd@123	This represents the password of Faculty. The length of the password must be a minimum 8 character and a maximum of 10 characters. The password must contain a combination of alphanumeric and at least one special character.	

Table 4 tbl_facultyinfo_master_slms

System Design: Data Dictionary with Constraints

Table Name: - tbl_facultyregistered_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
faculty_username	VARCHAR	20	Primary Key, Not Null	abc@utc.ac.in	This represents the unique identification of Faculty.	tbl_facultyinfo_master_slms
faculty_email	VARCHAR	256		abc@gmail.com	This represents email of Faculty.	
faculty_phone_number	CHAR	14		+919099075613	This represents the Contact No number of the Faculty.	

Table 5 tbl_facultyregistered_slms

System Design: Data Dictionary with Constraints

Table Name: - tbl_shelfmainsection_master_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
main_section_id	TINYINT	1	Primary Key, Not Null	101,102	This represent the unique identification of main book category.	
main_section_type	VARCHAR	256		Fiction, Non-Fiction	This represents the type of main book category.	

Table 6 tbl_shelfmainsection_master_slms

System Design: Data Dictionary with Constraints

Table Name: - tbl_shelfsubsection_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
sub_section_id	TINYINT	1	Primary Key, Not Null	1, 2, 3	This represents the unique identification of sub book category.	
main_section_id	TINYINT	1	Primary Key, Foreign Key, Not Null	101,102	This represents the type of main book category.	tbl_shelfmainsection_master_slms
sub_section_type	VARCHAR	256		Programming, Biography	This represents the type of sub section category.	

Table 7 tbl_shelfsubsection_slms

System Design: Data Dictionary with Constraints

Table Name: - tbl_floorinfo_master_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
floor_id	TINYINT	1	Primary Key, Not Null	1,2	This represents the unique identification of Floor.	
max_allowed_shelves	TINYINT	1		1,9,10	This represents the maximum number of allowed shelves in particular floor.	
main_section_id	TINYINT	1	Foreign Key, Not Null, on delete cascade, On update cascade		This represents the section of the floor	tbl_shelfmainsection_master_slms

Table 8 tbl_floorinfo_master_slms

System Design: Data Dictionary with Constraints

Table Name: tbl_categorywise_arrangement_onfloor_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
floor_id	TINYINT	1	Foreign Key, Not Null, On Delete Cascade, On Update Cascade	1,2	This represents the unique identification of floor.	tbl_floorinfo_master_slms
sub_section_id	TINYINT	1	Foreign Key, Not Null, On Delete Cascade, On Update Cascade	1,2,3	This represents the identification of the sub section.	tbl_shelfsubsection_slms
No_of_allowed_shelves	TINYINT	1		1,2,5,8,9	This represent number of shelves allowed on particular shelf.	

Table 9 tbl_categorywise_arrangement_onfloor_slms

System Design: Data Dictionary with Constraints

Table Name: - tbl_shelfinfo_master_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
shelf_id	CHAR	4	Primary Key, Not Null	S101, S102	This represents the unique identification of shelf.	
no_of_tiers	TINYINT	1	Not Null	1, 2, 3, 4	This represents the available tiers on shelf.	
floor_id	TINYINT	1	Foreign Key, Not Null, On Delete Cascade, On Update Cascade	1,2,3	This represent ID of shelf on which shelf is to be configured	tbl_floorinfo_master_slms

Continue..

System Design: Data Dictionary with Constraints

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
sub_section_id	TINYINT	1	Foreign Key, Not Null, On Delete Cascade, On Update Cascade	1,2,3	This represent the sub section in which shelf is to be placed	tbl_shelfsubsection_slms

Table 10 tbl_shelfinfo_slms

System Design: Data Dictionary with Constraints

Table Name: -tbl_shelftierconfiguration_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
shelf_id	CHAR	4	Primary Key, Foreign Key, Not Null	S101, S102	This represent the unique identification of the shelf.	tbl_shelfinfo_master_slms
shelf_tier_id	VARCHAR	6	Primary Key, Not Null	S101_1, S102_1	This represents the identification of individual tier on shelf.	
book_lib_id	VARCHAR	4		B1	This represent the identification of book in the library	

Continue...

System Design: Data Dictionary with Constraints

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
max_allowed_book	TINYINT	1		10,20,30	This represents number of books allowed to be placed on each tier	
present_book	TINYINT	1		28,30	This represent the actual no of book present on that tier	
start_bookid_range	VARCHAR	4		B1001,B2001	This represent the start book id of the book	

Continue...

System Design: Data Dictionary with Constraints

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
end_bookid_range	VARCHAR	4		B1099,B2099	This represent the last book id present on this tier	
rfid_reader_Uid	VARCHAR	10		Reader_1	This represent which reader is assigned to the tier.	

Table 11 tbl_shelftierconfiguration_slms

System Design: Data Dictionary with Constraints

Table Name: - tbl_instituteinfo_master_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
institute_id	CHAR	3	Primary Key, Not Null	I01, I02	This represents the unique identification number of institutes.	
institute_name	VARCHAR	256	Not null	B.V. Patel Institue of BMC & I.T.	This represents the name of the institutes.	

Table 12 tbl_instituteinfo_master_slms

System Design: Data Dictionary with Constraints

Table Name: - tbl_coursedetails_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
course_id	CHAR	4	Primary Key, Not Null	C101, C102	This represents the unique identification number of courses.	
institute_id	CHAR	3	Foreign Key, Not null	I01, I02	This represents the unique identification number of institutes.	tbl_instituteinfo_m aster_slms
course_name	VARCHAR	256	Not null	Bachelor of Computer Application	This represents the Course name	

Table 13 tbl_coursedetails_slms

System Design: Data Dictionary with Constraints

Table Name: - tbl_rfid_reader_configuration_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
rfid_reader_uid	VARCHAR	10	Primary Key, Not Null	Reader_1	This represents the unique Id of the reader.	
universal_product_ code	BIGINT	20		1234567890	This represents the Universal Product Code of the RFID Reader.	

Table 14 tbl_rfid_reader_configuration_slms

System Design: Data Dictionary with Constraints

Table Name: - tbl_bookinfo_master_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
book_lib_id	VARCHAR	4	Primary Key, Not Null	B1, B2	This represent the unique identification of Book Category.	
book_sub_section_id	VARCHAR	256	Primary Key, Foreign Key, Not Null	1,2,3	This represents the type of book category.	tbl_shelfsubsection_slms
book_title	VARCHAR	256		Java the Complete References	This represents the title of book.	

Continue..

System Design: Data Dictionary with Constraints

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
book_author	VARCHAR	256		Herbert Schildt	This represents the author of the book	
book_publication	VARCHAR	256		McGraw Hill Education; Tenth edition.	This represents publication of the book.	
book_ISBN_10	CHAR	10		9789387432291	This represents International standard book number category-10 of the book	
book_ISBN_13	CHAR	13		9789387432291	This represents International standard book number category-13 of the book	

Continue..

System Design: Data Dictionary with Constraints

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
book_language	VARCHAR	10		Hindi, English	This represents language of the book.	
book_paperback	SMALLINT	2		1296	This represents total number of pages available in the book.	

Table 15 tbl_bookinfo_master_slms

System Design: Data Dictionary with Constraints

Table Name: - tbl_bookconfiguration_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
book_lib_id	VARCHAR	4	Foreign Key, Not Null, On Delete Cascade, On Update Cascade	B101, B102	This represents the unique identification of book in library.	tbl_bookinfo_master_slms
Book_id	VARCHAR	6	Primary Key, Not Null	B101_1	This represents the individual Identification of the book in library.	

Table 16 tbl_bookconfiguration_slms

System Design: Data Dictionary with Constraints

Table Name: - tbl_extraallbookslots_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
book_lib_id	VARCHAR	4	Foreign Key, Not Null, On Delete Cascade, On Update Cascade	B101, B102	This represents the unique identification of book in library.	tbl_bookinfo_master_slms
book_qty	TINYINT	1		1,2,3,4	This represents the number of books placed on shelf	
start_bookid_range	VARCHAR	4		B1001	This represent the start book id of the book.	

Continue..

System Design: Data Dictionary with Constraints

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
end_bookid_range	VARCHAR	4		B199	This represent the end book id of the book.	

Table 17 tbl_extraallbookslots_slsms

System Design: Data Dictionary with Constraints

Table Name: - tbl_notassignedbookslots_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
book_lib_id	VARCHAR	4	Foreign Key, Not Null, On Delete Cascade, On Update Cascade	B101, B102	This represents the unique identification of book in library.	tbl_bookinfo_master_slms
book_qty	TINYINT	1		1,2,3,4	This represents the number of books placed on shelf	
start_bookid_range	VARCHAR	4		B1001	This represent the start book id of the book.	

Continue..

System Design: Data Dictionary with Constraints

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
end_bookid_range	VARCHAR	4		B1099	This represent the end book id of the book.	

Table 18 tbl_notassignedbookslots_slms

System Design: Data Dictionary with Constraints

Table Name: tbl_allfloor_misplacedbookdata_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
Sr_no	INT	11	Primary Key, Not Null	1,2,3,4,5	This represent serial number of the records	
floor_id	TINYINT	4	Foreign Key ,On Update Cascade , On Delete Cascade	1,2,3,4	This represent the floor number at which the book is misplaced.	tbl_floorinfo_master_slms
shelf_id	VARCHAR	4	Primary Key	S101,S102,S103	This represent the shelf id of the shelf on a floor.	

Continue..

System Design: Data Dictionary with Constraints

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
shelf_tier_id	VARCHAR	6	Primary Key	S101_1,S101_2,S101_3	This represent the id of the particular tier on the shelf	
bookid	VARCHAR	4	Foreign Key,On Update Cascade,On Delete Cascade	B101,B102,B103	This represent the id of the book which is misplace on the shelf	tbl_bookinfo_master_slsms
Timestamp	Timestamp			10-4-2020 12:45:20	This represent the timestamp of the record	

Table 19 tbl_allfloor_misplacedbookdata_slsms

System Design: Data Dictionary with Constraints

Table Name: tbl_configuredbookreport_slms

Field Name	Data Type	Size (bytes)	Constraints	Valid input values	Description of the field	Linkage with other tables
Bookid	VARCHAR	4	Foreign Key, Not Null, On Delete Cascade, On Update Cascade	B101,B102,B103	This represents the unique identification of book.	tbl_bookinfo_master_slms
Timestamp	TIMESTAMP			10-4-2020 10:30 AM	This represents the timestamp of the record.	
flag	TINYINT	1		1,0	This represents the status that weather the book is configure or not.	

Table 20 tbl_configuredbookreport_slms

Coding Specification

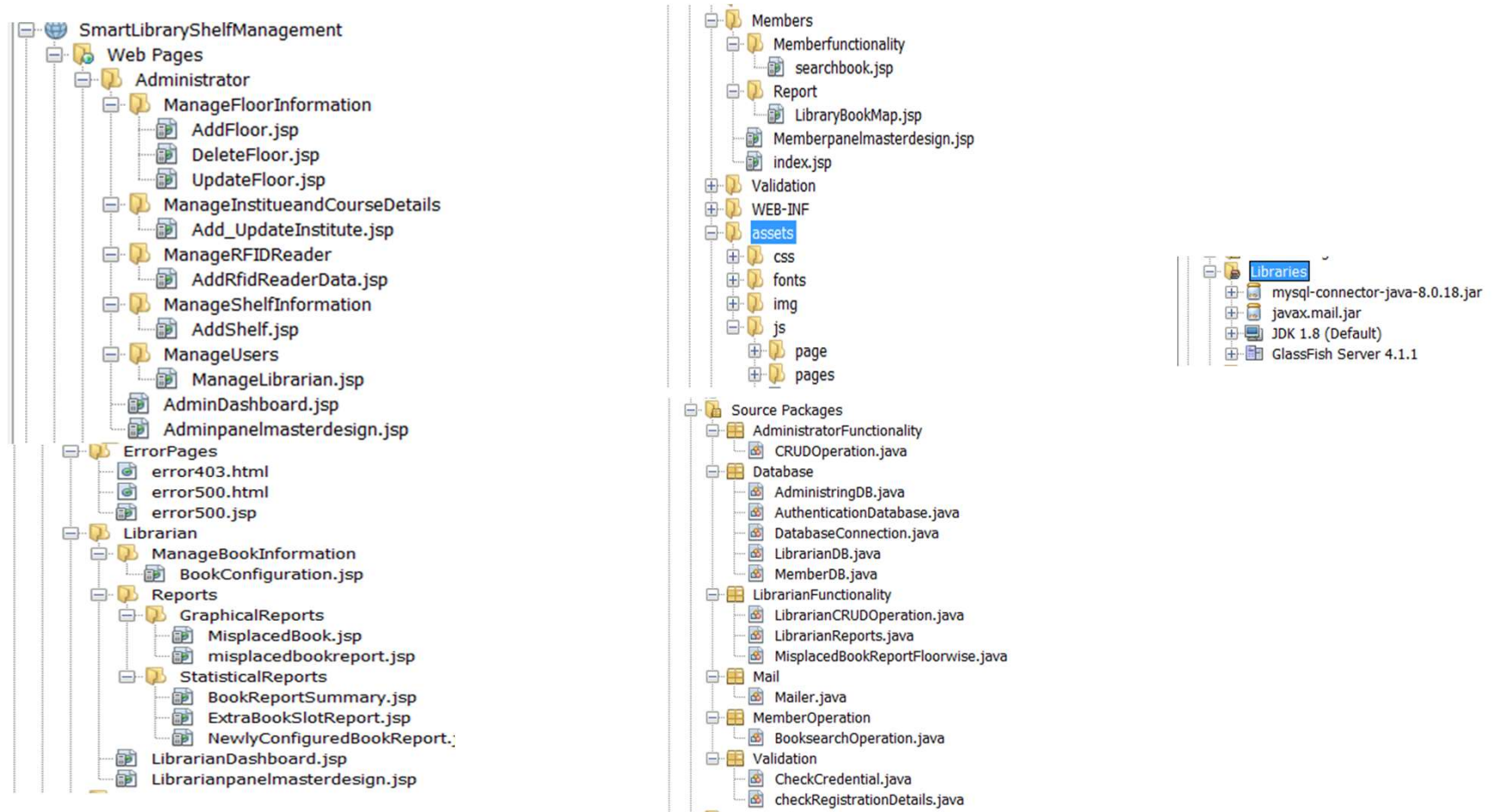
Types	Rules	Example
Local Variable	Starts with small l then underscore then relative name in camel case	int l_name, int l_studentName
Static Variable	All the character should be in capital	int MAXVALUE
Instance Variable	Camel case	int studentName
Session Variable	Starts with small s then underscore then relative name in camel case	s_studentName
Cookie Variable	Starts with small c then underscore then relative name in camel case	c_studentName
Form name type	If input type is text then txt underscore then camel case name	txt_studentName
	If input type is radio button then rd underscore then camel case name	rd_studentName
	If input type is dropdown then drp underscore then camel case name	drp_studentName

Continue..


Coding Specification

Types	Rules	Example
Form name type	If input type is checkbox then chk underscore then camel case name	chk_studentName
	If input type is submit then btnsubmit underscore then camel case name	btnsubmit_login
	If input type is button then btn underscore then camel case name	btn_studentRegistration
Class Name	first letter capital and should be in 'StudlyCaps' format	Class StudentResult
Method of Class	Methods of the class must be in 'camelCase'	getBackground()
Database Tables	If the table is master table then first word is tbl then underscore then information of table followed by underscore master followed by underscore then system name	tbl_bookinformation_master_slms
	If the table is child table then first word is tbl then underscore then information of table followed by system name	tbl_bookrfid_slms

Project Structure



Screenshot :1-All members Login page



UKA TARSADIA
university

Login

UserName

admin_am@utu.ac.in

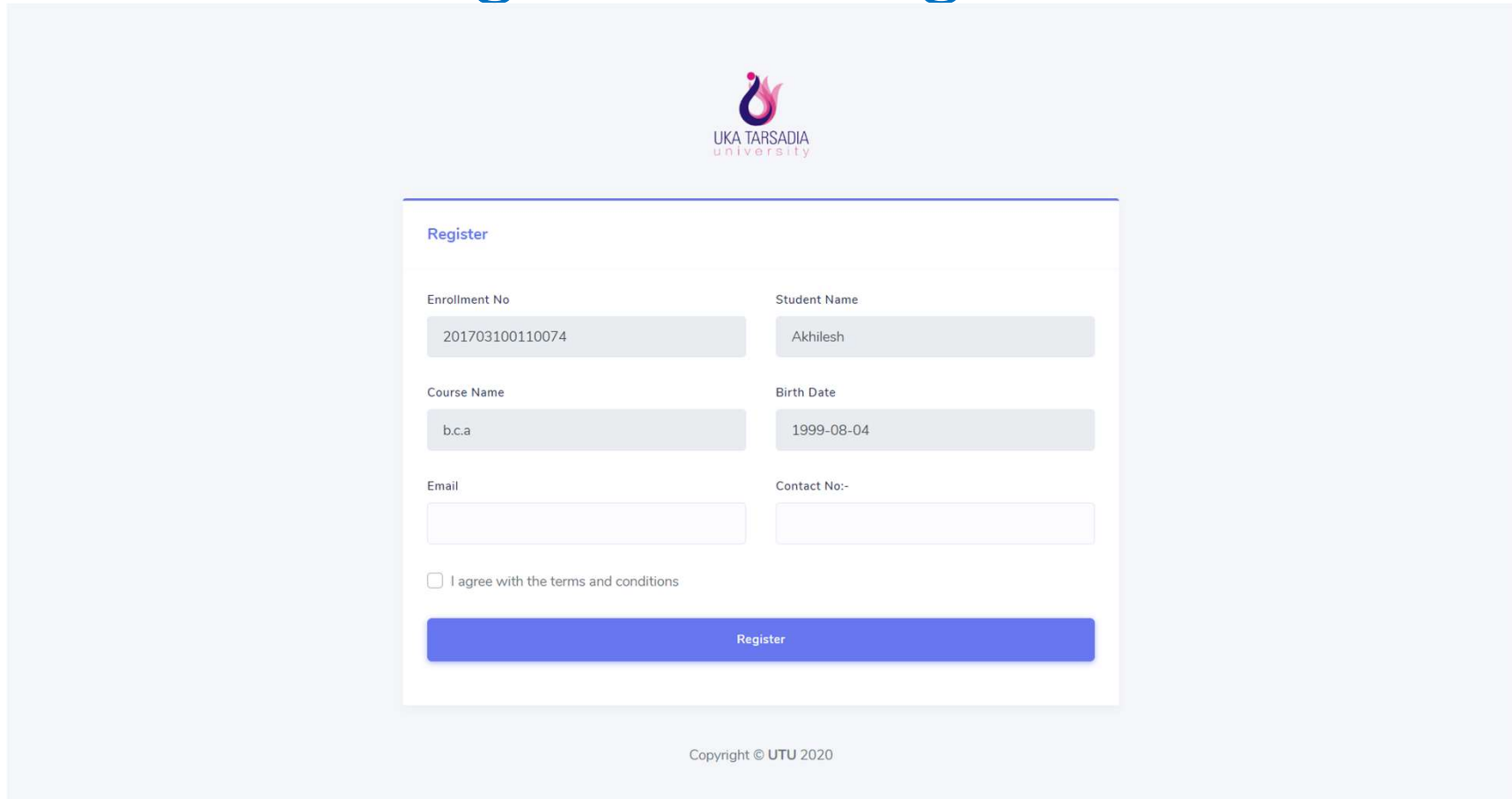
Password

••••••••

Login

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Screenshot : 2-Registration Page for Members



The screenshot displays the registration interface for UKA TARSADIA university. At the top center is the university's logo, which consists of a stylized flame icon above the text "UKA TARSADIA university". Below the logo is a registration form titled "Register". The form contains several input fields: "Enrollment No" with the value "201703100110074", "Student Name" with the value "Akhilesh", "Course Name" with the value "b.c.a", and "Birth Date" with the value "1999-08-04". There are also empty input fields for "Email" and "Contact No:-". Below these fields is a checkbox labeled "I agree with the terms and conditions". At the bottom of the form is a prominent blue button labeled "Register". The entire form is set against a light blue background. At the bottom center of the page, below the form, is the text "Copyright © UTU 2020".

UKA TARSADIA
university

Register

Enrollment No
201703100110074

Student Name
Akhilesh

Course Name
b.c.a

Birth Date
1999-08-04

Email

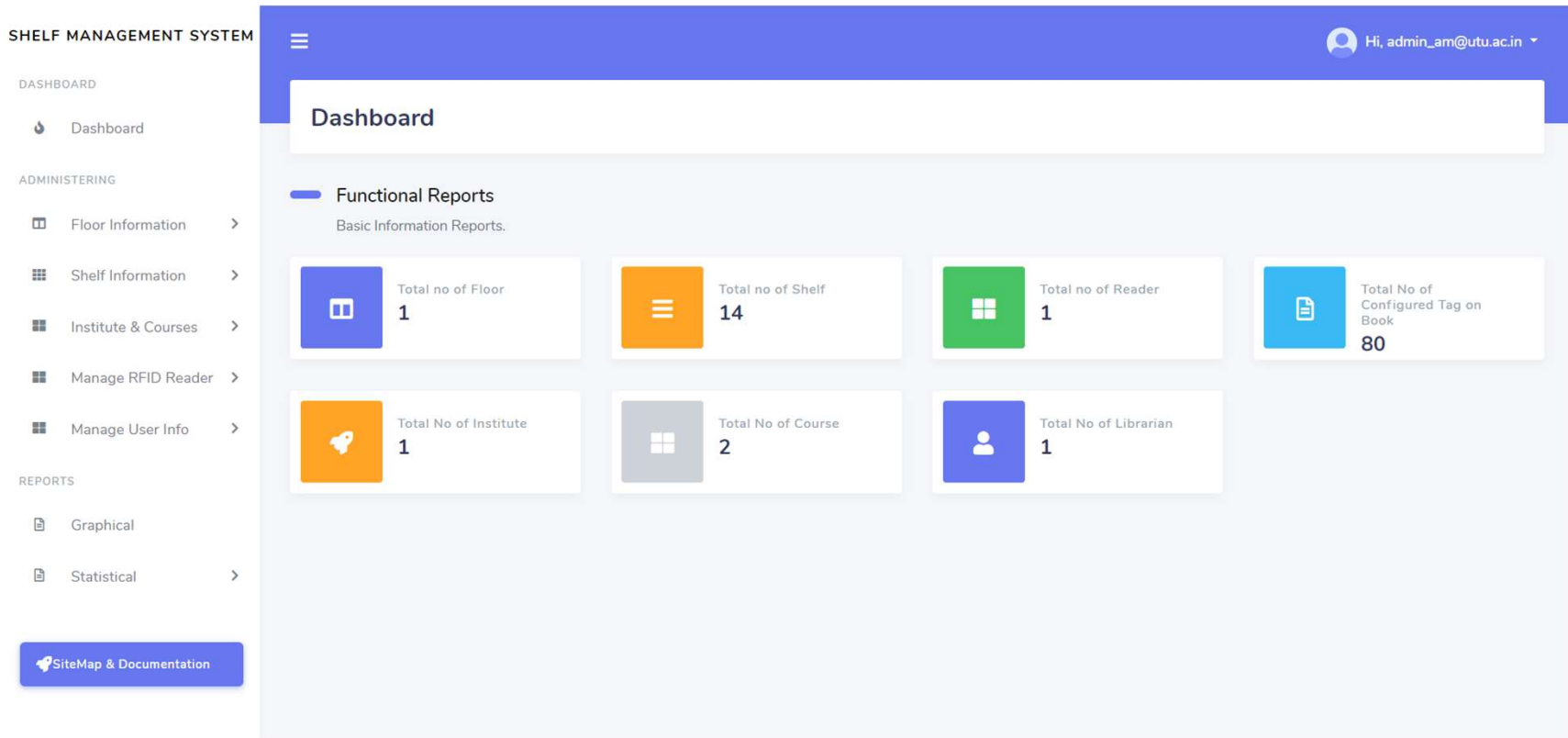
Contact No:-

☐ I agree with the terms and conditions

Register

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Screenshot 3:Adminstator Dashboard



Screenshot 4:-Add Floor(Admin Function)

SHELF MANAGEMENT SYSTEM

DASHBOARD

Dashboard

ADMINISTERING

Floor Information >

Shelf Information >

Institute & Courses >

Manage RFID Reader >

Manage User Info >

REPORTS

Graphical

Statistical >

SiteMap & Documentation

SiteMap & Documentation

Hi, admin_am@utu.ac.in

Floor Information

Add Floor

Floor Number

2

Maximum Number of Allowed Shelf

8

Select Floor Main Section

Select Section

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Screenshot 5:-Add Floor Demo(Admin Function)

SHELF MANAGEMENT SYSTEM

Hi, admin_am@utu.ac.in

Floor Information

Add Floor

Floor Number
2

Maximum Number of Allowed Shelf
8

Select Floor Main Section
Non-Fiction

Select Sub-Section
Programming Language

Select No of Shelves
8

Add Floor

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Dashboard

ADMINISTERING

Floor Information >

Shelf Information >

Institute & Courses >

Manage RFID Reader >

Manage User Info >

REPORTS

Graphical >

Statistical >

SiteMap & Documentation

Manage User Info >

REPORTS

Graphical >

Statistical >

SiteMap & Documentation

Screenshot 6:-Update Floor(Admin Function)

SHELF MANAGEMENT SYSTEM Hi, admin_am@utu.ac.in

Floor Information

Update Floor

Select Floor no
1

☐ Add shelf ☐ Manage Shelf

Present Sub-Section	Present No of Shelves	Select No of Shelves
Programming Language	6	select
Book review	8	select

Add New Category

Select Sub Section Select No Of Shelves

submit

Dashboard

ADMINISTERING

- Floor Information
- Shelf Information
- Institute & Courses
- Manage RFID Reader
- Manage User Info

REPORTS

- Graphical
- Statistical

SiteMap & Documentation

Statistical

SiteMap & Documentation

Screenshot 7:-Update Floor Swap Shelf(Admin)

SHELF MANAGEMENT SYSTEM Hi, admin_am@utu.ac.in

Floor Information

Update Floor

Select Floor no
1

☐ Add shelf ☐ Manage Shelf
☐ Delete Shelf ☐ Swap Shelf

Select Sub Section
Programming Lar

Total No Of Shelf: 6
Empty No of Shelf: 3

Select Second Sub Section
Book review

Total No Of Shelf: 8
Empty No of Shelf: 8
select no of shelf that you won't add form uper sub selection: 2

submit

Dashboard

ADMINISTERING

- Floor Information
- Shelf Information
- Institute & Courses
- Manage RFID Reader
- Manage User Info

REPORTS

- Graphical
- Statistical

SiteMap & Documentation

- Institute & Courses
- Manage RFID Reader
- Manage User Info

REPORTS

- Graphical
- Statistical

SiteMap & Documentation

Screenshot 8:-Update Floor Delete Shelf(Admin)

The screenshot displays the 'SHELF MANAGEMENT SYSTEM' interface. On the left is a sidebar menu with sections: DASHBOARD (Dashboard), ADMINISTERING (Floor Information, Shelf Information, Institute & Courses, Manage RFID Reader, Manage User Info), and REPORTS (Graphical, Statistical). A 'SiteMap & Documentation' button is also present. The main content area is titled 'Floor Information' and contains a form titled 'Update Floor'. The form includes a 'Select Floor no' dropdown set to '1', four radio buttons for 'Add shelf', 'Manage Shelf', 'Delete Shelf', and 'Swap Shelf', a 'Select Sub Section' dropdown set to 'Programming Language', two input fields for 'Total No of Shelf' (value 6) and 'Empty Number of shelf' (value 5), and a 'Select no of shelf you won't to delete' dropdown set to '2'. A blue 'submit' button is at the bottom of the form. The top right of the interface shows a user profile with the text 'Hi, admin_am@utu.ac.in'.

SHELF MANAGEMENT SYSTEM

Hi, admin_am@utu.ac.in

Floor Information

Update Floor

Select Floor no

1

☐ Add shelf ☐ Manage Shelf
☐ Delete Shelf ☐ Swap Shelf

Select Sub Section

Programming Language

Total No of Shelf

6

Empty Number of shelf

5

Select no of shelf you won't to delete

2

submit

Screenshot 9:-Delete Floor(Admin Function)

SHELF MANAGEMENT SYSTEM

Hi, admin_am@utu.ac.in

Floor Information

Delete Floor

Floor Number

1

Number of Shelf Present in Floor

14

Delete

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DASHBOARD

- Dashboard

ADMINISTERING

- Floor Information >
- Shelf Information >
- Institute & Courses >
- Manage RFID Reader >
- Manage User Info >

REPORTS

- Graphical
- Statistical >

SiteMap & Documentation

SiteMap & Documentation

Screenshot 10:-Add Tier on shelf(Admin Function)

SHELF MANAGEMENT SYSTEM

Hi, admin_am@utu.ac.in

Shelf Information

Add Shelf

Select Floor
1

Select Subsection:-
Book review

Shelf No	Select No of Tiers
1	select Nooftiers
2	select Nooftiers
3	select Nooftiers
4	select Nooftiers
5	select Nooftiers
6	select Nooftiers
7	select Nooftiers
8	select Nooftiers

Submit

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Screenshot 11:-Manage Institute & Course(Admin)

The screenshot displays the 'SHELF MANAGEMENT SYSTEM' Admin interface. The top navigation bar is blue with a user profile 'Hi, admin_am@utu.ac.in' on the right. A left sidebar contains menu items categorized under 'DASHBOARD', 'ADMINISTERING', and 'REPORTS'. The 'ADMINISTERING' section includes 'Floor Information', 'Shelf Information', 'Institute & Courses', 'Manage RFID Reader', and 'Manage User Info'. The 'Institute & Courses' item is selected, leading to the 'Information Information' page. This page features a 'Manage Institute Information' form with a text input field labeled 'Enter Institute Name' containing the text 'B.V.'. A red error message below the field states 'size must be more then 6 character long'. The footer of the page includes the copyright notice 'Copyright © UTU 2020'.

SHELF MANAGEMENT SYSTEM

Hi, admin_am@utu.ac.in

Information Information

Manage Institute Information

Enter Institute Name

B.V.

size must be more then 6 character long

Copyright © UTU 2020

SiteMap & Documentation

Screenshot 12:Manage Institute Add Course (Admin)

SHELF MANAGEMENT SYSTEM

DASHBOARD

Dashboard

ADMINISTERING

Floor Information

Shelf Information

Institute & Courses

Manage RFID Reader

Manage User Info

REPORTS

Graphical

Statistical

SiteMap & Documentation

SiteMap & Documentation

Hi, admin_am@utu.ac.in

Information Information

Manage Institute Information

Enter Institute Name

B.v.patel institute of bmc

Enter Course Name:-

Add

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Screenshot 13: Add Reader (Admin Function)

SHELF MANAGEMENT SYSTEM

DASHBOARD

 Dashboard

ADMINISTERING

 Floor Information >

 Shelf Information >

 Institute & Courses >

 Manage RFID Reader >

 Manage User Info >

REPORTS

 Graphical

 Statistical >

 SiteMap & Documentation

Reader Information

Add RFID Reader Information

Enter Universal Product Code(UPC)

Add Reader

 Hi, admin_am@utu.ac.in ▾

Screenshot 14:Manage Librarian(Admin Function)

SHELF MANAGEMENT SYSTEM

DASHBOARD

Dashboard

ADMINISTERING

Floor Information

Shelf Information

Institute & Courses

Manage RFID Reader

Manage User Info

REPORTS

Graphical

Statistical

SiteMap & Documentation

Hi, admin_am@utu.ac.in

Manage Librarian Profile

Librarian List

Add Librarian

#	Name	username	change Email id	Change password	Account Status	Remove user
1	Mrugesh	librarian_lib1@utu.ac.in	<div>Change</div>	<div>Change</div>	Disable <div></div> Enable	<div></div>

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Screenshot 15:Manage Librarian(Add Librarian)

SHELF MANAGEMENT SYSTEM

Hi, admin_am@utu.ac.in

Manage Librarian Profile

Librarian List [Add Librarian](#)

#	Name	username	change Email id	Change password	Account Status	Remove user
1	Mrugesh	librarian_lib1@utu.ac.in	Change	Change	Disable <input checked="" type="checkbox"/> Enable	X

Add Librarian

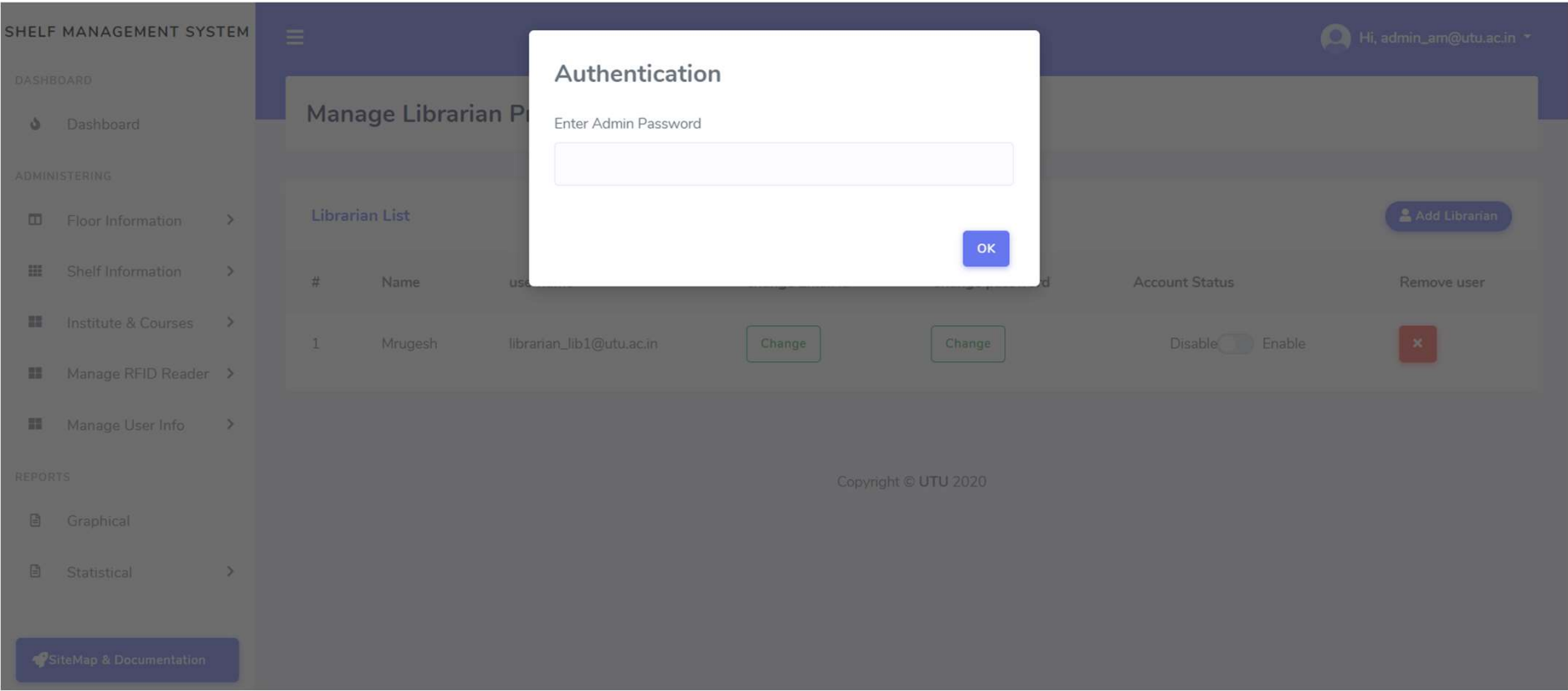
Enter a Name

Enter a Email Id

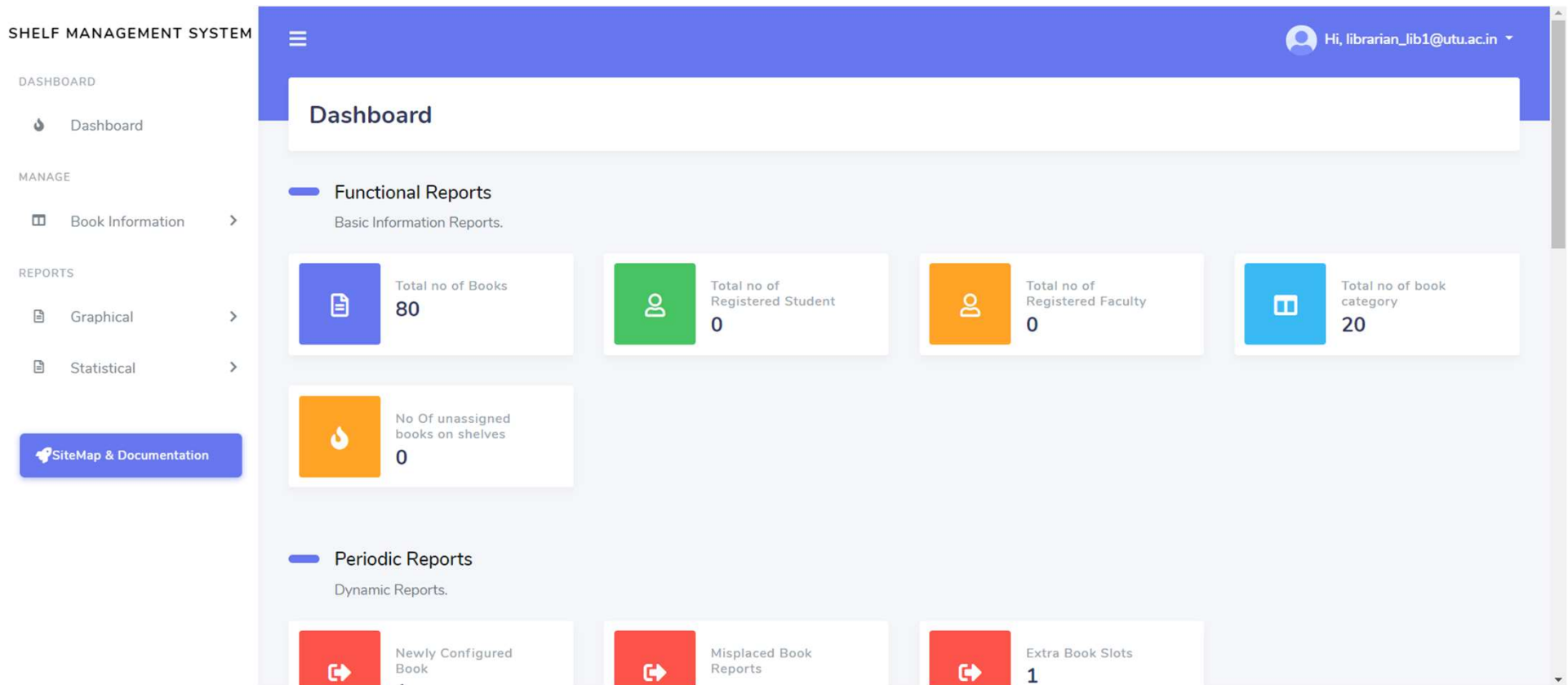
[Add](#)

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Screenshot 16:Manage Librarian Authentication



Screenshot 17: Librarian Dashboard



Screenshot 18:Book Configuration (Librarian)

Add Book

Book Title

JavaScript

Select Category of book

Programming Language

Book Author

Roger S. Pressman

Book Publication

Mc Graw Hill Education

Book ISBN

EAN Prefix

978

Registration group

12

Registrant

12345

Publication

45

Check digit

1

EAN Prefix

978

Registration group

12

Registrant

12345

Publication

45

Check digit

1

Book language

English

Book Paperback

990

Book dimension

height

21.19

width

2.16

length

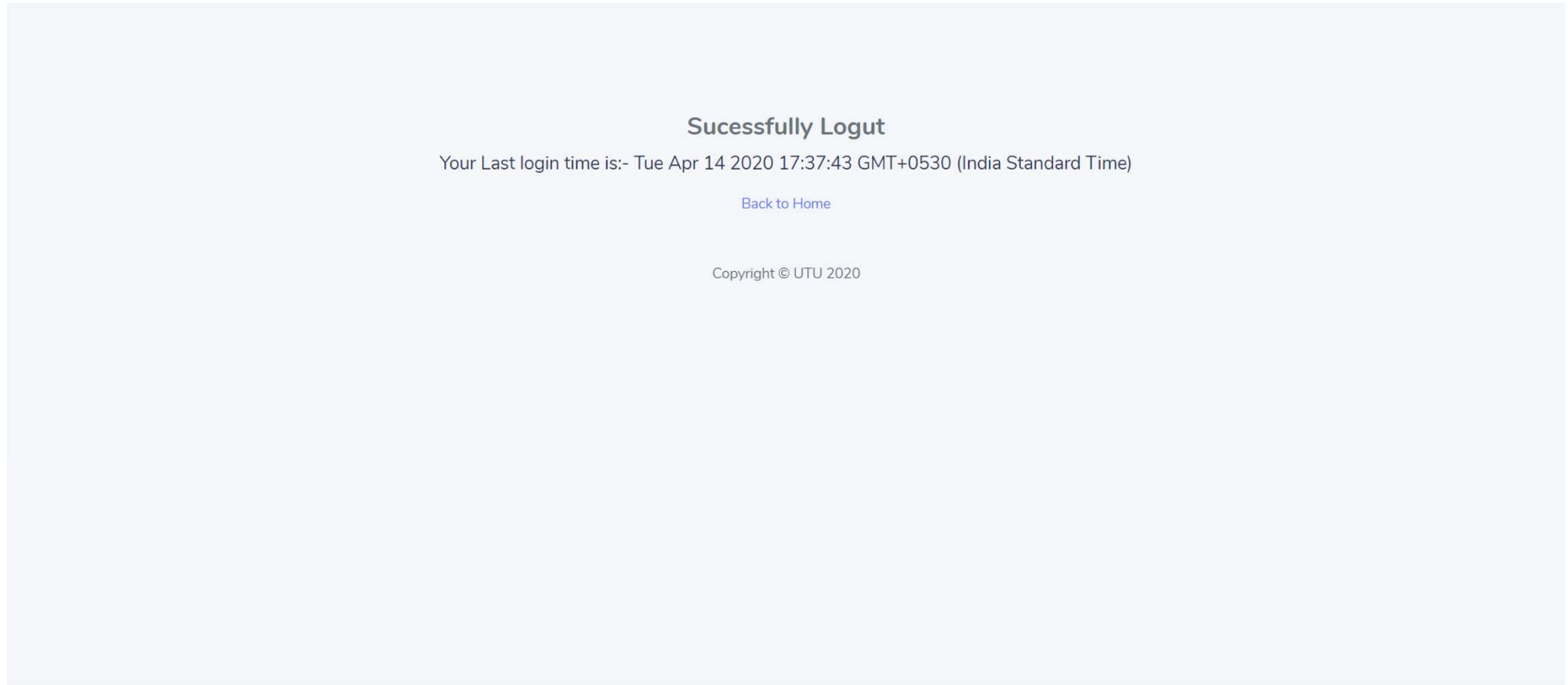
21.57

Book Quantity

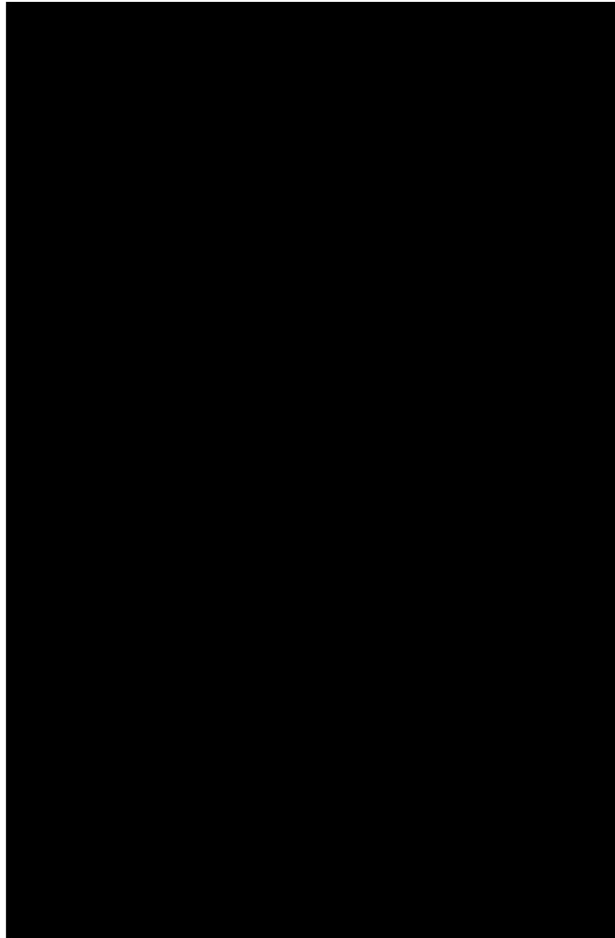
600

Submit

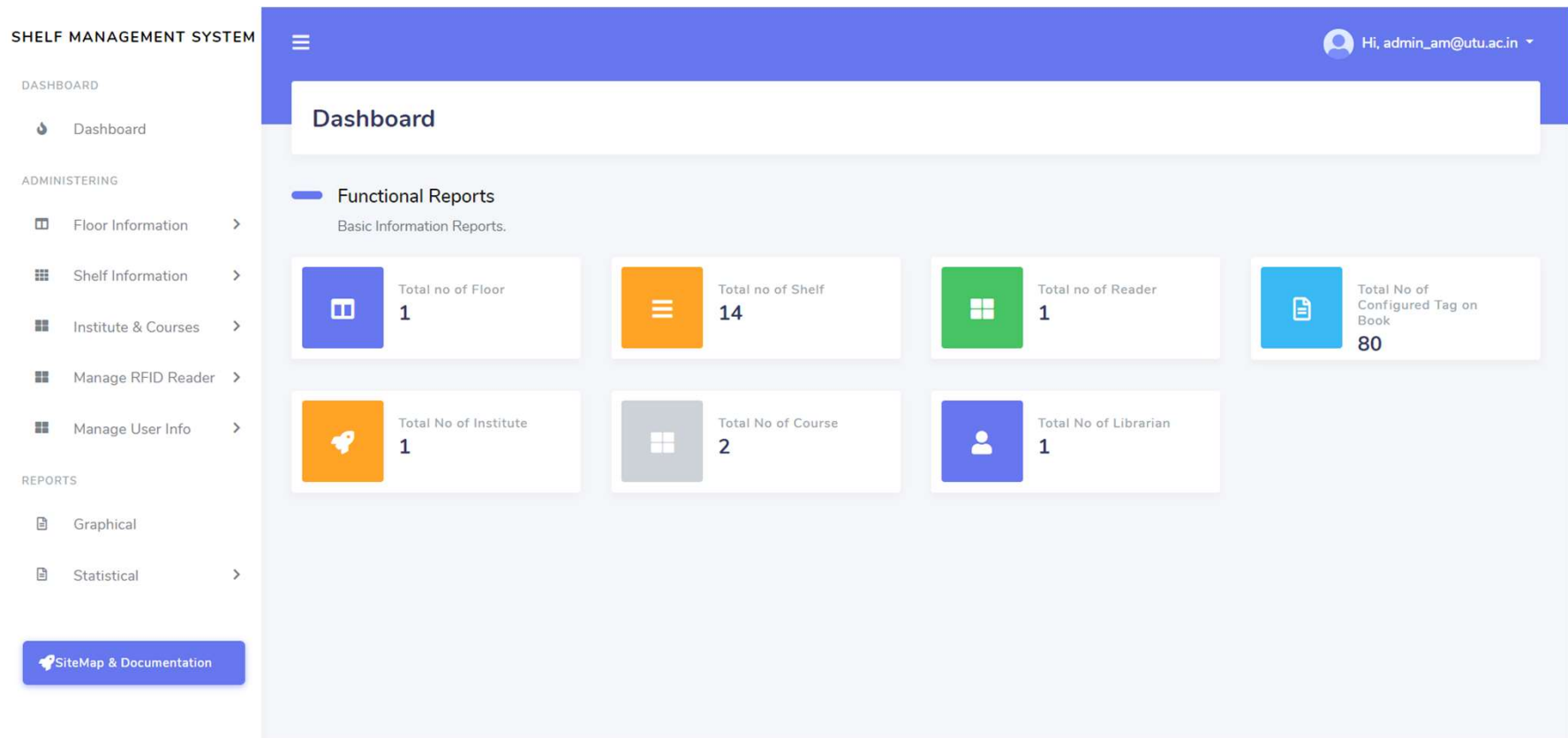
Screenshot: 19 Logout Functionality



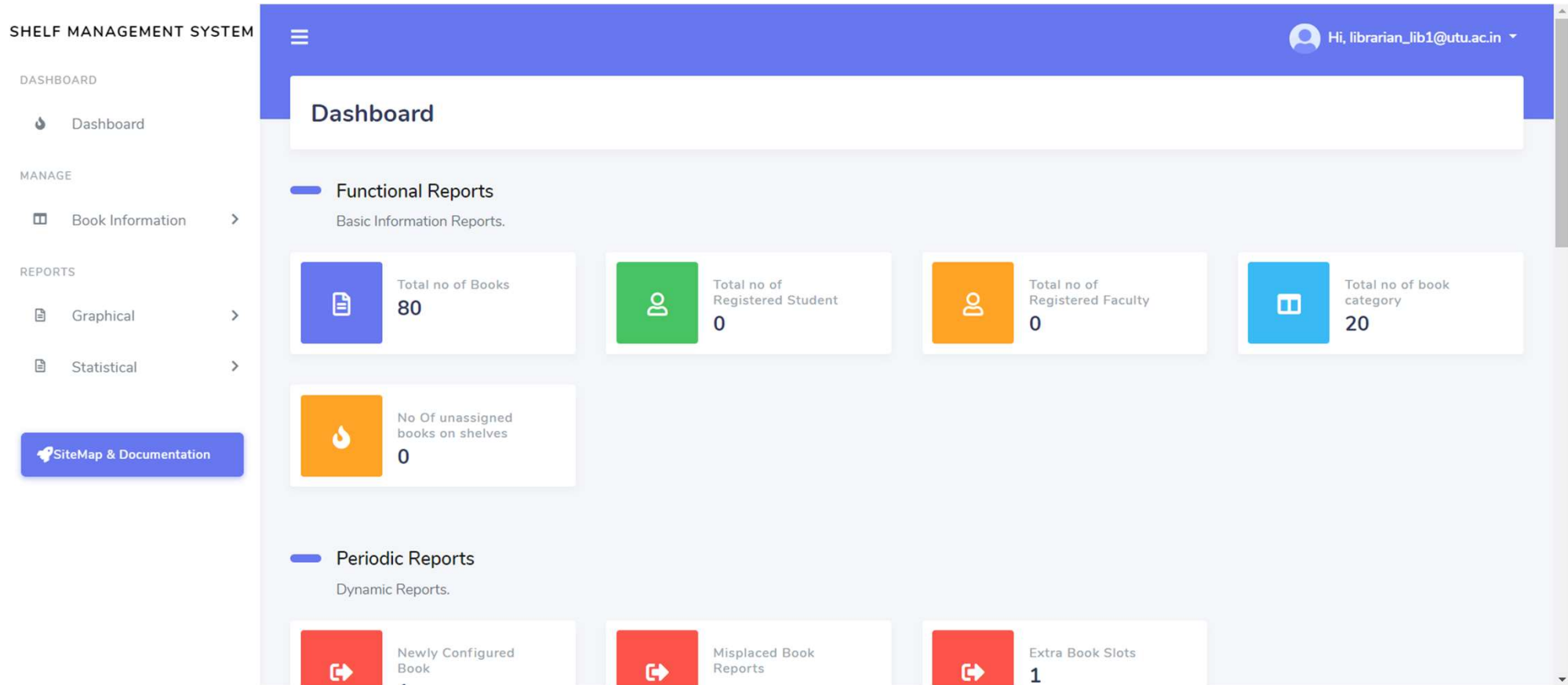
Demonstration Video:-Hardware



Report 1:Functional Reports(Admin Dashboard)



Report 2:Functional report(Librarian Dashboard)



Report 3: Total No of Books Report (Librarian)

SHELF MANAGEMENT SYSTEM

DASHBOARD

Dashboard

MANAGE

Book Information >

REPORTS

Graphical >

Statistical >

SiteMap & Documentation

Dynamic Reports.

Newly Configured Book
1

Misplaced Book Reports

Extra Book Slots
1

Tabular Reports

Advanced Reports.

Book Details

Show 10 entries


Search:

Sr.no	Book Id	Book Name	Floor No	Shelf No	No Of tier	Category	Total Books	More Info
1	B1	Eloquent JavaScript 3rd edition	1	S101	2	Programming Language	80	More Information

Showing 1 to 1 of 1 entries

[Previous](#) [1](#) [Next](#)

Report 4:Book Information(Librarian)



REPORT SUMMARY					
Book ID	B1	Book Title:-	Eloquent JavaScript 3rd edition		
Main Section Type	Non-Fiction	Sub Section Type	Programming Language	Floor No	1
Shelf Id: S101					
Shelf tier Id	S101_1	Max allowed Book on this tier	28	Total Assigned book	28
Start Book id	B1001	End Book id	B1028	RFID Reader Id	Reader_1
Shelf Id: S101					
Shelf tier Id	S101_2	Max allowed Book on this tier	28	Total Assigned book	28
Start Book id	B1029	End Book id	B1056	RFID Reader Id	-
Extra Book details					
Book Quantity	24	Start Book Id	B1057	End Book Id	B1080

print

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Report 5:Extra Book Slot (Librarian)

SHELF MANAGEMENT SYSTEM

DASHBOARD

Dashboard

MANAGE

Book Information >

REPORTS

Graphical >

Statistical >

SiteMap & Documentation

Hi, librarian_lib1@utu.ac.in

Dashboard

Show 10 entries

Search:

Sr.no	Book Id	Book Name	Book Quantity	Print
1	B1	Eloquent JavaScript 3rd edition	24	Print

Showing 1 to 1 of 1 entries

Previous

1

Next

Report 6: Misplaced Book Report(Librarian)

SHELF MANAGEMENT SYSTEM

Hi, librarian_lib1@utu.ac.in

Misplaced Book Information

Select Floor No

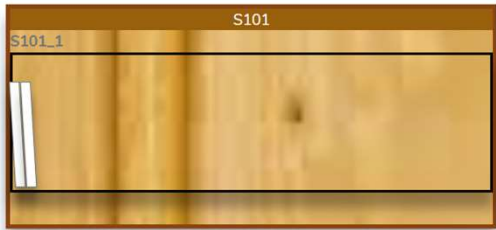
Floor No : 1

Book Report

S101

S101_1

Show Full Report



Report 7:Search Book report(Member)

SHELF MANAGEMENT SYSTEM

SEARCH

Search Book

SiteMap & Documentation

Hi 201703100110074

Book Information

Add Book

☒ Title ☐ Author ☐ ISBN ☐ Publication

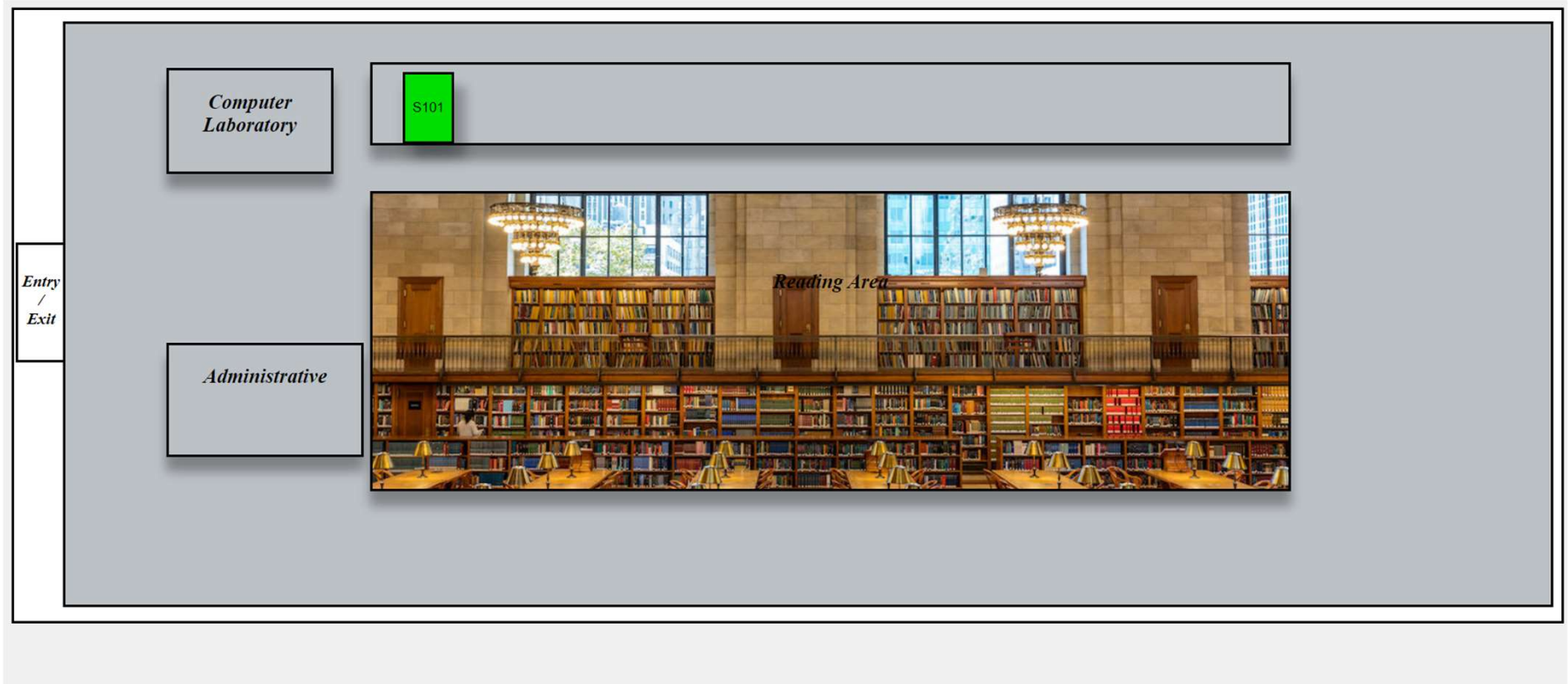
Search Book

e

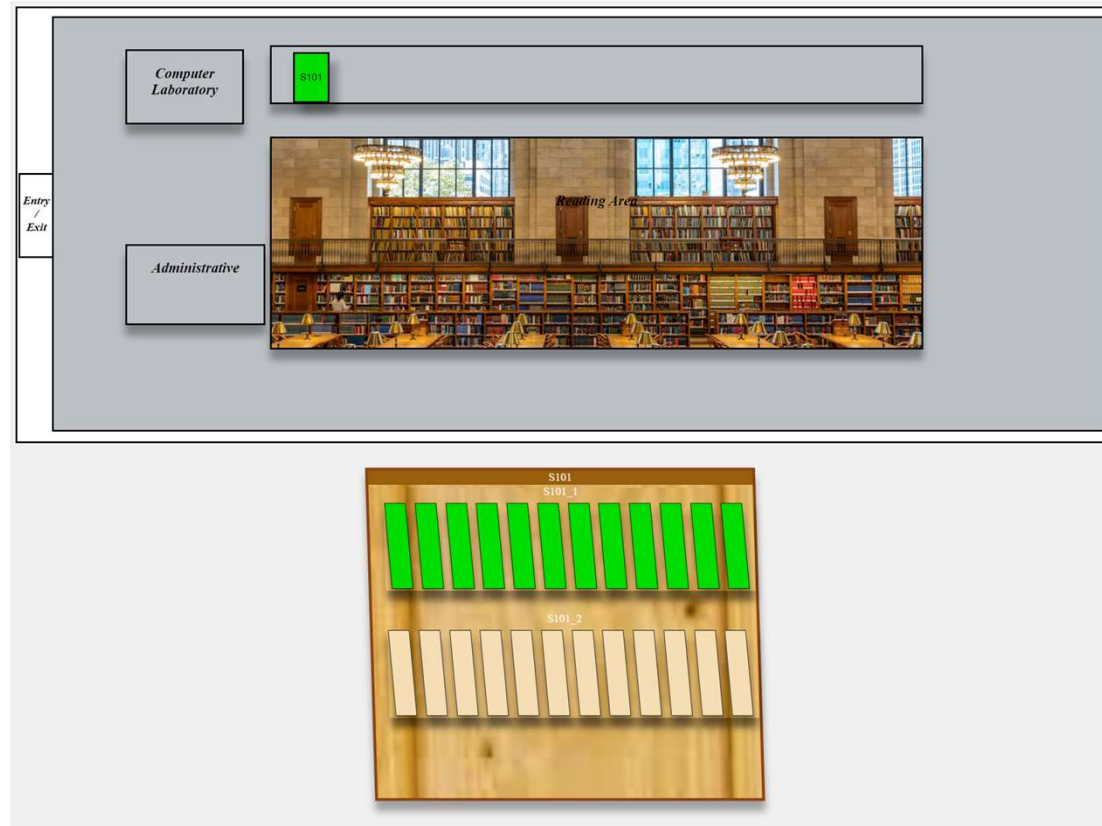
Eloquent JavaScript 3rd edition

Submit

Report 8:Search Book Map Report



Report 9:Search Book map with Shelf



Web References

- <https://javascript.info/>
- <https://docs.oracle.com/en/java/javase/12/>
- <https://blog.arduino.cc/>
- <https://firebase.google.com/docs/web/setup>
- <https://firebase.google.com/docs/database/web/read-and-write>
- <https://docs.oracle.com/javaee/5/tutorial/doc/bnagx.html>

Thank You.!