

AvailSys

The Lab Reservation System





TEAM MEMBERS

Group 25 Project 23

- Mitta Lekhana Reddy IIT2019204 - Frontend Dev
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MOTIVATIONS AND GOALS

- “AVAILSYS” is basically a web based application, which will enable Faculty of University with features related to Booking of certain labs and also resources for their respective sections. Followed by relaying that Booking Information to the faculty and students.
- The purpose of this web based application is to allow Faculty of University Labs the ability to Book labs at a comfortable time slot and also not having the issues of overlapping lab time slots with other faculties labs.

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- Up to date notification is not always relayed from their respective Faculty after assigned a lab for Students. Auto Emails are sent
 - Unsure as to if a lab has already been booked by another faculty and hence leads to hesitation and may also lead to overlapped booking of labs.
 - Requesting for resources which are out of stock due to no real communication between the admin department and Faculty.
 - No real means of communication to relay the exact details of lab timings to students as lab booking is not guaranteed.



APPLICATIONS

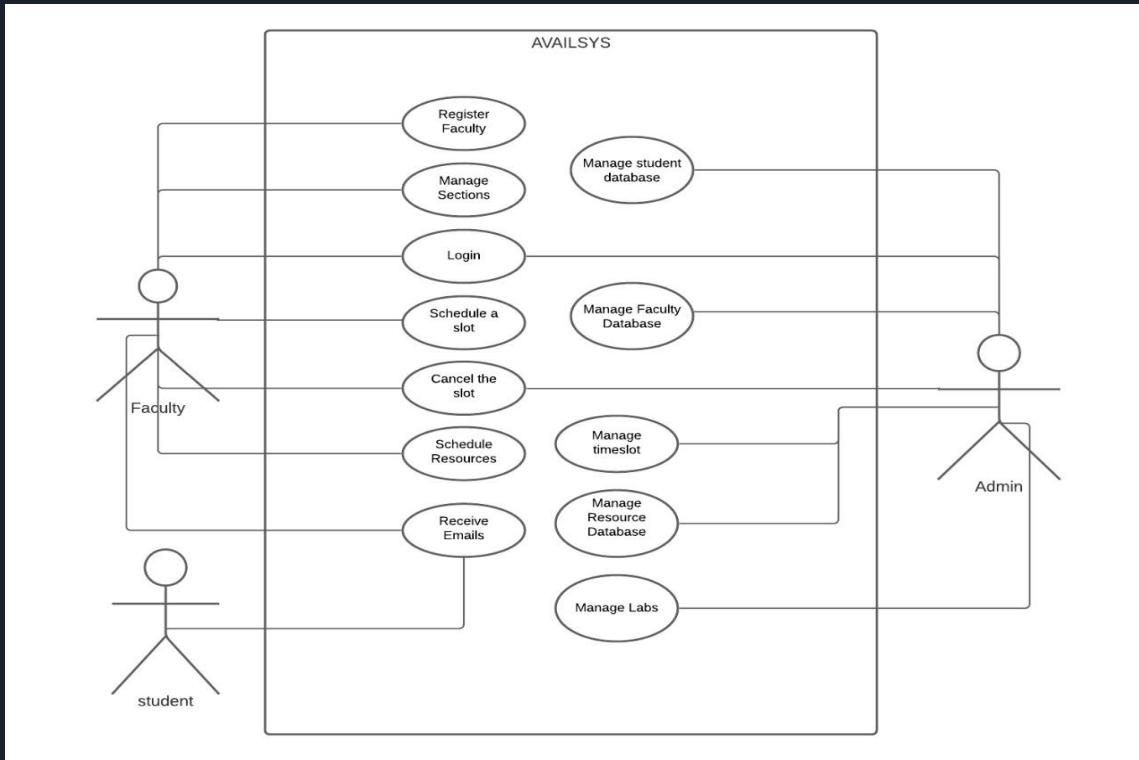
- This Web application notifies students through email , all the details of the lab scheduled by his/her Faculty .Unlike the traditional methods, we don't require any physical communication.
- There is no uncertainty of labs scheduled i.e , there is no overlapping of booking labs . As In this Software , only unscheduled slots for labs are available to the faculty to book for their respective section.



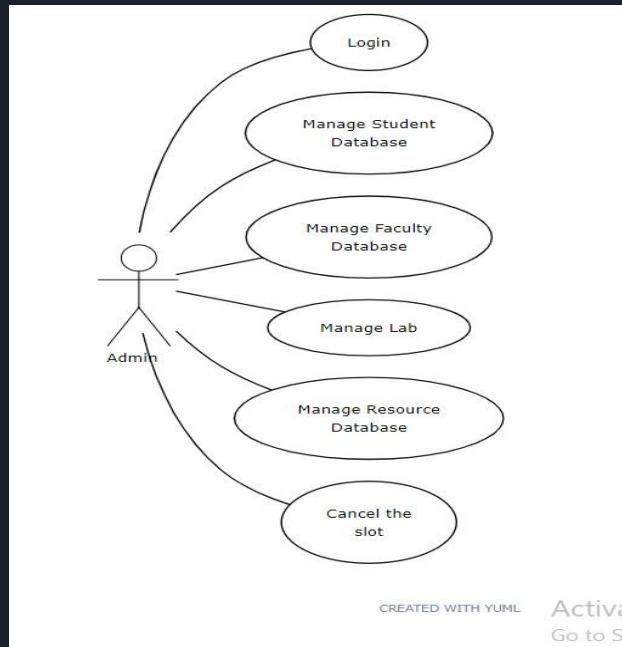
REQUIREMENTS

- To run this project we can use an offline IDE like atom or Visual studio with anaconda installed with all Django packages already installed as we used html , css and javascript for the frontend part and python with the Django framework for the backend part of this website
- We also require a stable browser to run the project and browser has to support javascript.

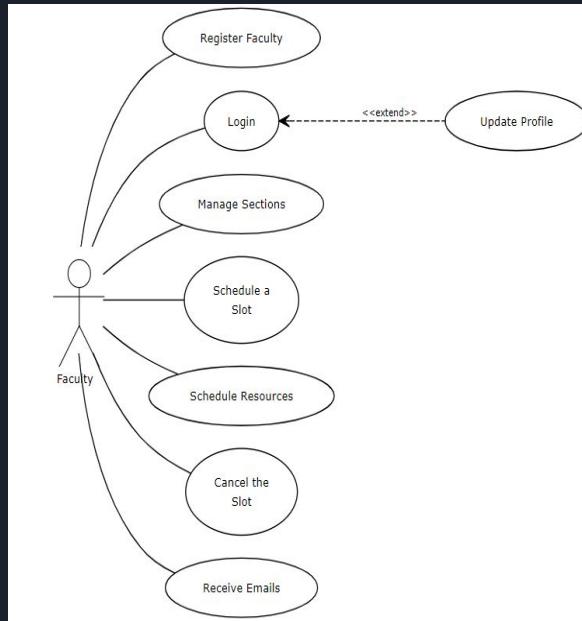
Use Case Diagram



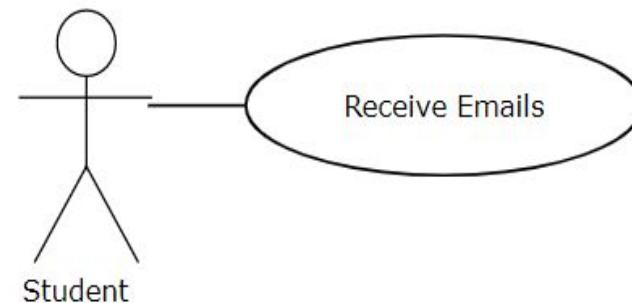
Use Case For Admin



Use Case For Faculty

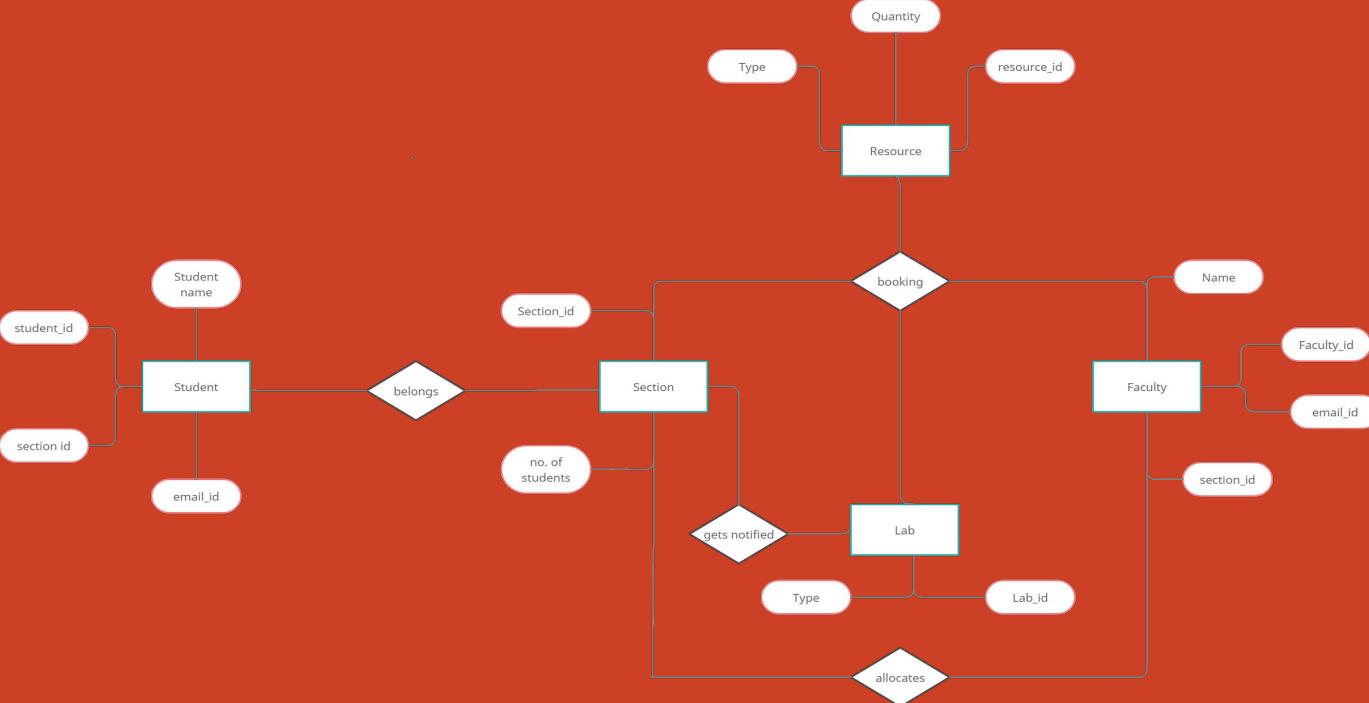


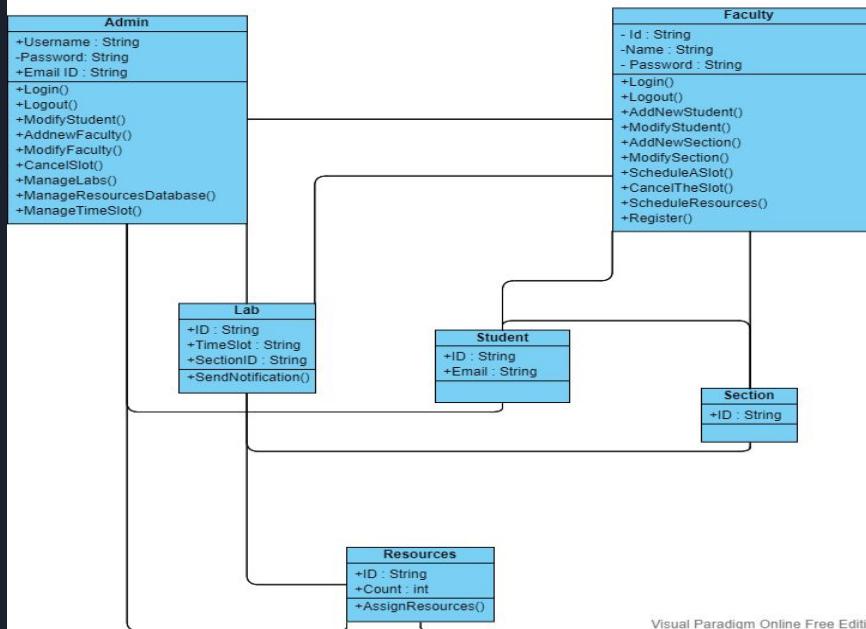
Use Case For Student



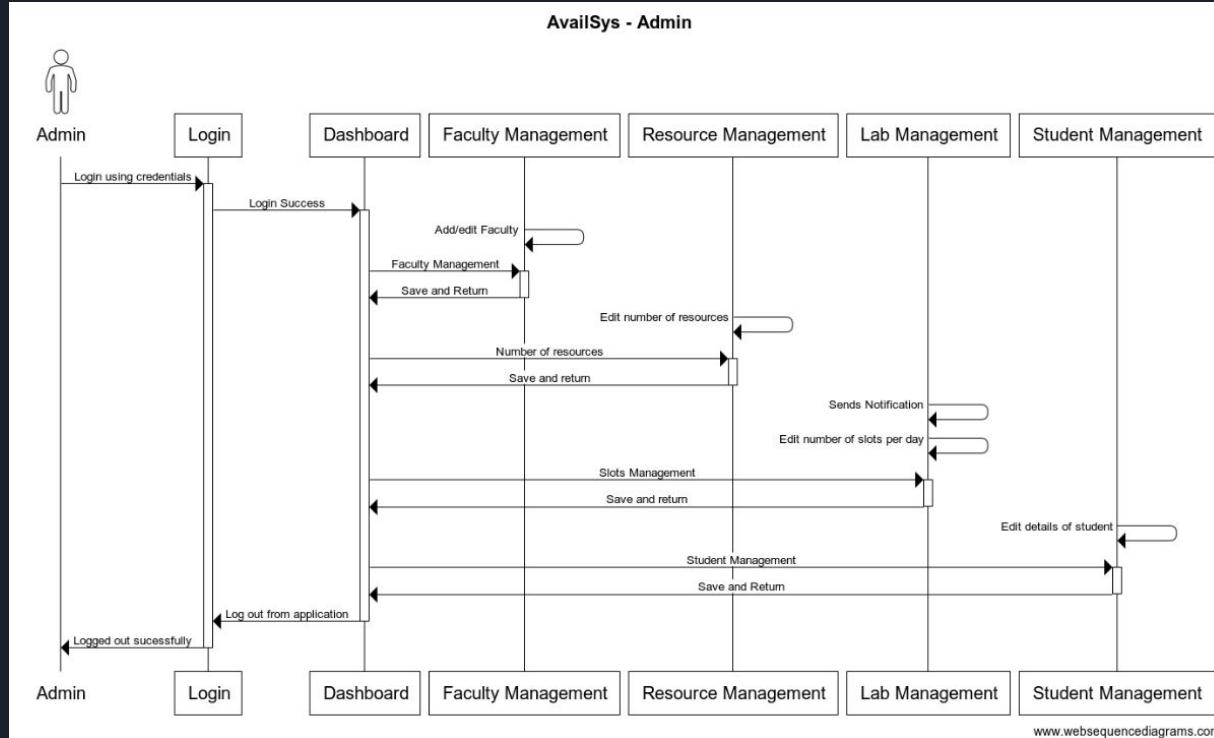
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ER Diagram

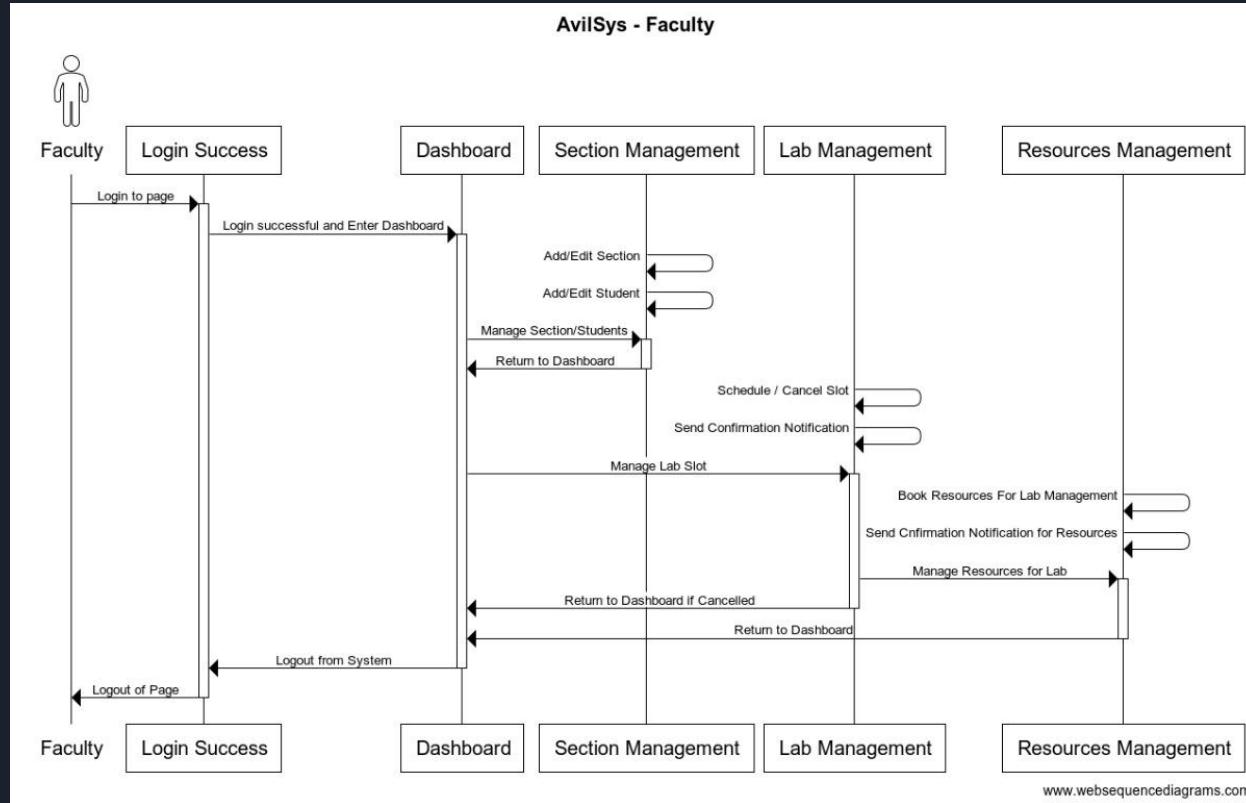


AVAILSYS**CLASS DIAGRAM**

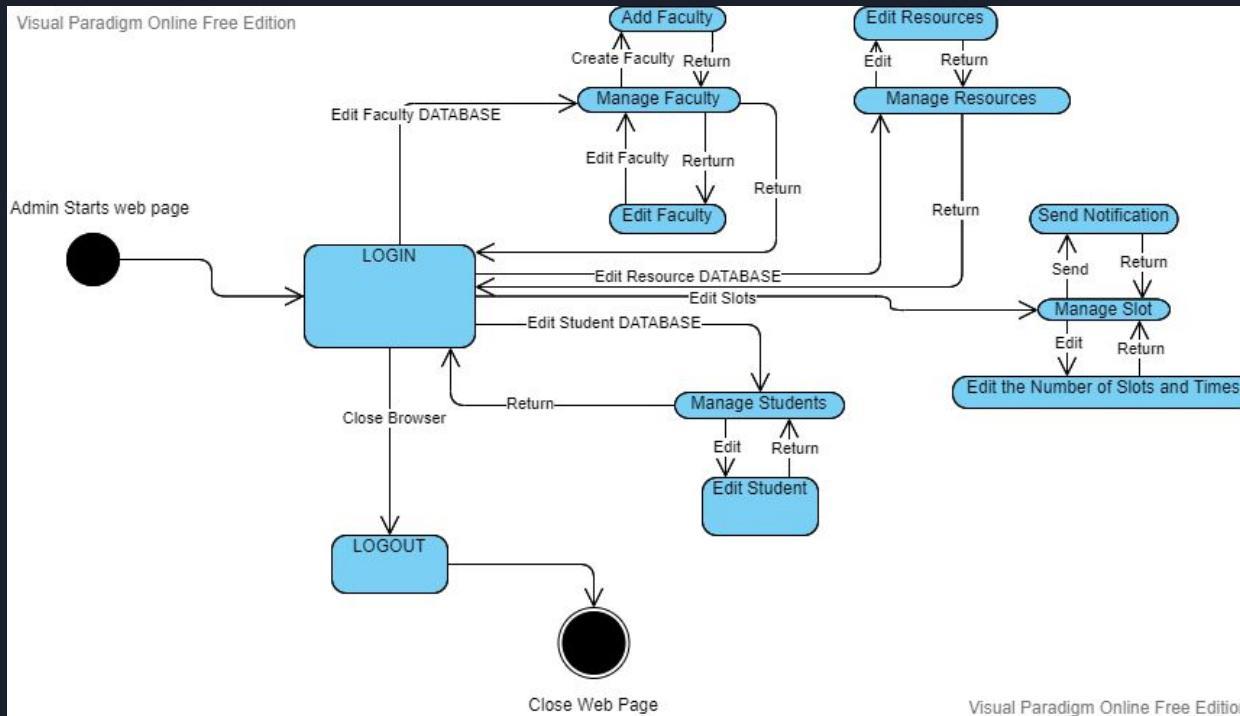
Sequence Diagram Admin



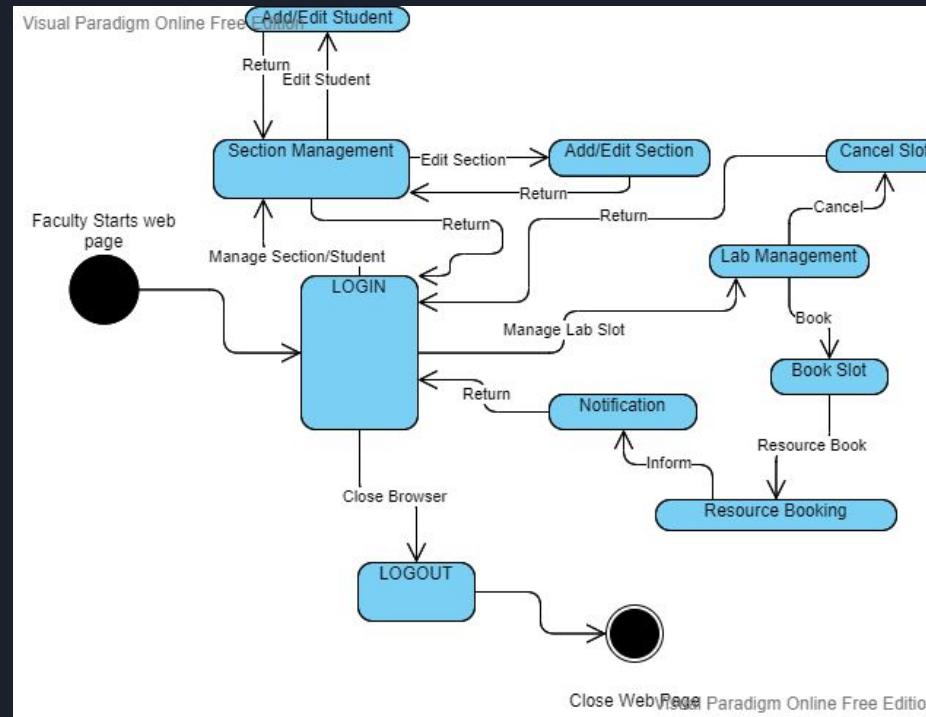
Sequence Diagram Faculty



State Diagram Admin



State Diagram Faculty





POTENTIAL USERS

- This Project has basically three users .
 1. Faculty
 2. Admin
 3. Students
- Faculty Registers , manage sections and students , book labs and resources , receive emails.
- Admin has all the access to the data and can schedule labs and resources.
- Student is the only passive user in this project , they only get the acknowledgements like added to the section, Lab and Resources has been booked through emails.



TEST CASES

User Faculty

- ❖ Register Faculty - Initial registration page so that the Faculty can create a personal account with the authorization of the admin.
- ❖ Login - Faculty logins into the system.
- ❖ View and Edit sections - This page allows the faculty to add, remove or edit students details to their respective sections.
- ❖ Schedule a Slot - This page allows the Faculty to Book an available time slot for the lab required.
- ❖ Schedule Resources - This page allows the Faculty to schedule resources for the lab.
- ❖ Cancel Scheduled Slot - This page allows the Faculty to cancel the reserved slot that they have made .
- ❖ Cancel Scheduled Resources - This page allows the Faculty to cancel the reserved resources that they have made.
- ❖ Receive Emails - The Faculty receives an email upon successful booking of the lab with details of when and where the lab is being held,for booking the resources and When lab or resources are being cancelled.



TEST CASES

User Admin

- ❖ Login - The page where Admin can log in with the confidential credentials he has.
- ❖ View Section Details - The page where Admin can add, remove, and edit any section details.
- ❖ View Student Details - The page Where the admin can edit the details of the student
- ❖ View Faculty Details - The page Admin can add, remove, and edit any Faculty details.
- ❖ Manage Resource Database - This page Allows the Admin to update the Resources Database according to the availability of resources.
- ❖ Manage Time Slot - The page where Admin assigns the allowed time slots for - Faculty to select from
- ❖ Manage Labs - The page where Admin can assign available for Faculty to select from.
- ❖ Cancel the Slot - The page where it allows the Admin to cancel any reserved slot.

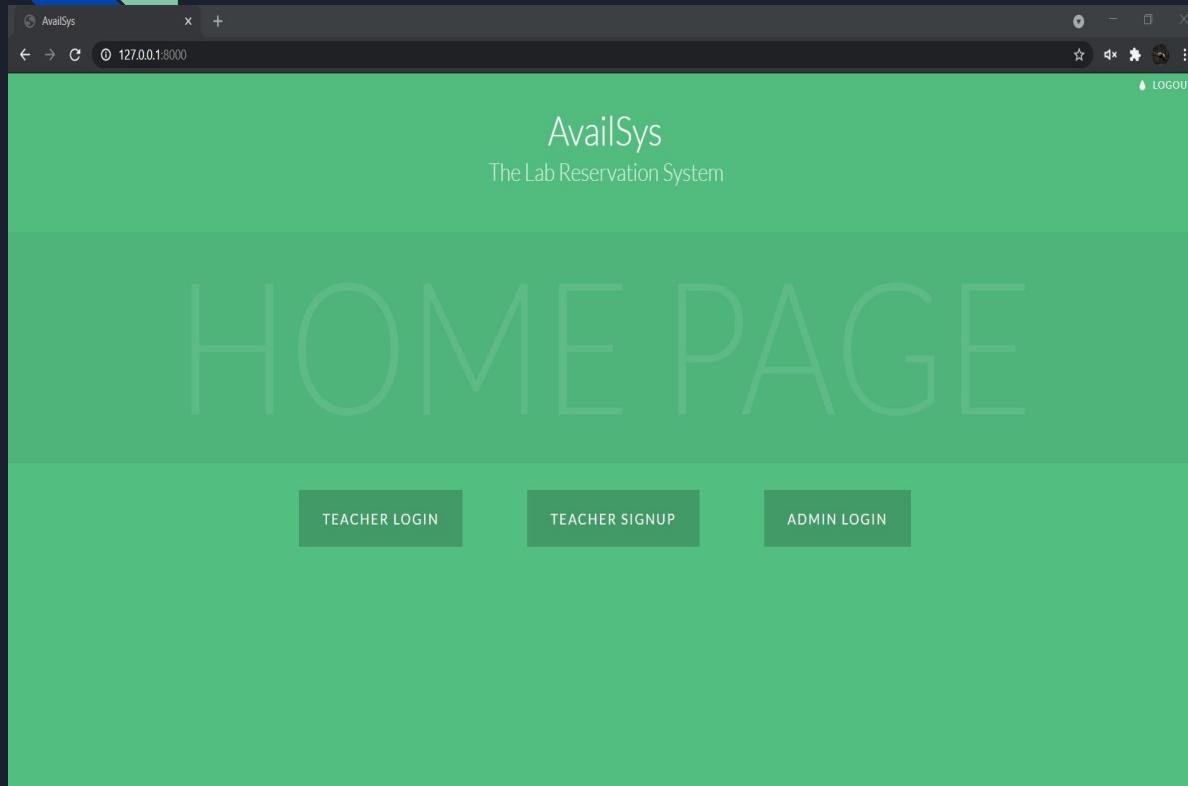


TEST CASES

User Student

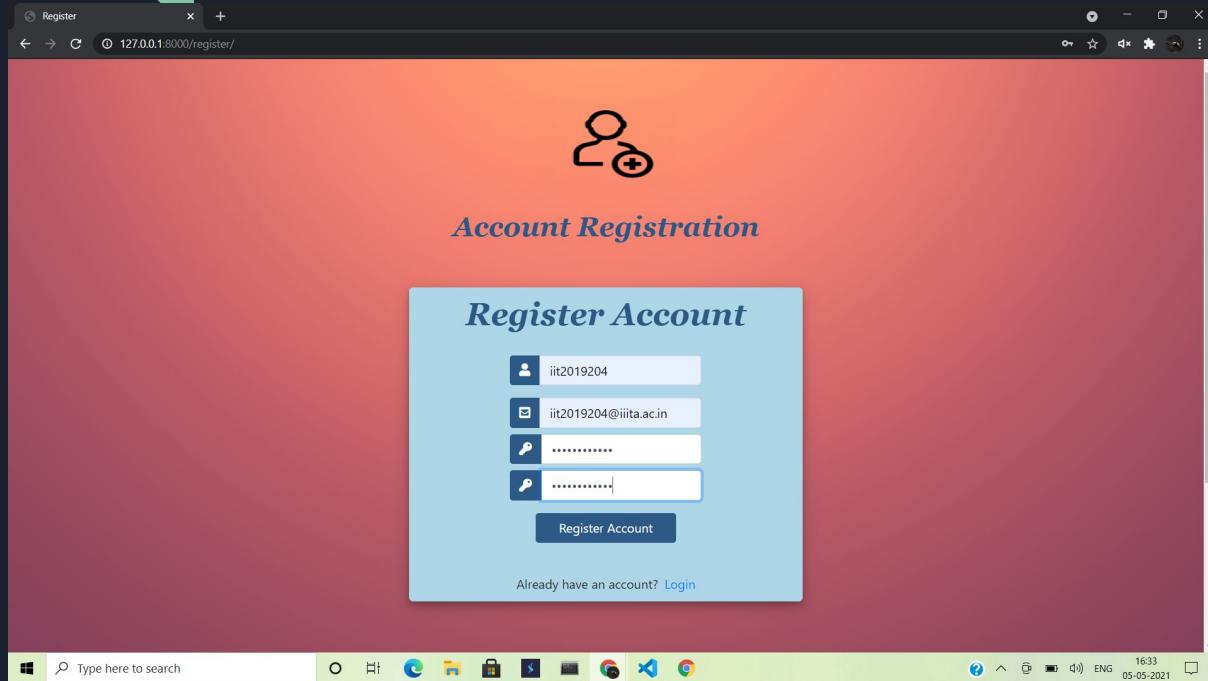
- ❖ Receive Emails - Students receive mails when their details are being edited, when Lab or resources are being scheduled , when Lab or resources are being cancelled for their section.

Homepage



This home page opens when we run website. Here, in this page a person can login as teacher or as administrator. If the teacher is new to the system , he can register himself . Shown in the following slides.

Faculty TEST CASE 1 - Registration



This is the initial registration page so that the Faculty can create a personal account.

Faculty TEST CASE 1 - Output

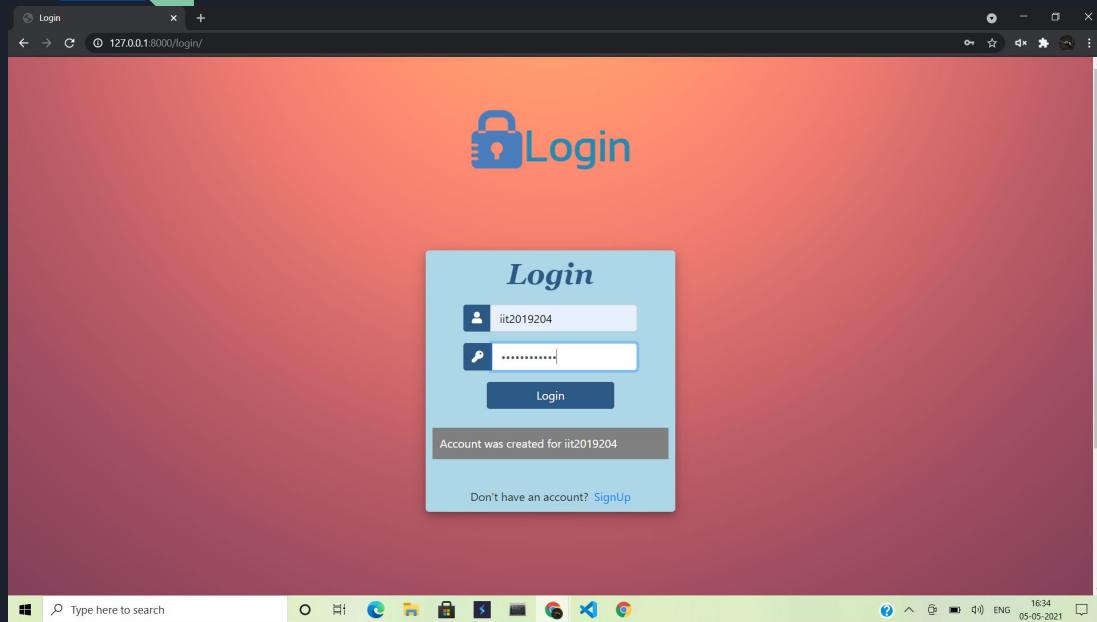
This is the Admin side part , where we can check all the teachers registered and their data.Previous slide details are visible in this page.

This shows that the test case 1 is passed.

The screenshot shows the Django Admin interface at the URL 127.0.0.1:8000/admin/auth/user/. The title bar says "Select user to change | Django site". The top right corner shows "WELCOME, ADMIN. VIEW SITE / CHANGE PASSWORD / LOG OUT". The main content area has a green success message: "Successfully deleted 6 users." Below it, a table lists two users: "admin" and "iiit2019204". The "admin" row has a green checkmark in the "STAFF STATUS" column, while "iiit2019204" has a red error icon. To the left of the table is a sidebar with sections: ACCOUNTS (Email addresses, APP), AUTHENTICATION AND AUTHORIZATION (Groups, Users, highlighted in yellow), SITES (Sites), and SOCIAL ACCOUNTS (Social accounts, Social application tokens). On the right, there is a "FILTER" sidebar with dropdowns for "By staff status" (All, Yes, No), "By superuser status" (All, Yes, No), and "By active" (All, Yes, No). A "ADD USER +" button is located in the top right of the main content area.

Action:	Go	0 of 2 selected			
<input type="checkbox"/>	USERNAME	EMAIL ADDRESS	FIRST NAME	LAST NAME	STAFF STATUS
<input type="checkbox"/>	admin	iiit2019234@iit.ac.in			
<input type="checkbox"/>	iiit2019204	iiit2019204@iit.ac.in			

Faculty TEST CASE 2 - Login

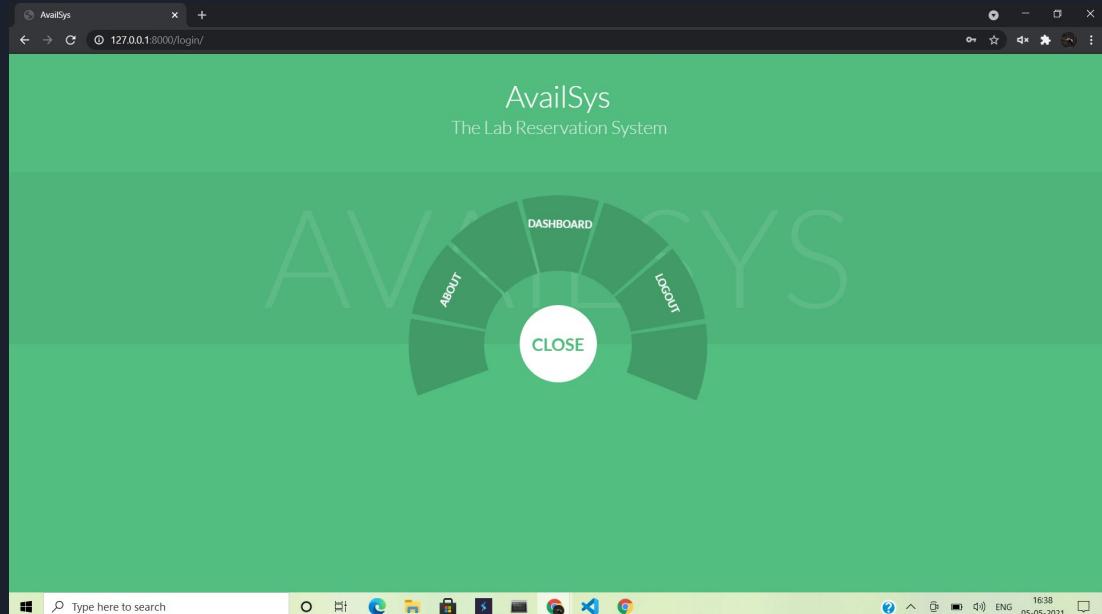


This is the page where Faculty can log into the created account. When the Faculty, who is accessing the website, enters the credentials and clicks on the 'Login' button, he/she is redirected into the next page, student DashBoard page.

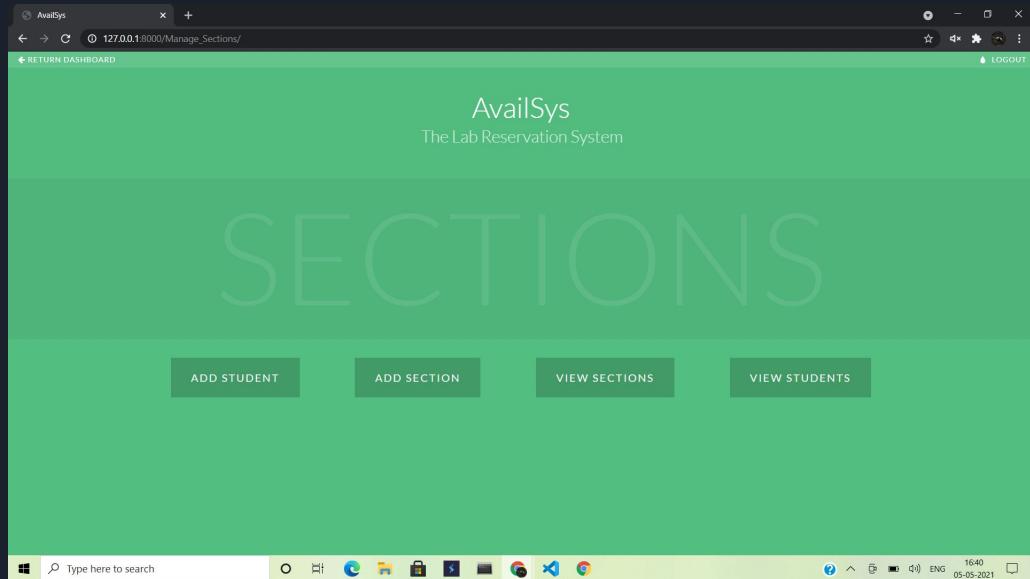
Faculty TEST CASE 2 - Login Output

This is the page where Faculty is redirected after he\she logs into the system.

This shows that the test case 2 is passed.

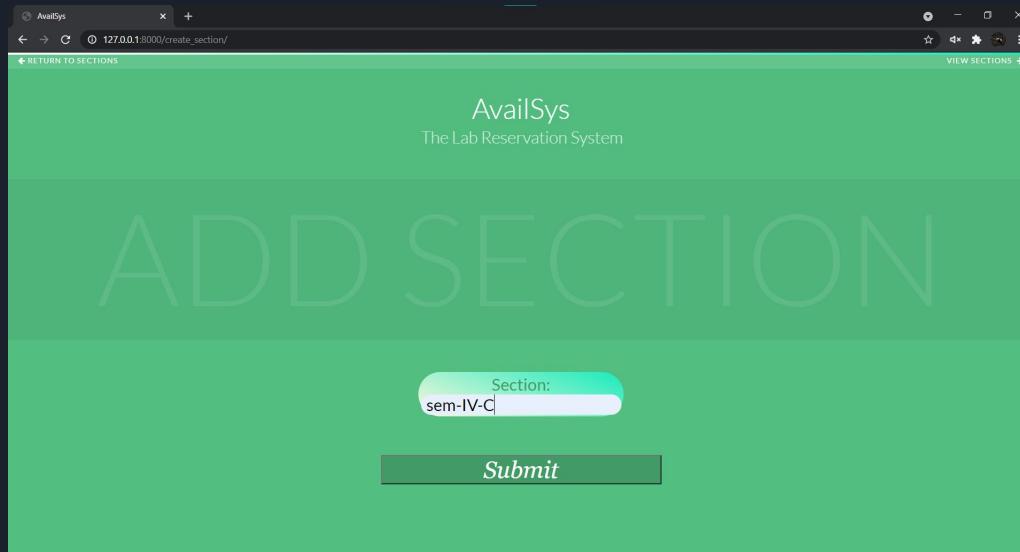


Faculty Manage Sections Page



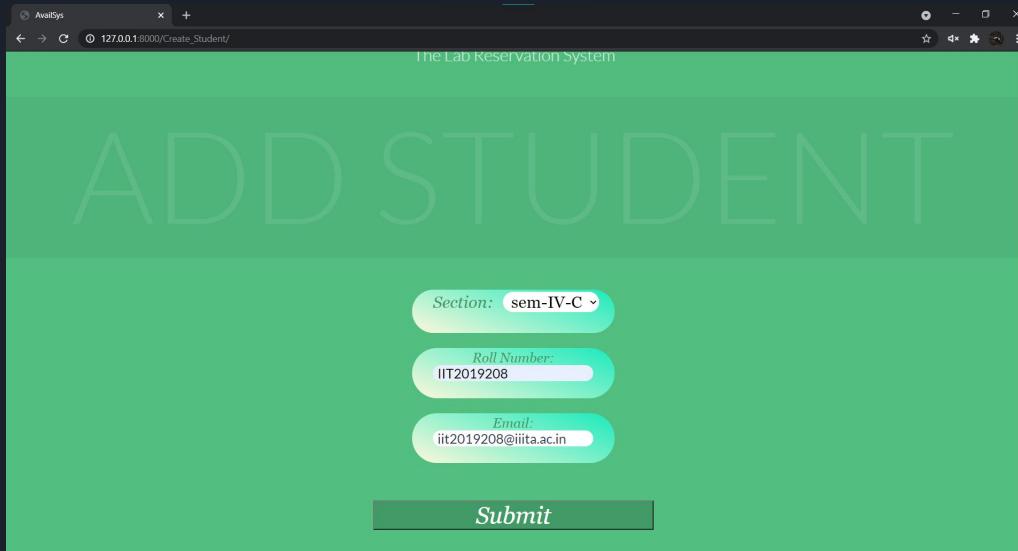
Buttons or links to the features of sections and students are shown here. These links Allows Faculty to Create , edit or view Sections under his name. He\she can add ,edit and search the student details.

Faculty TEST CASE 3 - Create Section



This Allows Faculty to Create a Section under his name.

Faculty TEST CASE 4 - Add Student



The screenshot shows a web browser window titled "AvalSys" with the URL "127.0.0.1:8000/Create_Student/". The page is titled "The Lab Reservation System" and features a large, semi-transparent watermark reading "ADD STUDENT". Below the watermark, there are three input fields: a dropdown menu labeled "Section: sem-IV-C", a text input labeled "Roll Number: IIT2019208", and a text input labeled "Email: iit2019208@iita.ac.in". At the bottom of the form is a green "Submit" button.

This Allows Faculty to add a student in the section he wants to.

Faculty View Students

AvalSys 127.0.0.1:8000/students/

VIEW STUDENT

Section: ----- Email: _____ Roll Number: _____

SEARCH

Section ID	Student ID	Email ID	Update	Remove
sem-IV-C iit2019204	IIT2019208	iit2019208@iitaa.ac.in	<button>UPDATE</button>	<button>DELETE</button>

This Allows Faculty to view, search, update and delete student he desired to..

Faculty View Students “ SEARCH “ operation

This is the page where Faculty is redirected after he\she searches for student using either section or email Id or roll number into the system.

VIEW STUDENT

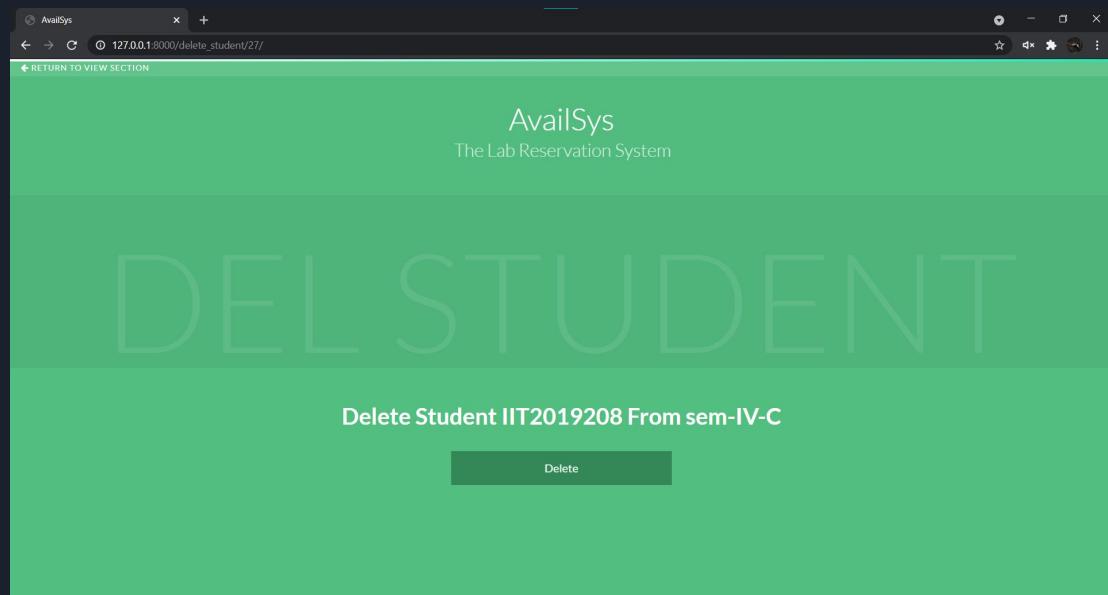
Section: ----- Email: iib2019030 Roll Number:

SEARCH

Section ID	Student ID	Email ID	Update	Remove
sem-IV-C iit2019204	IIB2019030	iib2019030@iita.ac.in	UPDATE	DELETE

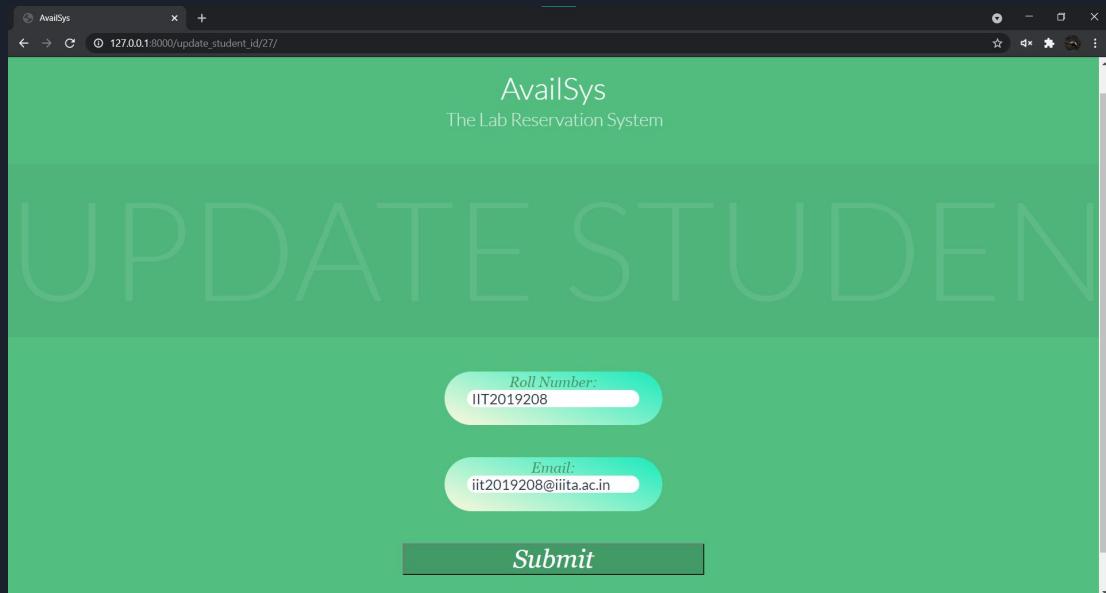
Faculty View Students “ DELETE “ operation

This is the page where Faculty is redirected after he\she deletes the student from the system.



Faculty View Students “ UPDATE “ operation

This is the page where Faculty is redirected after he\she updates the student details into the system.



Faculty TEST CASE 5 - View Section

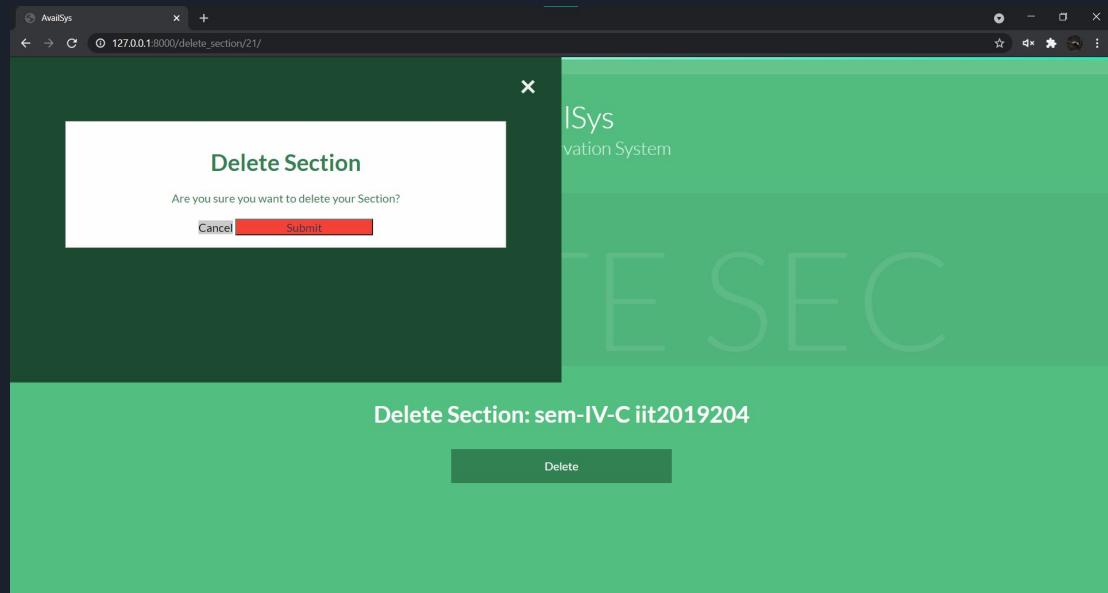
The screenshot shows a web browser window for 'AvailSys' at the URL '127.0.0.1:8000/view_section/'. The title bar says 'AvailSys'. The main content area has a green header with the text 'VIEW SECTION' in large white letters. Below the header is a table with three columns: 'Section Id', 'Faculty', and 'Remove'. The table contains one row with the values 'sem-IV-C' and 'iit2019204' in the first two columns, and a red 'DELETE' button in the third column.

Section Id	Faculty	Remove
sem-IV-C	iit2019204	DELETE

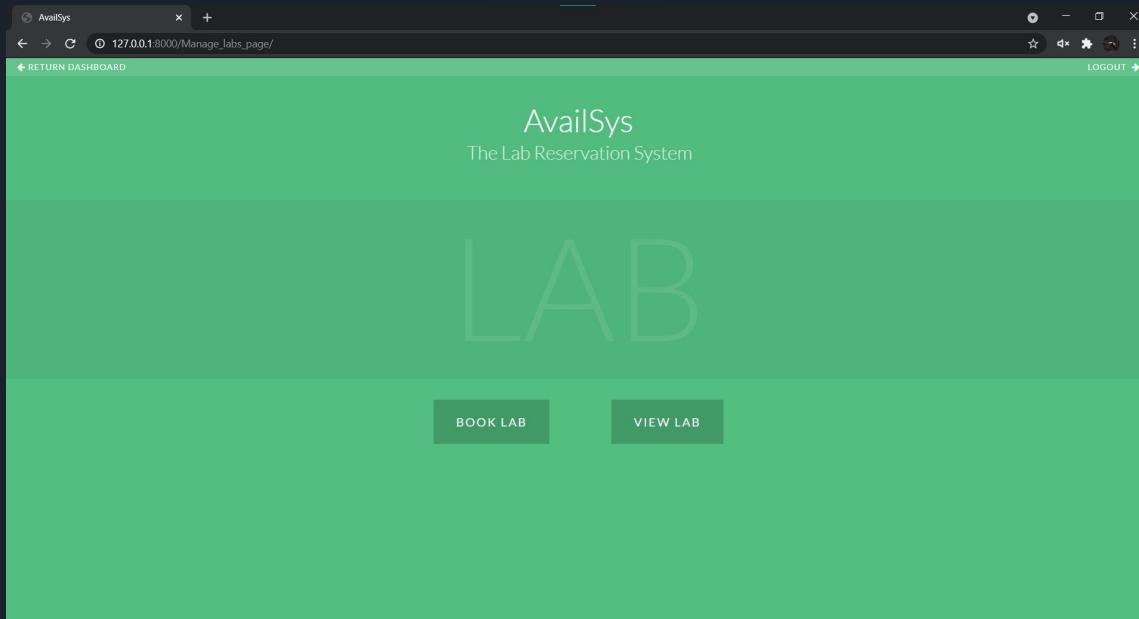
This Allows Faculty to view all created section by him/her . He can even delete the section if he want. Shown in the later test cases.

Faculty View Section “ DELETE “ operation

This is the page where Faculty is redirected after he\she deletes the section from the system.

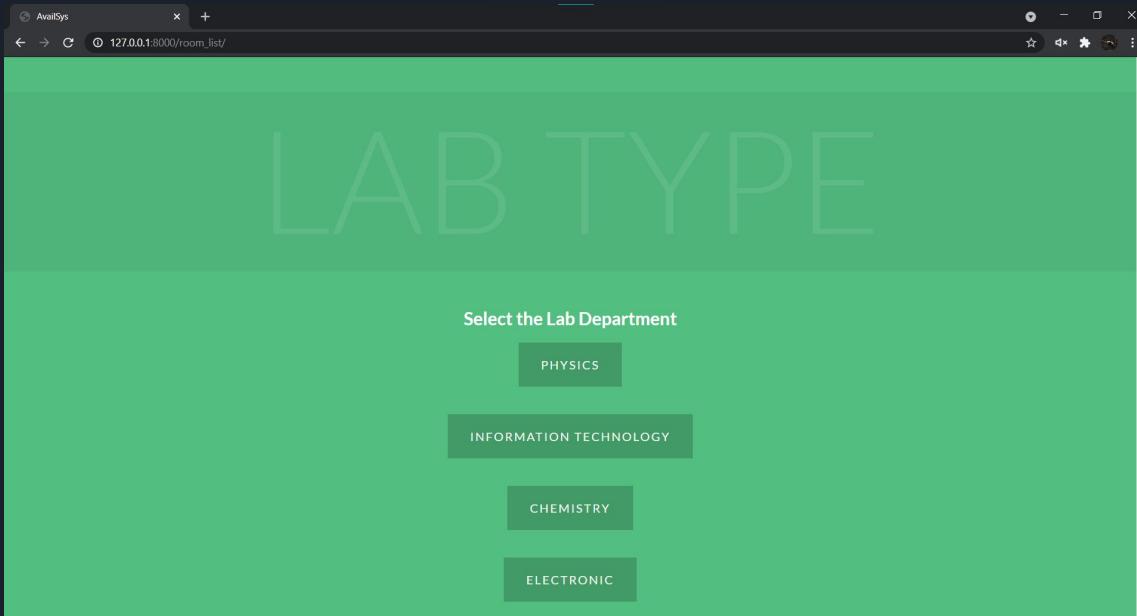


Faculty Manage Labs Page



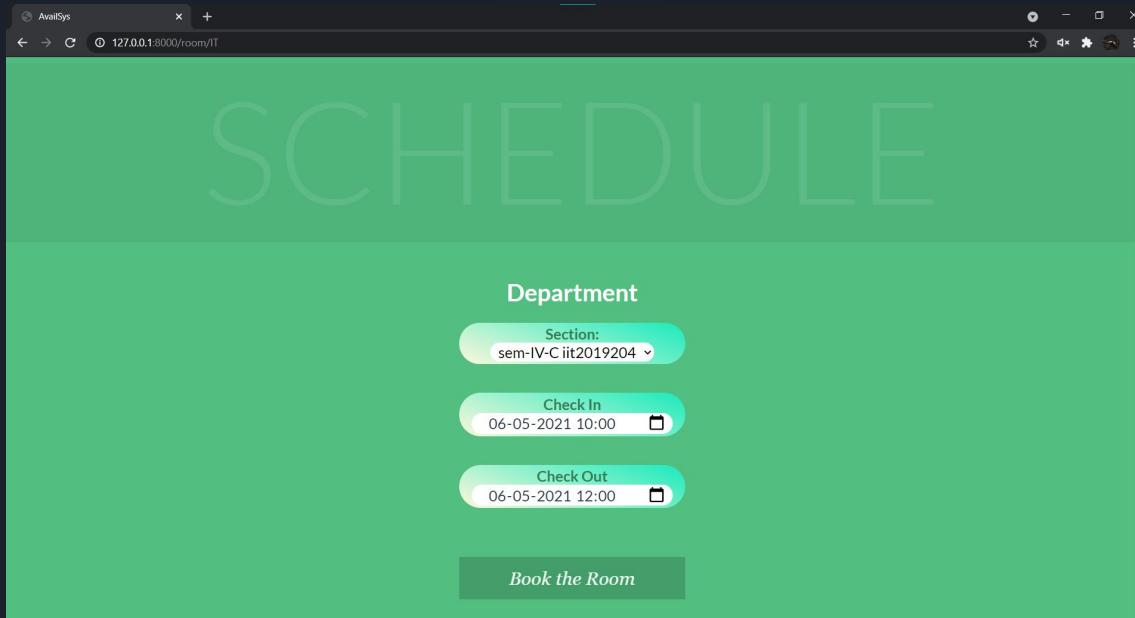
This Page allows the Faculty to Book labs and view all the booked labs. Only Links or buttons to the respective features are displayed.

Faculty TEST CASE 6 - Schedule a Slot



This Page allows the Faculty to choose the category of the lab to be booked. Let's say Information Technology is chosen.

Faculty TEST CASE 6 - Schedule a Slot

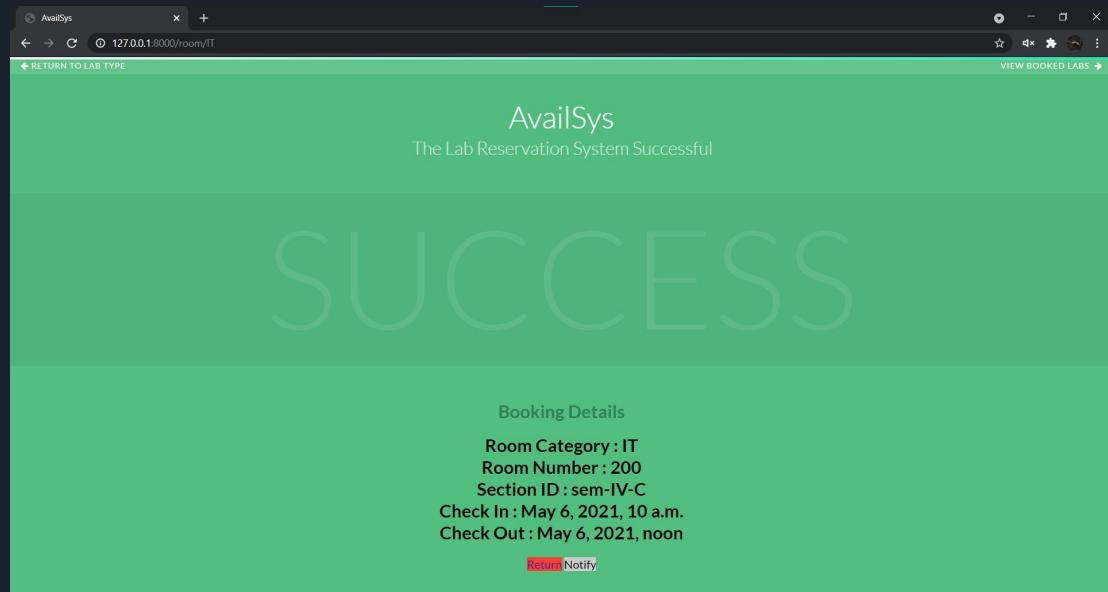


This Page allows the Faculty to select the desired timings for the slot to be booked. Inputs are the section, check in time and check out time.

Faculty TEST CASE 6 - Output

This is the page where Faculty is redirected after he\she schedules a slot for the lab of the category chosen . All the details are shown in this page.Notify button , sends automatic mails to corresponding section.

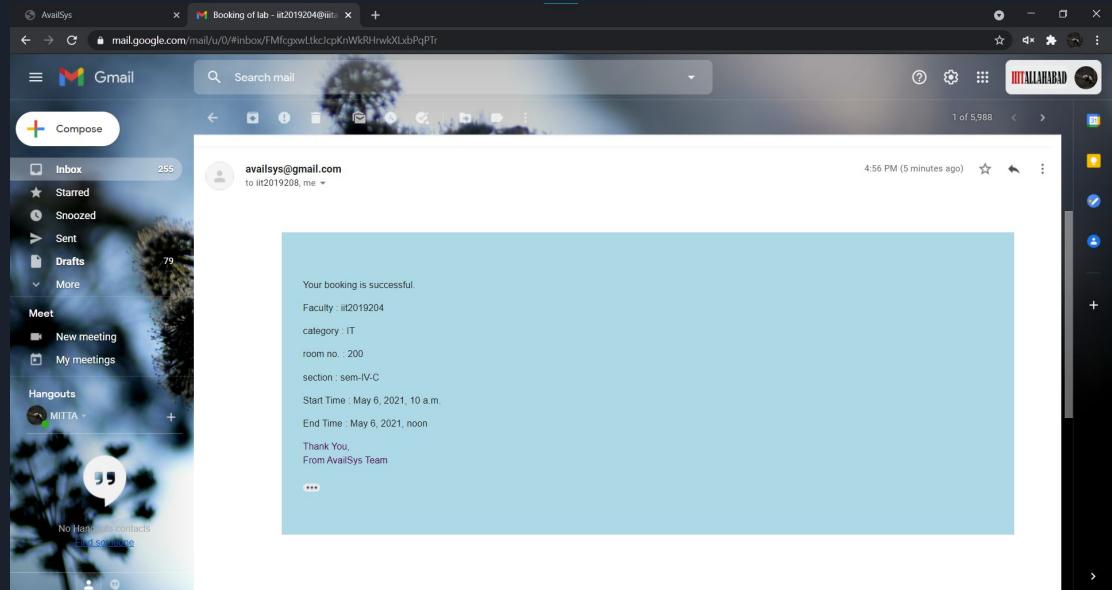
This shows that the test case 6 is passed.



Faculty TEST CASE 6 - Output

Mail received after scheduling a slot. This mail is received to section students and the faculty. Check in the receivers part.

This shows that the test case 6 is passed.



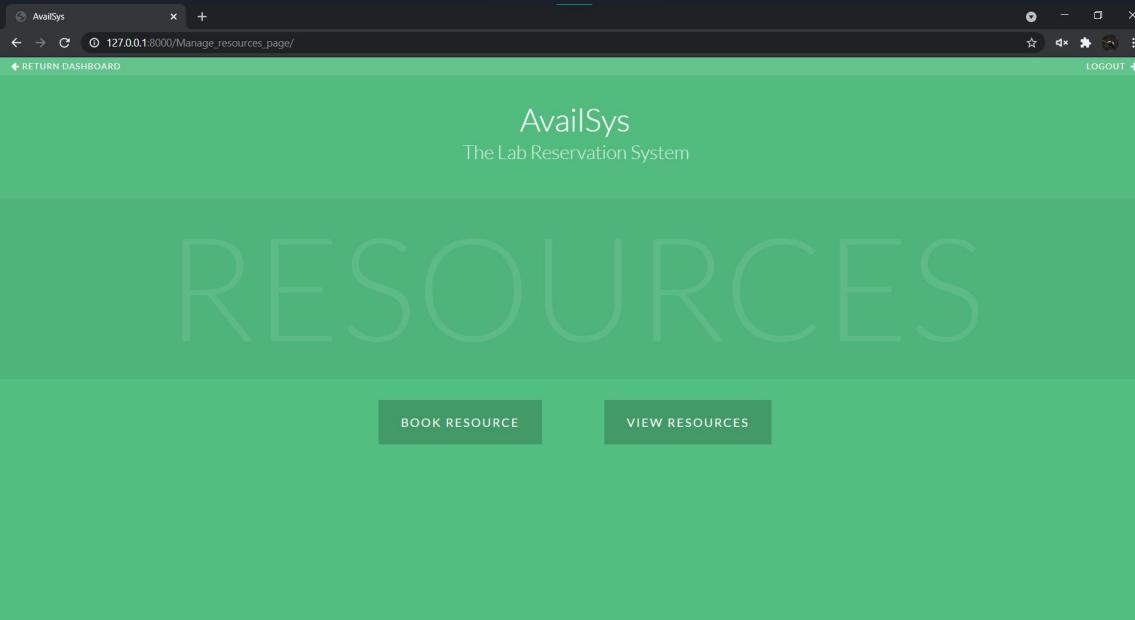
Faculty View Labs Page

The screenshot shows a web browser window titled "AvailSys" with the URL "127.0.0.1:8000/booking_list/". The page header includes "RETURN MANAGE LABS" and "BOOK RESOURCES". The main content area has a green background with the text "AvailSys" and "The Lab Reservation System". A large, semi-transparent "VIEW LABS" button is centered. Below it is a table with the following columns: "Lab Department", "Room Number", "From", "To", and "Section". A single row is shown with values: "IT", "200", "May 6, 2021, 10 a.m.", "May 6, 2021, noon", and "sem-IV-C". A red "CANCEL BOOKING" button is at the bottom right of the table.

Lab Department	Room Number	From	To	Section
IT	200	May 6, 2021, 10 a.m.	May 6, 2021, noon	sem-IV-C

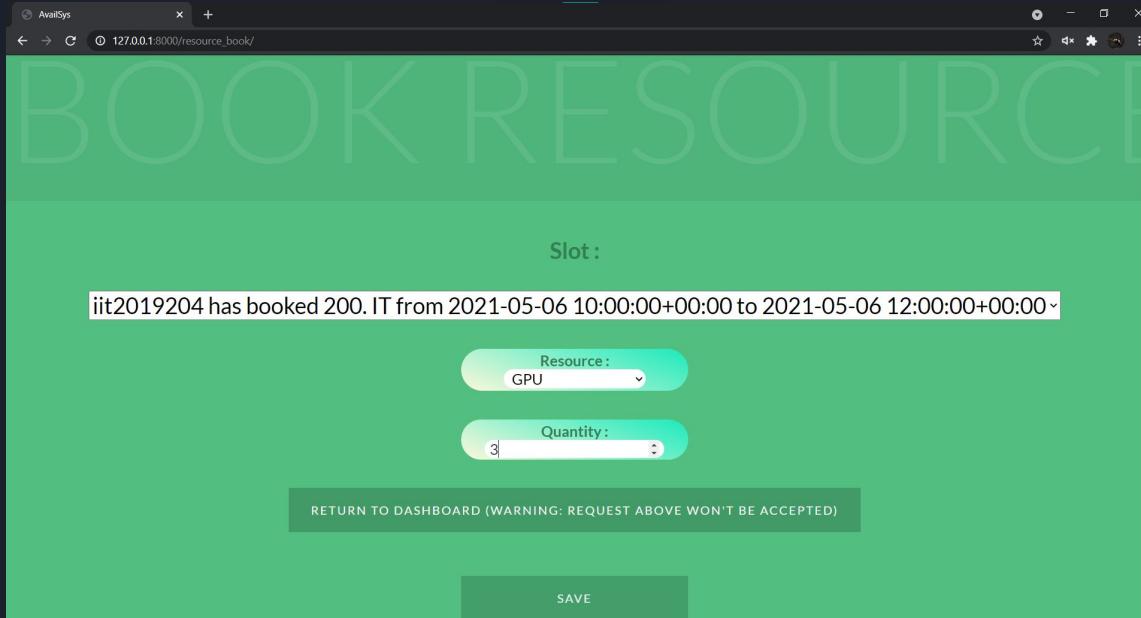
This Page shows all the scheduled labs for all the sections under him/her. There

Faculty Manage Resources



This page has all the links to manage resources like Booking resources and view all the resources.

Faculty TEST CASE 7 - Schedule Resources



This Allows to book resources for the scheduled labs. Inputs for this page are Lab Slot timing that has been booked already, type of resources, quantity of the resources chosen.

Faculty TEST CASE 7 Output

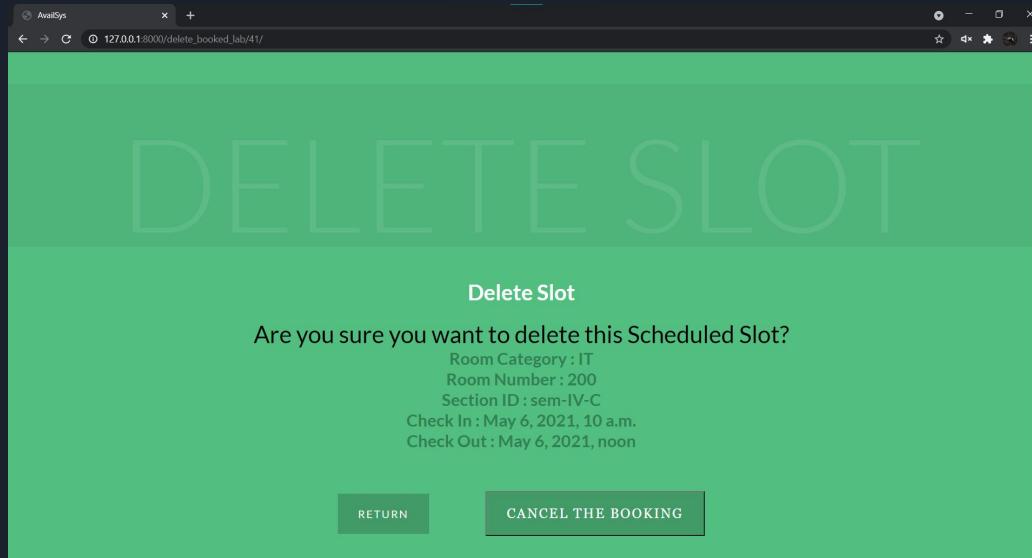
We can see all the scheduled resources scheduled for the scheduled labs. Previous details are visible in this page.

This shows that the test case 7 is passed.

The screenshot shows a web browser window titled 'AvailSys' with the URL '127.0.0.1:8000/resourcepage/'. The page has a header with 'VIEW RESOURCE' and 'AvailSys - The Lab Reservation System'. Below the header is a table with the following data:

Selected booking	Selected resource	Quantity	Status	Action
iit2019204 has booked 200. IT from 2021-05-06 10:00:00+00:00 to 2021-05-06 12:00:00+00:00	GPU	3	Pending	DELETE

Faculty TEST CASE 8 - Cancel Slot

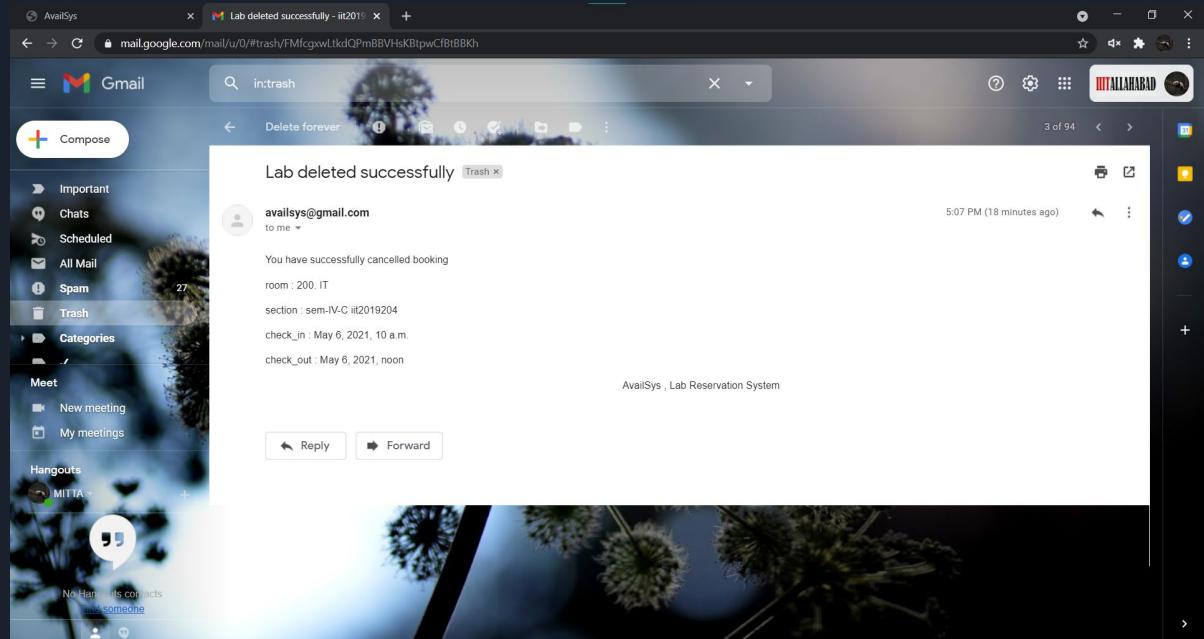


This is the confirmation page to delete a slot , directed from the view labs after selecting cancel button.After pressing cancel button, the section students and faculty receives automated mail with details.

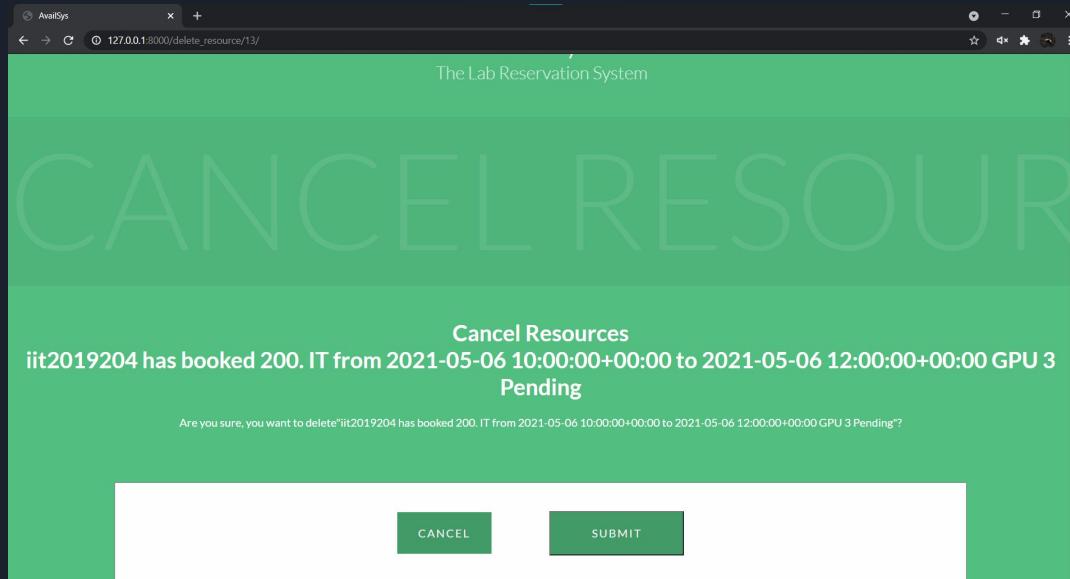
Faculty TEST CASE 8 Output

Acknowledgement mail to section students and teacher from the administration that lab is cancelled.

This shows that the test case 8 is passed.



Faculty TEST CASE 9 - Cancel Resources

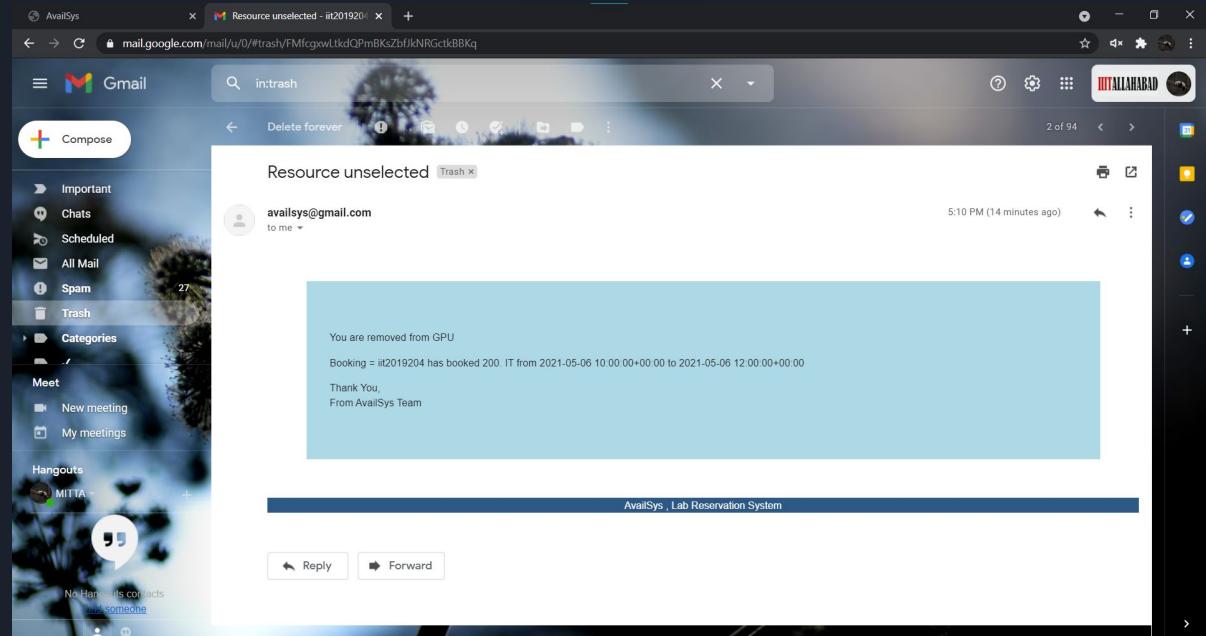


This is the confirmation page to delete a resource , directed from the view resources after selecting cancel button.After pressing cancel button, the section students and faculty receives automated mail with details.

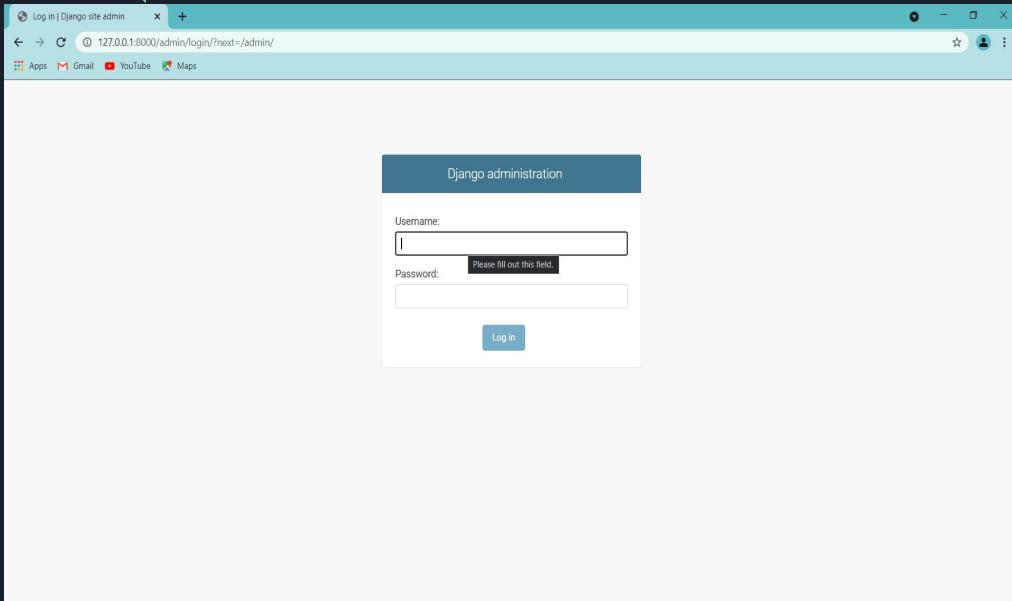
Faculty TEST CASE 9 Output

Acknowledgement mail to section students and teacher from the administration that resource is cancelled.

This shows that the test case 9 is passed.



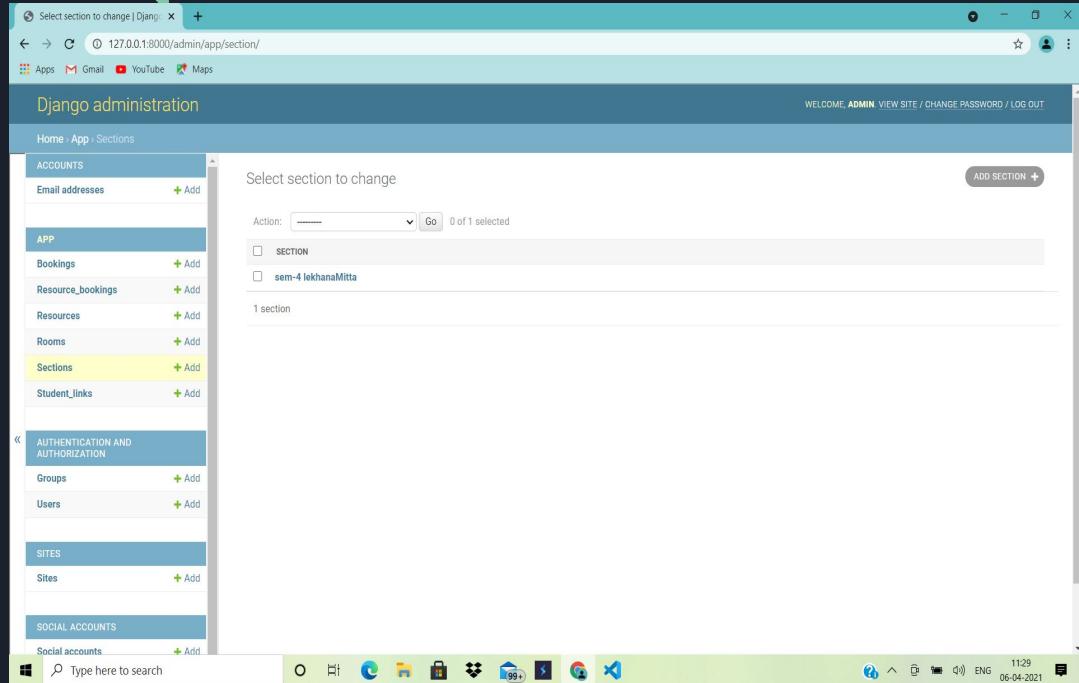
Admin TEST CASE 10 - LOGIN



Login page for the Admin to access all the details.

This shows that the test case 9 is passed.

Admin TEST CASE 11 - VIEW SECTION DETAILS



Admin can view all the section details in this page and can delete a section or even add a new one. Actions are performed after selecting a section and from the drop-down menu on the top of the page.

This shows that the test case 10 is passed.

Admin TEST CASE 12 - VIEW STUDENT LINKS

The screenshot shows the Django Admin interface for the 'Student_Link' model. The left sidebar has a 'Student_links' item selected under the 'APP' section. The main content area displays a list titled 'Select student_link to change'. It shows one entry: 'iiit2019204@iit.a.ac.in'. There is an 'ADD STUDENT_LINK' button at the top right of the list table.

This page shows all the details of the students added in the students database.

This shows that the test case 11 is passed.

Admin TEST CASE 13 - VIEW FACULTY DETAIL

The screenshot shows the Django Admin interface at the URL `127.0.0.1:8000/admin/auth/user/`. The left sidebar has sections for ACCOUNTS, APP, AUTHENTICATION AND AUTHORIZATION, SITES, and SOCIAL ACCOUNTS. Under AUTHENTICATION AND AUTHORIZATION, 'Users' is selected and highlighted in yellow. The main content area is titled 'Select user to change' and displays a table of users. The table columns are USERNAME, EMAIL ADDRESS, FIRST NAME, LAST NAME, and STAFF STATUS. There are three users listed: admin (staff status green), lekhanamitta (staff status red), and meghana (staff status red). A search bar and a 'Go' button are above the table. To the right of the table is a 'FILTER' sidebar with options for By staff status (All, Yes, No), By superuser status (All, Yes, No), and By active (All, Yes, No). The bottom of the screen shows a Windows taskbar with various icons and the date/time: 11:31 06-04-2021.

USERNAME	EMAIL ADDRESS	FIRST NAME	LAST NAME	STAFF STATUS
admin	iiit2019208@iita.ac.in			green
lekhanamitta	lekhanamitta@gmail.com			red
meghana	meghana@gmail.com			red

This shows the users of the website , admin can filter all the users by type , by activity,by staff status.

This shows that the test case 12 is passed.

Admin TEST CASE 14- MANAGE RESOURCE DATABASE

The screenshot shows the Django administration interface at the URL `127.0.0.1:8000/admin/app/resource/`. The left sidebar lists various models: ACCOUNTS (Email addresses), APP (Bookings, Resource_bookings, Resources, Rooms, Sections, Student_links), AUTHENTICATION AND AUTHORIZATION (Groups, Users), SITES (Sites), and SOCIAL ACCOUNTS (Social accounts). The 'Resources' model is selected and highlighted in yellow. The main content area is titled 'Select resource to change' and shows a list with one item: 'phy1'. There is a checkbox next to 'phy1' and a button labeled 'ADD RESOURCE +'. The bottom status bar shows system icons and the date/time: 11:35 06-04-2021.

We can manage all resources , edit the total number of resources , add or delete a resource.

This shows that the test case 13 is passed.

Admin TEST CASE 15 - MANAGE TIMESLOT

The screenshot shows the Django Admin interface at the URL 127.0.0.1:8000/admin/app/booking/. The left sidebar lists various models: ACCOUNTS (Email addresses), APP (Bookings, Resource_bookings, Resources, Rooms, Sections, Student_links), AUTHENTICATION AND AUTHORIZATION (Groups, Users), SITES (Sites), and SOCIAL ACCOUNTS. The main content area is titled "Select booking to change" and shows a single booking entry: "lekhanaMitta has booked 100.PHY from 2021-04-06 12:00:00+00:00 to 2021-04-06 13:30:00+00:00". There are buttons for "ADD BOOKING" and "Action: [dropdown]". The status bar at the bottom shows the URL 127.0.0.1:8000/admin/app/booking/27/change/, the system tray with icons for battery, signal, and volume, and the date/time as 11:35 06-04-2021.

Admin can manage the time slots users booked , he could delete a time slot or even can add a time slot.

This shows that the test case 14 is passed.

Admin TEST CASE 16 - MANAGE LABS

The screenshot shows the Django Admin interface at the URL 127.0.0.1:8000/admin/app/room/. The left sidebar has 'Rooms' selected under the 'APP' category. The main area is titled 'Select room to change' and lists eight rooms: 401.EEE, 400.EEE, 301.CHEM, 300.CHEM, 201.IT, 200.IT, 101.PHY, and 100.PHY. An 'ADD ROOM +' button is at the top right. The bottom of the page shows the Windows taskbar with various icons and the date/time as 11:36 06-04-2021.

Admin can check out all the scheduled slots and details of scheduled labs like lab number, slot timings, Under whom(which Faculty).

This shows that the test case 15 is passed.

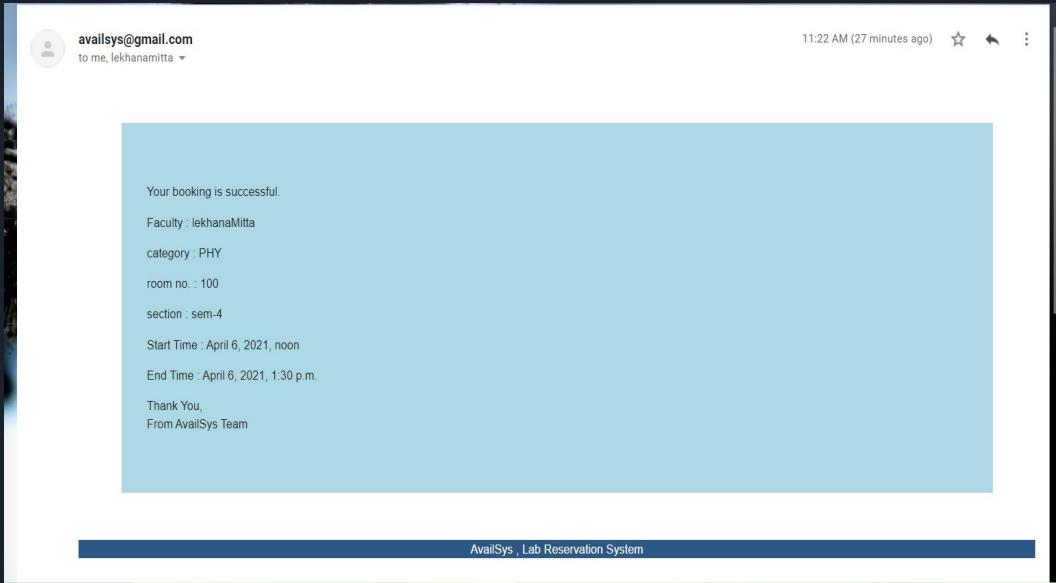
Admin TEST CASE 17 - CANCEL SLOT

The screenshot shows the Django Admin interface at the URL 127.0.0.1:8000/admin/app/booking/. The left sidebar lists various models: ACCOUNTS (Email addresses), APP (Bookings, Resource_bookings, Resources, Rooms, Sections, Student_links), AUTHENTICATION AND AUTHORIZATION (Groups, Users), SITES (Sites), and SOCIAL ACCOUNTS (Social accounts). The main content area is titled "Select booking to change" and shows a single booking entry: "IekhanaMitta has booked 100, PHY from 2021-04-06 12:00:00+00:00 to 2021-04-06 13:30:00+00:00". Below the entry, there is an "Action" dropdown set to "Delete selected bookings" and a "Go" button. The status bar at the bottom indicates "11:37 ENG 06-04-2021".

After selecting the option to delete from the drop down menu , admin can select the ones which he wants to delete and press enter.

This shows that the test case 16 is passed.

Student TEST CASE 18 - RECEIVE EMAILS



When a lab is scheduled , students receive an email of intimation that his/her faculty has booked a lab and details are mailed . Similarly they receive an email when a lab slot is cancelled , and when a student details are edited.

This shows that the test case 17 is passed.

TRACEABILITY MATRIX

REQUIREMENT ID	USE CASE - ID	HIGH LEVEL DESIGN	LOW LEVEL DESIGN 1	LOW LEVEL DESIGN 2
4.1.1	UC - 1 UC - 8	SD - 1.1	CD - 3.2.1	M1,M2
4.1.2	UC - 2	SD - 1.2 SD - 1.6	CD - 3.2.1 CD - 3.2.2 CD - 3.2.4 CD - 3.2.5	M3,M12,M14, M15,M16
4.1.3	UC - 3	SD - 1.2 SD - 1.3	CD - 3.2.1 CD - 3.2.2	M5,M6,M19
4.1.4	UC - 4	SD - 1.2 SD - 1.5	CD - 3.2.1 CD - 3.2.2	M7,M9,M17
4.1.5	UC - 5	SD - 1.2 SD - 1.4	CD - 3.2.1	M8
4.1.6	UC - 6 UC - 13	SD - 1.2 SD - 1.4 SD - 1.5	CD - 3.2.1	M7

REQUIREMENT ID	USE CASE - ID	HIGH LEVEL DESIGN	LOW LEVEL DESIGN 1	LOW LEVEL DESIGN 2
4.2.1	UC - 7	SD - 2.1	CD - 3.2.2	M19
4.2.2	UC - 1 UC - 8	SD - 2.1	CD - 3.2.2	M10,M11
4.2.3	UC - 9	SD - 2.2	CD - 3.2.1	M5,M6
4.2.4	UC - 10	SD - 2.2 SD - 2.3	CD - 3.2.2 CD - 3.2.5	M15,M16
4.2.5	UC - 11	SD - 2.2 SD - 2.3 SD - 2.4	CD - 3.2.1 CD - 3.2.2	M9,M17
4.2.6	UC - 12	SD - 2.2 SD - 2.3 SD - 2.5	CD - 3.2.2 CD - 3.2.5	M18,M21
4.2.7	UC - 6, UC - 13	SD - 2.2	CD - 3.2.2	M13

REQUIREMENT ID	USE CASE - ID	HIGH LEVEL DESIGN	LOW LEVEL DESIGN 1	LOW LEVEL DESIGN 2
4.2.8	UC - 14 UC - 15	SD - 2.2 SD - 2.3 SD - 2.4 SD - 2.5	CD - 3.2.1 CD - 3.2.2 CD - 3.2.3 CD - 3.2.4	M7,M9,M13, M17,M20
4.3.1	UC - 14 UC - 15	SD - 2.2 SD - 2.3 SD - 2.4 SD - 2.5	CD - 3.2.1 CD - 3.2.2 CD - 3.2.3 CD - 3.2.4	M7,M9,M13, M17,M20



THANK YOU