



---

# Software Requirements Specification

## for NITC Conference Room Booking System

Version 2.0

Prepared by

Team Number: 12

Rajkumar Rajput	M210666CA	rajkumar_m210666ca@nitc.ac.in
Joel Lalrinnunga Ralte	M210694CA	joel_m210694ca@nitc.ac.in
Arham Siddiki	M210695CA	arham_m210695ca@nitc.ac.in

**Project Owner:** ABHINAV SUDHANSHU

**Course:** CS4096D Software Engineering Laboratory

**Date:** 28/01/2023

# CONTENTS

<b>Revisions</b>	<b>3</b>
<b>1 Introduction</b>	<b>4-5</b>
1.1 Document Purpose	4
1.2 Product Scope	4
1.3 Intended Audience and Document Overview	4
1.4 Definitions, Acronyms and Abbreviations	4
1.5 Document Conventions	5
1.6 References and Acknowledgments	5
<b>2 Overall Description</b>	<b>6</b>
2.1 Product Overview	6
2.2 Product Functionality	6
2.3 Design and Implementation Constraints	6
2.4 Assumptions and Dependencies	6
<b>3 Specific Requirements</b>	<b>7-18</b>
3.1 External Interface Requirements	7-11
3.1.1 User Interfaces	7-10
3.1.2 Hardware Interfaces	11
3.1.3 Software Interfaces	11
3.2 Functional Requirements	12
3.3 Use Case Model	13-17
3.3.1 - 3.3.8 : All use cases elaboration	14-17
<b>4 Other Non-functional Requirements</b>	<b>18</b>
4.1 Performance Requirements	18
4.2 Safety and Security Requirements	18
4.3 Software Quality Attributes	18
<b>Appendix A - Activity Log</b>	<b>19</b>
<b>Design Document</b>	<b>20 onwards</b>

## Revisions

Version	Primary Author(s)	Description of Version	Date Completed
2.0	Rajkumar Rajput Joel Lalrinnunga Ralte Arham Siddiki	This document is intended to describe the requirements for the product in development.	28/01/2023

---

# 1 Introduction

**NITC conference room booking system** is a software application that allows clubs/societies/committees to book the institute's conference room for any official purpose.

## 1.1 Document Purpose

This document specifies SRS of the intended project submitted alongside, Functional requirements, product overview, interfaces and product design is attached with this document

## 1.2 Product Scope

The NITC conference room booking system aims for the students & community of faculty members, staff, team of students' meetings to run more smoothly. The rooms are quiet, private spaces where people feel happy sharing information and ideas. They also provide a comfortable and professional setting.

## 1.3 Intended Audience and Document Overview

This document is intended to NITC students, faculty members individuals or community of students, faculty members, departments intending to use this product. They can use it to understand more about this product.

It generally states the following:

1. Various definition and acronyms used in the product and document itself.
2. Overview about the product and design constraints.
3. Use case model for the product.
4. Performance and security requirements.

## 1.4 Definitions, Acronyms and Abbreviations

1. Admin – A person or group of people assigned to manage the interactions of the user with the product.
2. System – The hardware interface of the product.
3. User – The person or community who uses this portal.
4. Application – When a person or community requests for conference room.
5. Identity number – A unique number assigned to a person or an organization by the government.  
For example-SSN, Aadhar Number, etc.
6. CRBS : Conference Room Booking System.
7. NITC : National Institute of Technology, Calicut

---

## 1.5 Document Conventions

1. Topics are center aligned at top of the page followed by their sequence number.
2. Topics are styled font family “Times New Roman” size 21.
3. Sub-Topics are starting with bold font and sequentially numbered in size 14 written in “Times New Roman”.
4. Context followed by sub-topics have the font family “Times New Roman” and a size is 12
5. In context bullets are used and they are written in “Times New Roman” with size 12.
6. Page breaks are given before coming on another topic.

## 1.6 References and Acknowledgments

1. Software engineering A practitioner’s Approach by Rogers s. pressman
2. <https://www.vlab.co.in/>
3. <https://www.javatpoint.com/software-engineering>
4. [https://www.tutorialspoint.com/software\\_engineering/index.html](https://www.tutorialspoint.com/software_engineering/index.html)

---

## **2 Overall Description**

### **2.1 Product Overview**

One of the most common challenges or complaints heard in a modern office is the unavailability of a conference room when you need one. The ones available would be either too small or lack the necessary equipment. Even if you find one, the duration for which you hold it depends on your position in the hierarchy or the criticality of the meeting agenda. Else, be prepared for “sorry, we need this room now”. With the use of this application, interested members of the NITC will be able to book a conference room in advance with the date and time slots of their choice so that they do not face difficulty in occupying the room later.

### **2.2 Product Functionality**

The product implements the following functions:

1. Login and registration interface for representative of a community.
2. Search availability of conference room.
3. Book the conference room.
4. Cancel the conference room.
5. Request for reschedule of booking.
6. Admin can :
  - a. View bookings.
  - b. View available slots.
  - c. Cancel a booking.
  - d. View/accept/reject profile requests.
  - e. View users database.

### **2.3 Design and Implementation Constraints**

Design and implementation constraints taken into consideration are:

1. Web connection is reliable.
2. Login Id and Password entered by both individuals and community is correct.
3. Database server is currently up and running.
4. User can either be individuals or representatives of an community.
5. User can comprehend English.
6. User don't book unnecessarily.
7. User's details are verified to interact with the system.

### **2.4 Assumptions and Dependencies**

Various assumptions and dependencies taken into consideration are as follows:




1. User has basic knowledge of using a web application.
2. User has a stable internet connection.
3. User is aware of product deployment.
4. System run on a supported machine and reacts to users in real time.


## 3 Specific Requirements

### 3.1 External Interface Requirements

#### 3.1.1 User Interfaces


1) User Login and Registration.

5:13 PM   



**NITC CONFERENCE ROOM BOOKING**

Login to Continue







[Forgot Password?](#)

Login

Register

[Admin Login](#)

5:13 PM   



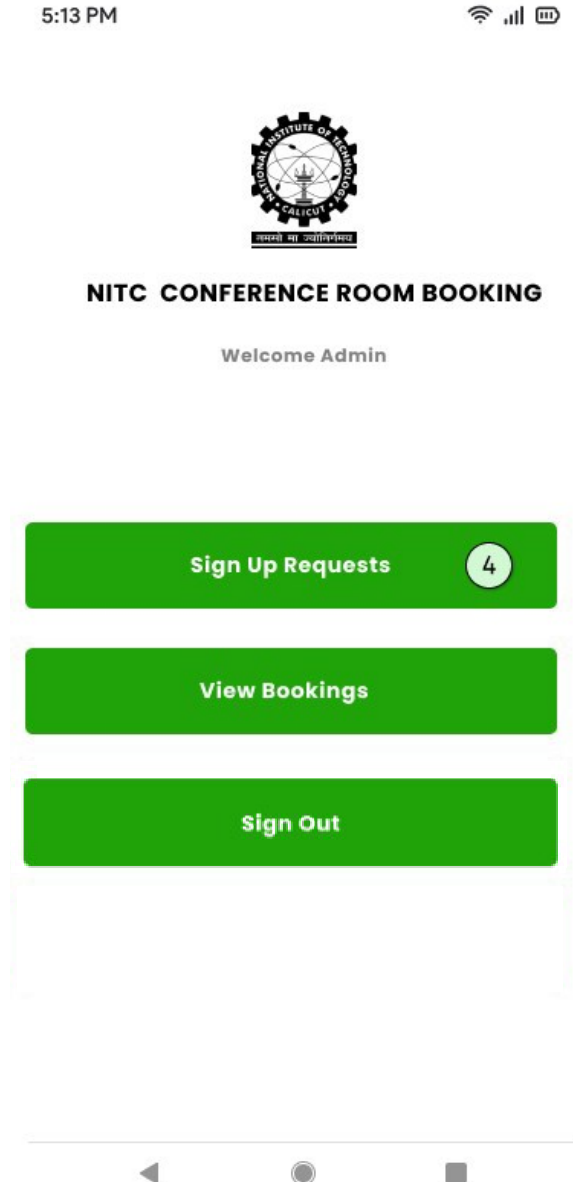
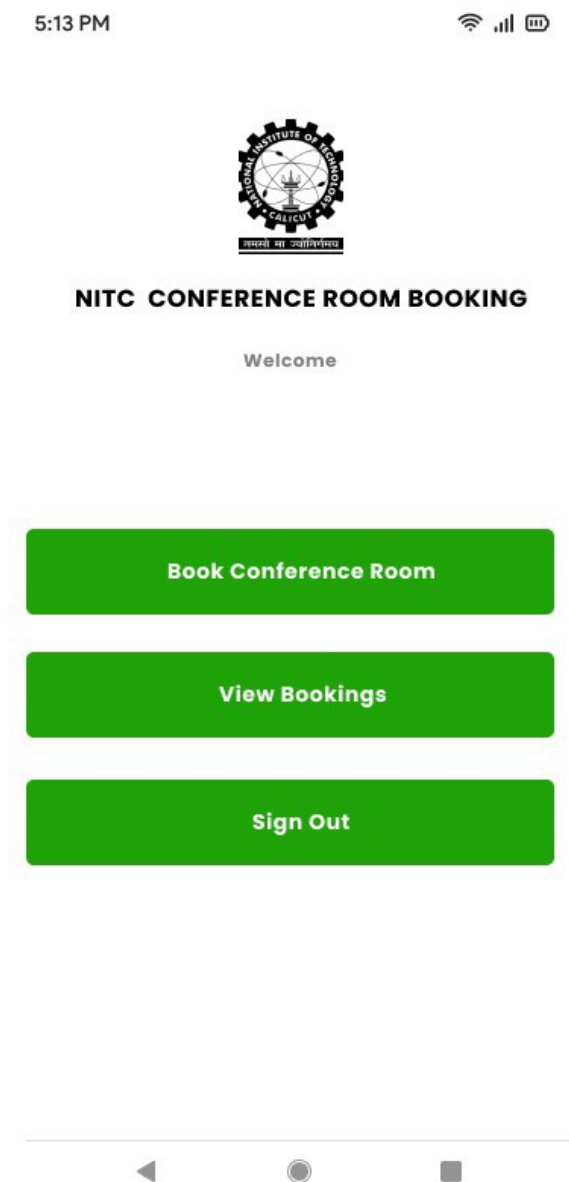
**NITC CONFERENCE ROOM BOOKING**

Enter Official NITC email and  
representing committee name

Register

---


## 2) User Landing Page and admin landing page





### 3) Room booking interface

5:13 PM



SELECT A DATE

06/09/2023


<September 2023>

S	M	T	W	T	F	S
24	25	26	27	28	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

Up to two weeks from the present date

Confirm Date

5:13 PM



SELECT TIME SLOT(S)

06 SEPTEMBER 2023

☐ 06:00 AM - 07:00 AM

☐ 07:00 AM - 08:00 AM

☐ 08:00 AM - 09:00 AM

☐ 09:00 AM - 10:00 AM

☐ 10:00 AM - 11:00 AM

☒ 11:00 AM - 12:00 PM

☒ 12:00 PM - 1:00 PM


☒ 01:00 PM - 2:00 PM

☐ 02:00 PM - 3:00 PM

☐ 03:00 PM - 4:00 PM

Confirm Time Slots

5:13 PM



NITC CONFERENCE ROOM BOOKING

Purpose of booking

Booking Date

06 SEPTEMBER 2023

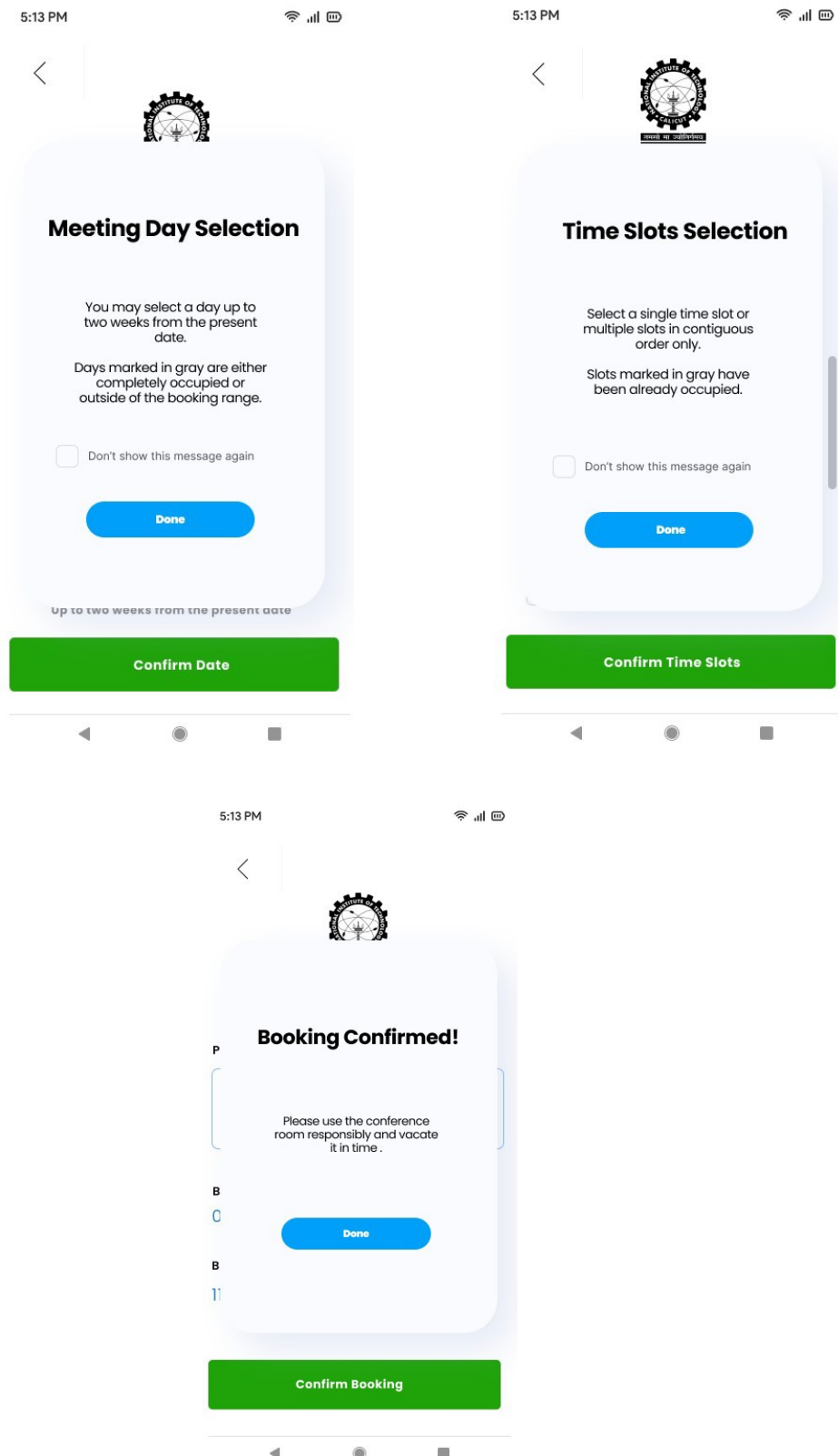
Booking Time

11:00 AM - 2:00 PM

Confirm Booking

---

#### 4) Pop-up instructions for room booking process.

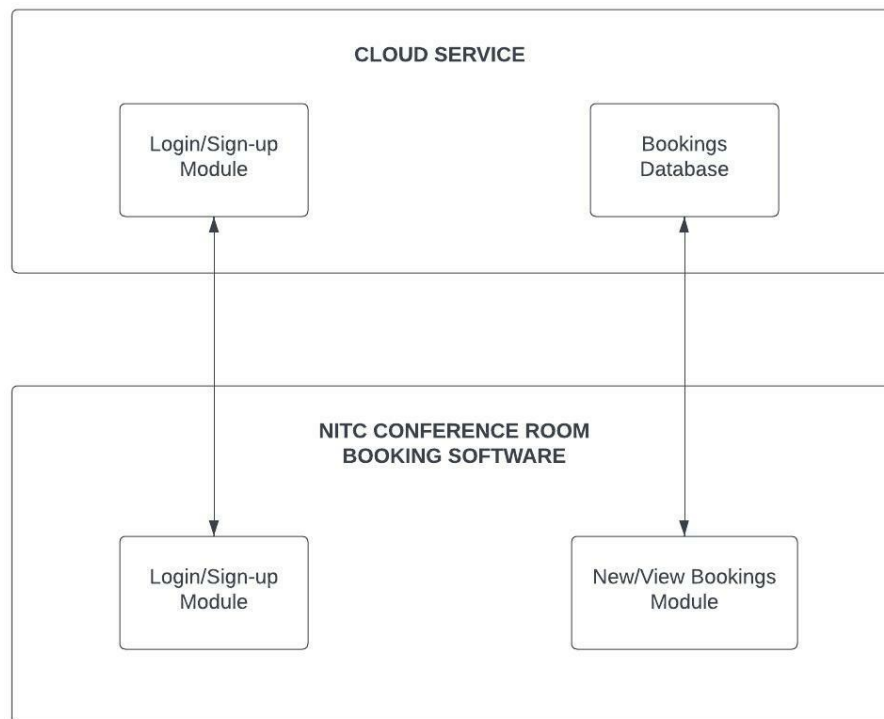


---

### 3.1.2 Hardware Interfaces

- 1) An Android OS supported device.
- 2) Functional web server to support activities of the application.

### 3.1.3 Software Interfaces

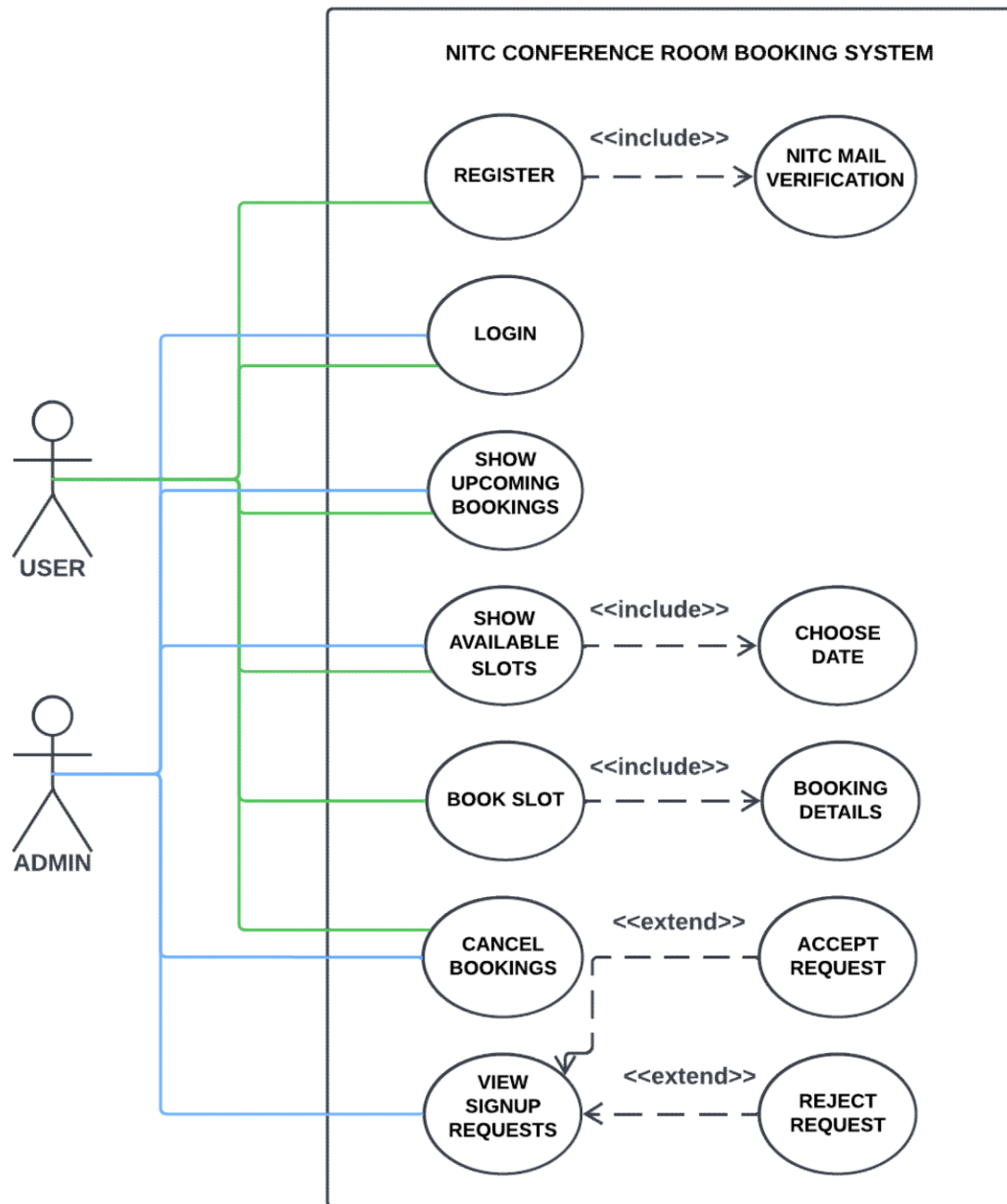


---

## 3.2 Functional Requirements

- F1** : The system shall allow users to login/register into system.
- F2** : The system shall be able to show users their upcoming bookings.
- F3** : The system shall show users available slots for a day chosen.
- F4** : The system shall allow users to choose multiple slots at a time for booking.
- F5** : The system shall allow users to make bookings for available slots by taking appropriate details.
- F6** : The system shall allow users/admins to cancel bookings.
- F7** : The system shall allow admin to log into system.
- F8** : The system shall allow admin to view upcoming bookings.
- F9** : The system shall allow admin to view/accept/reject/signup requests.

### 3.3 Use Case Model



Use case diagram for NITC CRBS - Conference Room Booking System

---

### 3.3.1 Use Case #1 (register - U1)

**Author** – Arham Siddiki

**Purpose** - This use case aims to provide register/sign-up functionality for system.

**Requirements Traceability** - F1,F7.

**Priority** - High. registration is must for user to utilise the system. Without registration, they can't proceed further.

**Pre-conditions** - User must be a representative of a club/society/committee of institute and must have an NITC mail ID of that club.

**Post conditions** - User will be registered on system after admin confirms his registration request.

**Actors** – Admin.

#### **Flow of Events**

1. Basic Flow - User will enter his club name, club email id then choose a password of at least 6 characters. Upon submitting info, his sign-up request will be received by admin.
2. Alternative Flow - If mail is invalid or password is shorter than 6 characters, he'll have to re-enter it.

**Includes** - Verification of mail ID whether it's NITC group mail ID or not.

**Notes/Issues** - Any relevant notes or issues that need to be resolved.

### 3.3.2 Use Case #2 (login - U2)

**Author** – Arham Siddiki

**Purpose** - This use case aims to provide login functionality for system.

**Requirements Traceability** - F1,F8.

**Priority** - High. Login is must for utilisation of system. Without login, no data from system can be extracted/viewed.

**Pre-conditions** - User must have login details i.e. email ID and password.

**Post conditions** - User will be logged in and thus able to proceed further to next use cases.

**Actors** – Users, Admin.

---

### **Flow of Events**

1. Basic Flow - User will enter his NITC mail id and password. Upon successful login, he'll be able to login to system.
2. Alternative Flow - If login details are wrong, he'll be prompted to re-enter it.

**Includes** - Verification of mail ID whether it's NITC group mail ID or not.

### **3.3.3 Use Case #3 (Show upcoming bookings - U3)**

**Author** – Rajkumar Rajput

**Purpose** - This use case aims to show user the bookings he has upcoming.

**Requirements Traceability** - F2,F8.

**Priority** - Medium. User must stay known of the bookings they've made.

**Pre-conditions** - User must be logged in.

**Post conditions** - User will be shown his upcoming bookings. Here he can select a booking and choose it to be canceled or just view details.

**Actors** – Users, Admin.

### **Flow of Events**

1. Basic Flow - User will be shown his upcoming bookings. Here he can select a booking and choose it to be canceled or just view its details.

### **3.3.4 Use Case #3 (Show slots - U4)**

**Author** – Arham Siddiki

**Purpose** - This use case aims to provide user with details of available slots on a day.

**Requirements Traceability** - F3,F4.

**Priority** - High. For booking, user must be able to see available free slots.

**Pre-conditions** - User must be logged in.

**Post conditions** - User will be shown the available slots of a particular day.

**Actors** – Users, Admin.

---

## **Flow of Events**

1. Basic Flow - User will choose a date and system will show him the available slots for the day. Here he can choose multiple slots to be booked.

**Includes** - Choosing a date by user.

### **3.3.5 Use Case #5 (Book slots - U5)**

**Author** – Arham Siddiki

**Purpose** - This use case aims to enable user to book Conference room.

**Requirements Traceability** - F4,F5.

**Priority** - High. User must be able to book slots of his choice.

**Pre-conditions** - User must be logged in. Slots must be selected by user for whom booking is to be made. User must be ready with details such as Name, Contact number, Committee, purpose of booking, etc.

**Post conditions** - The slots chosen will be successfully occupied by user.

**Actors** – Users.

## **Flow of Events**

1. Basic Flow - User will choose slot(s) of a particular day. Upon choosing to book, he'll be asked to supply some necessary details. After providing details, slot(s) will be confirmed for booking.

**Includes** - Choosing slot(s) by user.

### **3.3.6 Use Case #6 (Cancel booking - U6)**

**Author** – Joel L Ralte

**Purpose** - This use case aims to provide user/admin with an option canceling the booking.

**Requirements Traceability** - F2,F6,F8.

**Priority** - High. There might be chances that the purpose for booking conference room is no longer there or there might be some changes in event plan. So booking must be flexible.

**Pre-conditions** - User must be logged in.



---

**Post conditions** - User will be able to cancel the booking.

**Actors** – Users./admin.

**Flow of Events**

1. Basic Flow - User will choose a booking then cancel it.

**Includes** - Choosing a booking by user/admin.

### 3.3.7 Use Case #7 (View signup requests - U7)

**Author** – Arham Siddiki

**Purpose** - This usecase will show admin the requests made by users for signup. He can accept/reject their requests.

**Requirements Traceability** - F9.

**Priority** -High. Profile verification is mandatory as no user can use system without verification of their profiles.

**Pre-conditions** - Admin must be logged in.

**Post conditions** - Profile will be accepted/rejected by admin. In case of acceptance, user will be able to login to system.

**Actors** – Admin.

**Flow of Events**

1. Basic Flow - Admin will see a list of requests. He will choose whether to accept/reject them.

**Extend** - Admin can cancel/accept that request.

---

## 4 Other Non-functional Requirements

### 4.1 Performance Requirements

#### Hardware Requirements

1. Viewing screen – Desktop Monitor or portable computer screen.
2. Input tools – Keyboard and Mouse.

#### Software Requirements

User can interact with the software through the following functionalities:

1. Viewing web pages:  
Web browsers: Chrome, Safari, Firefox etc.
2. Interaction - High speed internet connection, HTTPS, TCP

### 4.2 Safety and Security Requirements

- User login authentication is implemented with the user's email and password.
- User sign-up verification is not yet implemented with this version of the product. But the user should be verified with its identity number, mobile number, and email.
- Admin may delete a job provided or any user from the database if he/she finds any vulnerability with the system.
- *User can cancel their conference room booking, before canceling booking need to enter reason behind canceling.*

### 4.3 Software Quality Attributes

**4.3.1 Reliability:** The system processes the queries by the user and responds in real time.

**4.3.2 Secure:** User is verified with their email and mobile number, hence user's security is not compromised.

**4.3.3 Adaptability:** As the product is independent of the platform, it requires only a web browser and secure connection to work.

---

## Appendix A - Activity Log

19th January ,2023 project discussion	2:30 PM – 4:00 AM
20th January ,2023 Discussion on forms in the product to be created	12:00PM - 12:48PM
21th January ,2023 SRS documentation discussion	08:00PM - 9:00PM
22th January ,2023 Completion of remaining work in SRS documentation	11:00AM – 12:00PM
23th January ,2023 SRS documentation identifying use-cases	08:00 PM – 9:30 PM
28 <sup>th</sup> January, 2023 SRS documentation: Re-iterating all use cases and making necessary changes.	6:00 PM - 10:00PM

---

THIS PAGE IS  
INTENTIONALLY  
LEFT BLANK

---

# Design Document

for

# NITC Conference Room Booking System

Version 1.0

Prepared by Team 12:  
(Based on SRS Version 2.0 prepared by Team 12)

<b>Rajkumar Rajput</b>	<b>M210666CA</b>	<b>rajkumar_m210666ca@nitc.ac.in</b>
<b>Joel Lalrinnunga Ralte</b>	<b>M210694CA</b>	<b>joel_m210694ca@nitc.ac.in</b>
<b>Arham Siddiki</b>	<b>M210695CA</b>	<b>arham_m210695ca@nitc.ac.in</b>

**Project Owner:** ABHINAV SUDHANSHU

**Course:** CS4096 Software Engineering Laboratory

**Date:** 07-02-2023

---

# CONTENTS

<b>Glossary</b>	<b>23</b>
<b>1. Detailed Design through UML diagrams</b>	<b>24-32</b>
1.1 System model using Class Diagram	24
1.1.1 Class Diagram	24
1.2 Responsibilities - Usecase Diagram	25
1.3 Static snapshot of the system - Object Diagram	26
1.4 System Interactions through Sequence Diagrams	27-29
1.4.1 Registration Process	27
1.4.2 Slot Booking	28
1.4.3 View Bookings	229
1.5 Control and Data Flows through Activity Diagrams	30-32
1.5.1 Registration Activity	30
1.5.2 Book Slot	31
1.5.3 View Bookings	32
<b>2. Database Design</b>	<b>33</b>
2.1 ER Diagram	33
<b>3. Implementation Plans</b>	<b>34</b>
3.1 Technology Stack	34
3.2 User Interface Prototyping	34
<b>4. Test Cases</b>	<b>38-40</b>
4.1 Test Case #1 (Test_login)	38
4.2 Test Case #2 (Test_signup)	39
4.3 Test Case #3 (Test_bookSlot)	40
<b>5. Traceability</b>	<b>41</b>
<b>6. References</b>	<b>41</b>

---

## **GLOSSARY**

NITC	National Institute of Technology, Calicut
CRBS	Conference Room Booking System
UML	Unified Modelling Language

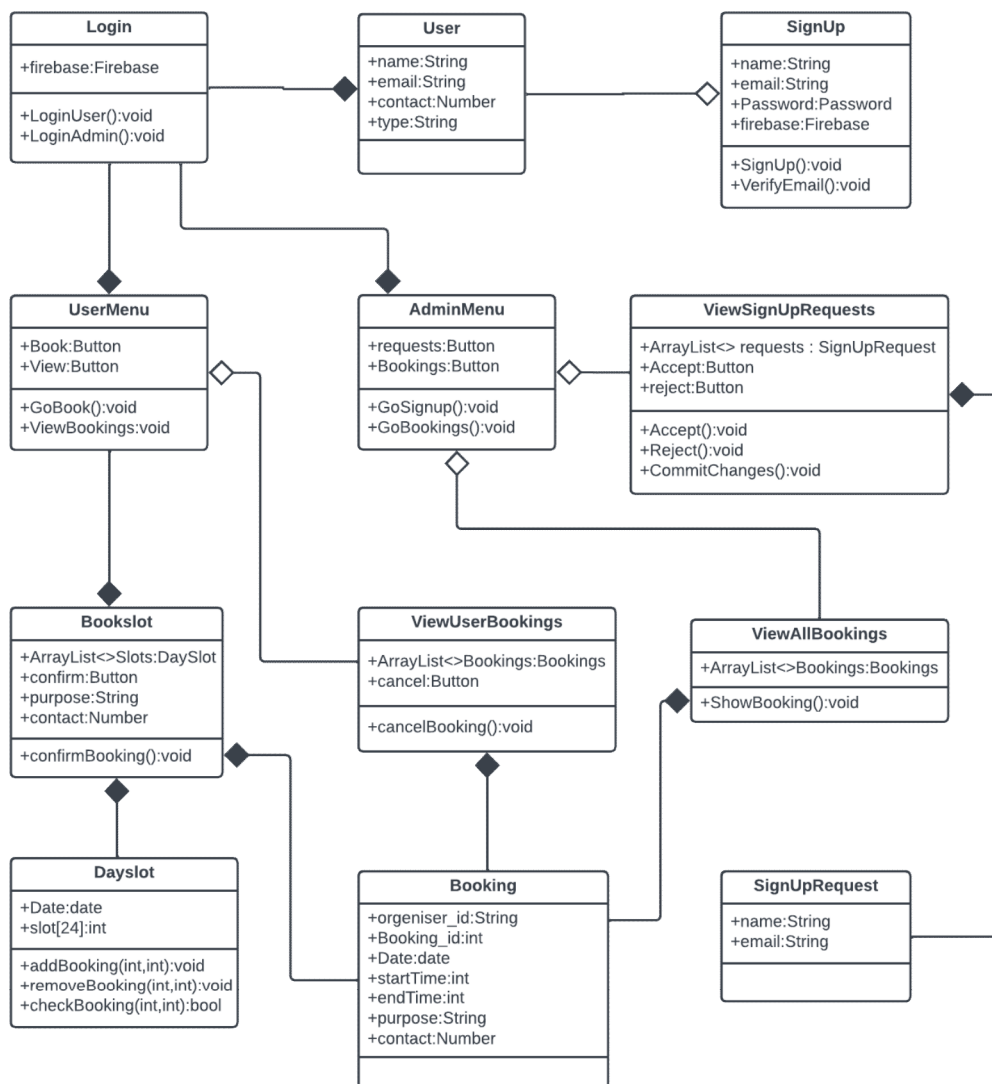
---

# 1. Detailed Design through UML diagrams

## 1.1 System model using Class Diagram

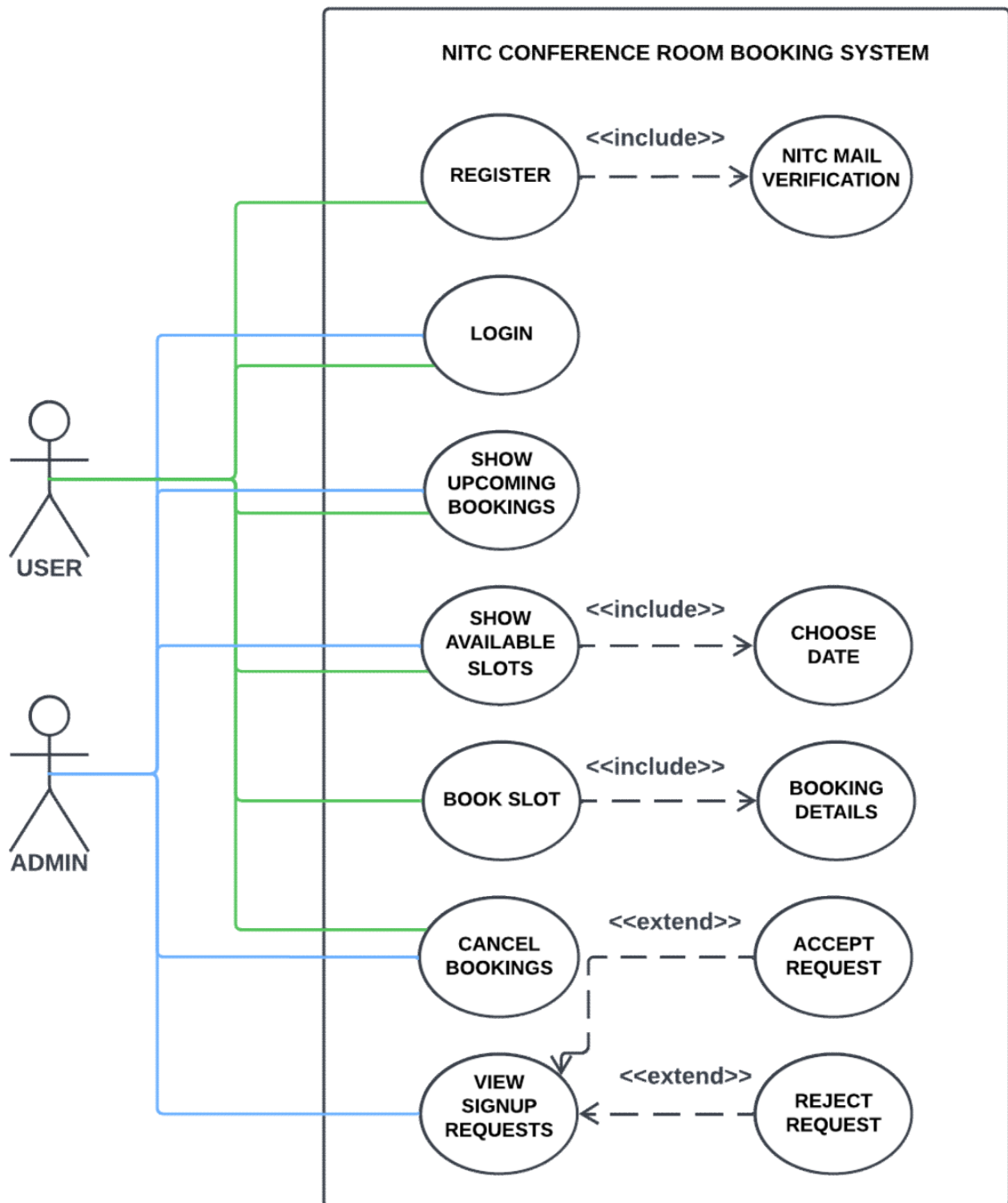
Class Diagram in the Unified Modelling Language is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods) and the relationships among classes.

### 1.1.1 Class Diagram

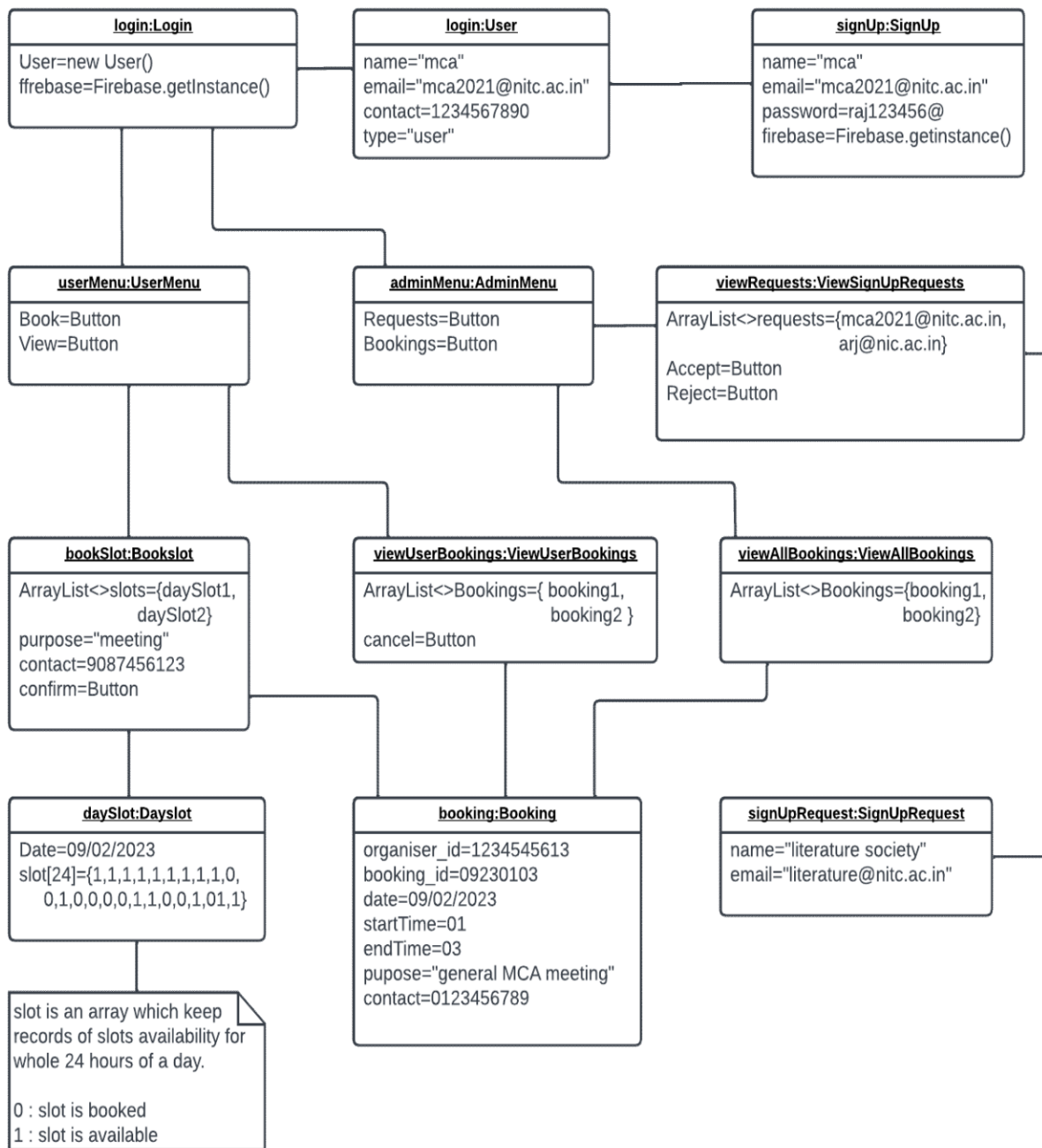




## 1.2 Responsibilities - Usecase Diagram



## 1.3 Static snapshot of the system - Object Diagram



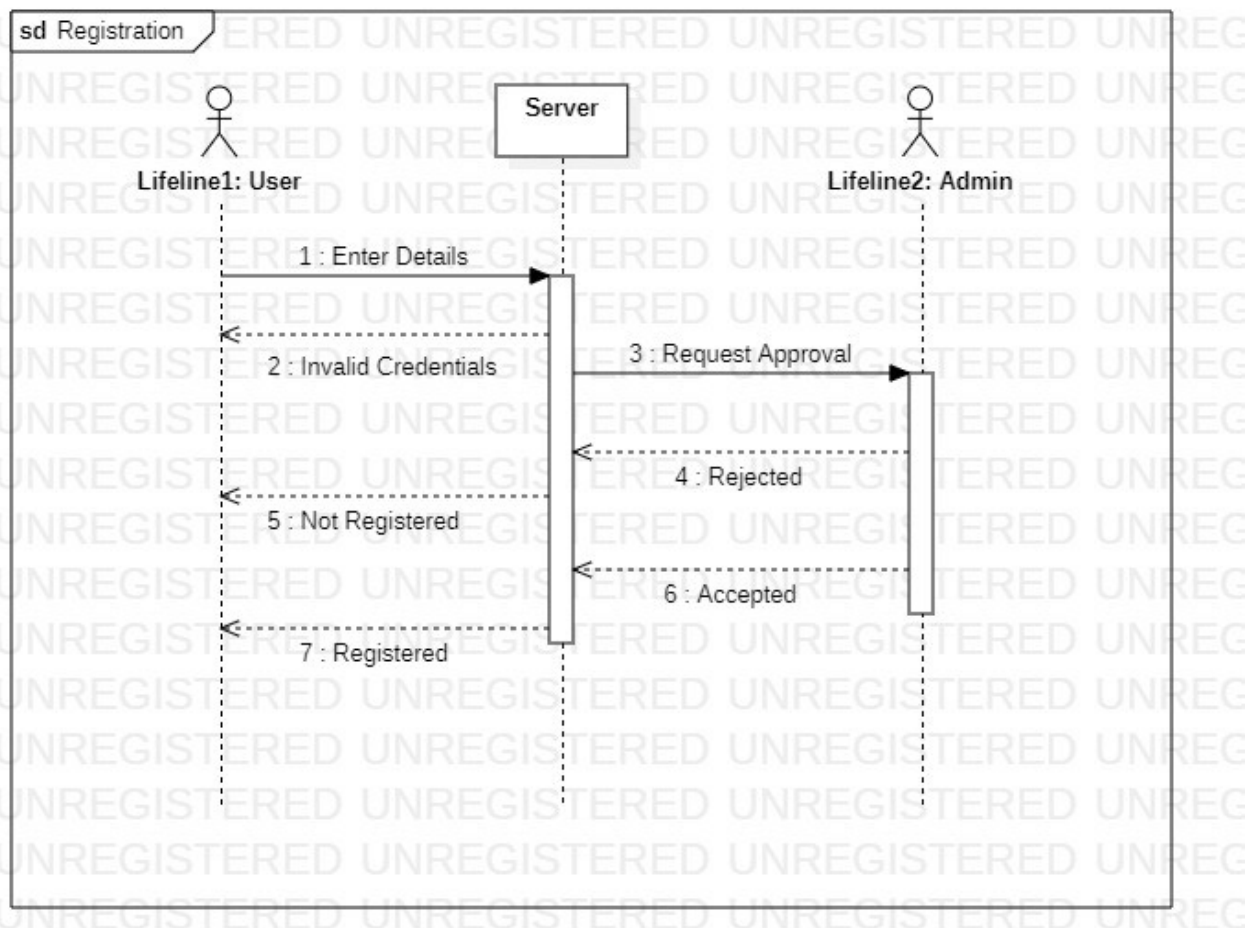
---

## 1.4 System Interactions through Sequence Diagrams

Sequence diagrams are interaction diagrams that show the sequence of messages exchanged by the set of objects performing a certain task. A sequence diagram shows, as parallel vertical lines (lifeline), different processes or objects that live simultaneously, and as horizontal arrows, the messages exchanged between them, in the order in which they occur.

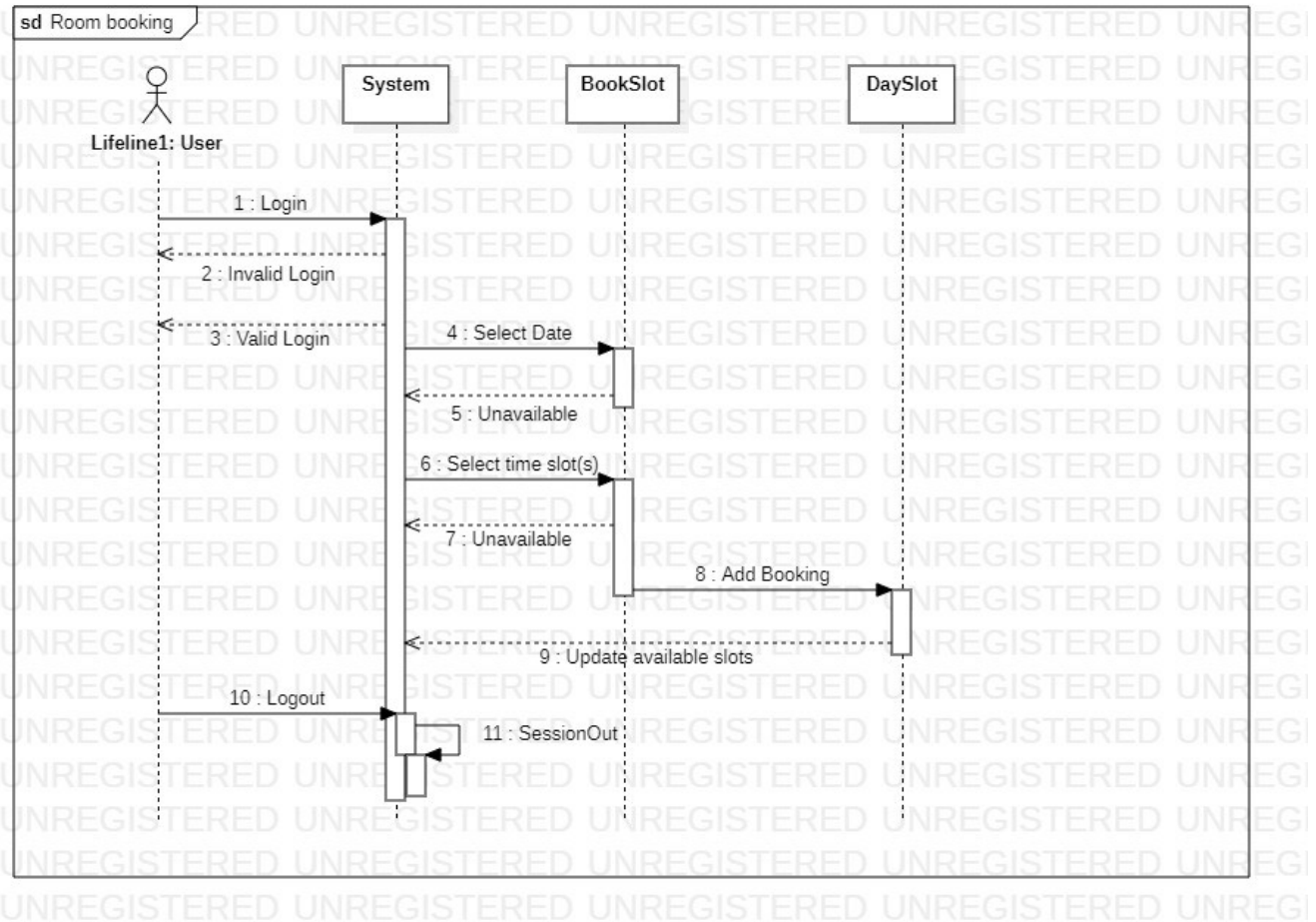
### 1.4.1 Registration Process

System will take community name, email, password and password confirmation from user. On validating details successfully, user account will be created.



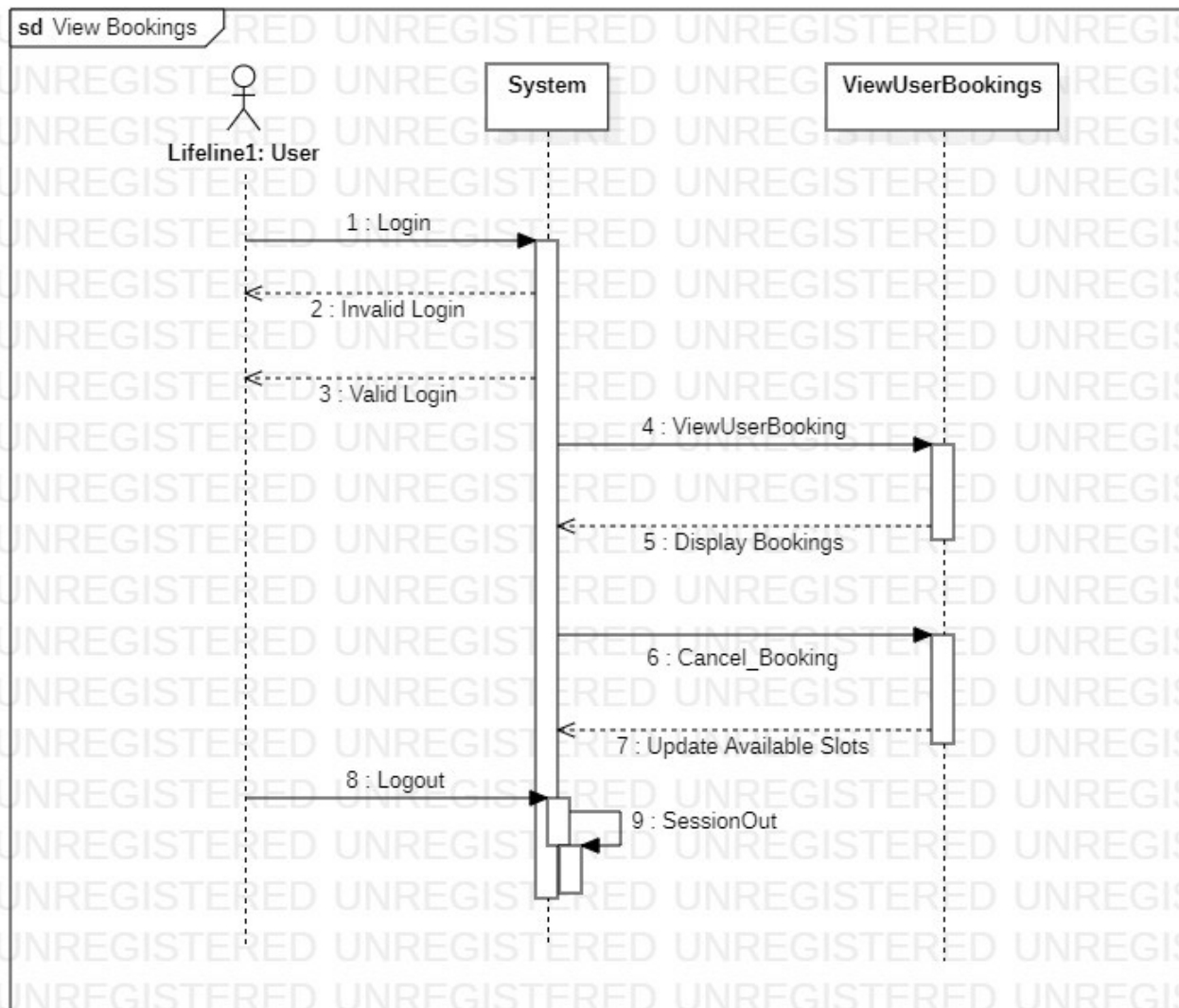
## 1.4.2 Slot Booking

User will choose a date then choose slots of that day. On providing valid purpose and contact number, he will book slot successfully.



### 1.4.3 View Bookings

User will be shown his bookings on choosing view booking options while he's logged in. On selecting a booking, he can get option of cancelling that booking.

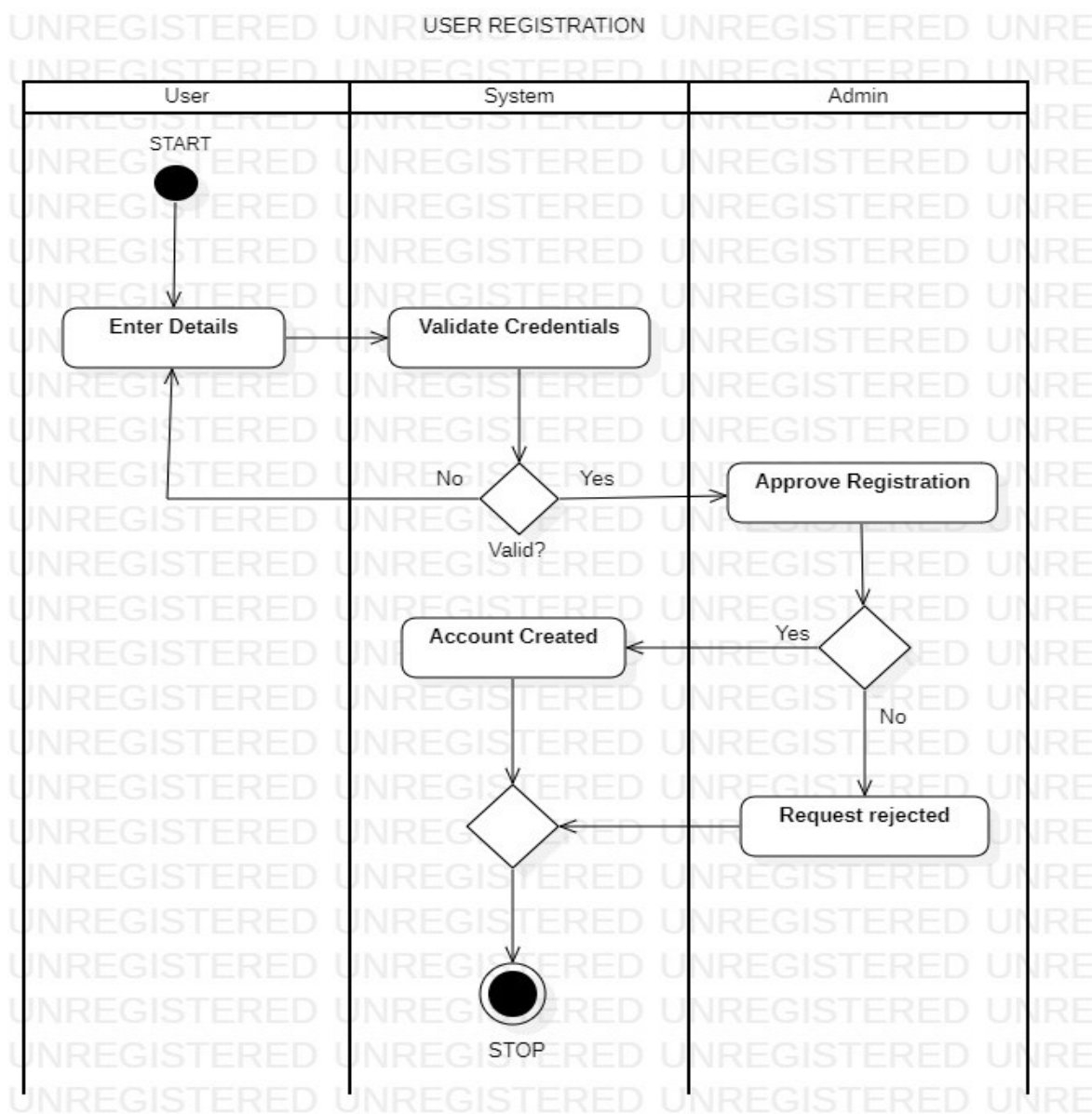


## 1.5 Control and Data Flows through Activity Diagrams

Activity diagram is another important diagram in UML to describe the dynamic aspects of the system. Activity diagram is basically **a flowchart to represent the flow from one activity to another activity**. The activity can be described as an operation of the system.

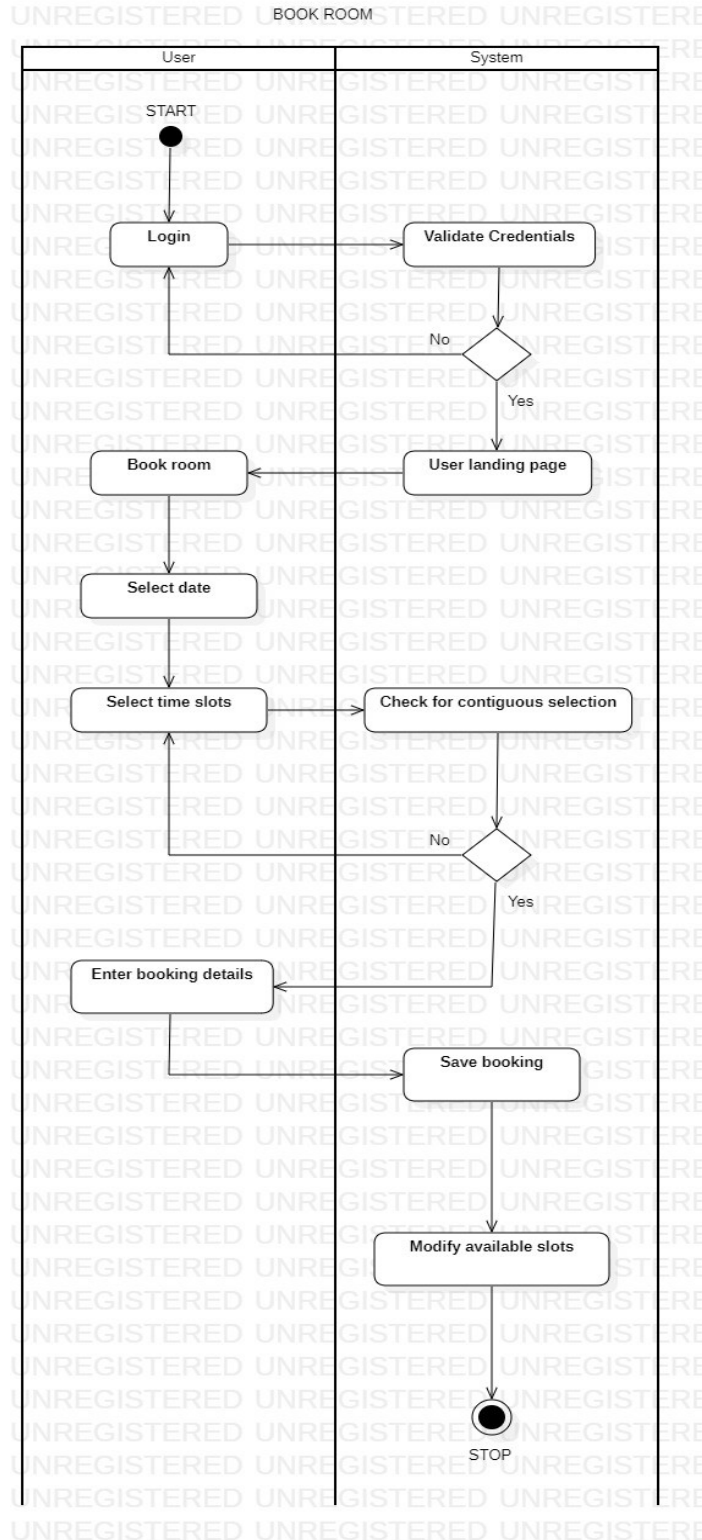
### 1.5.1 Registraion Activity

User will give community name, email, passowrd and password confirmation from user. On validating details successfully, user account will be created



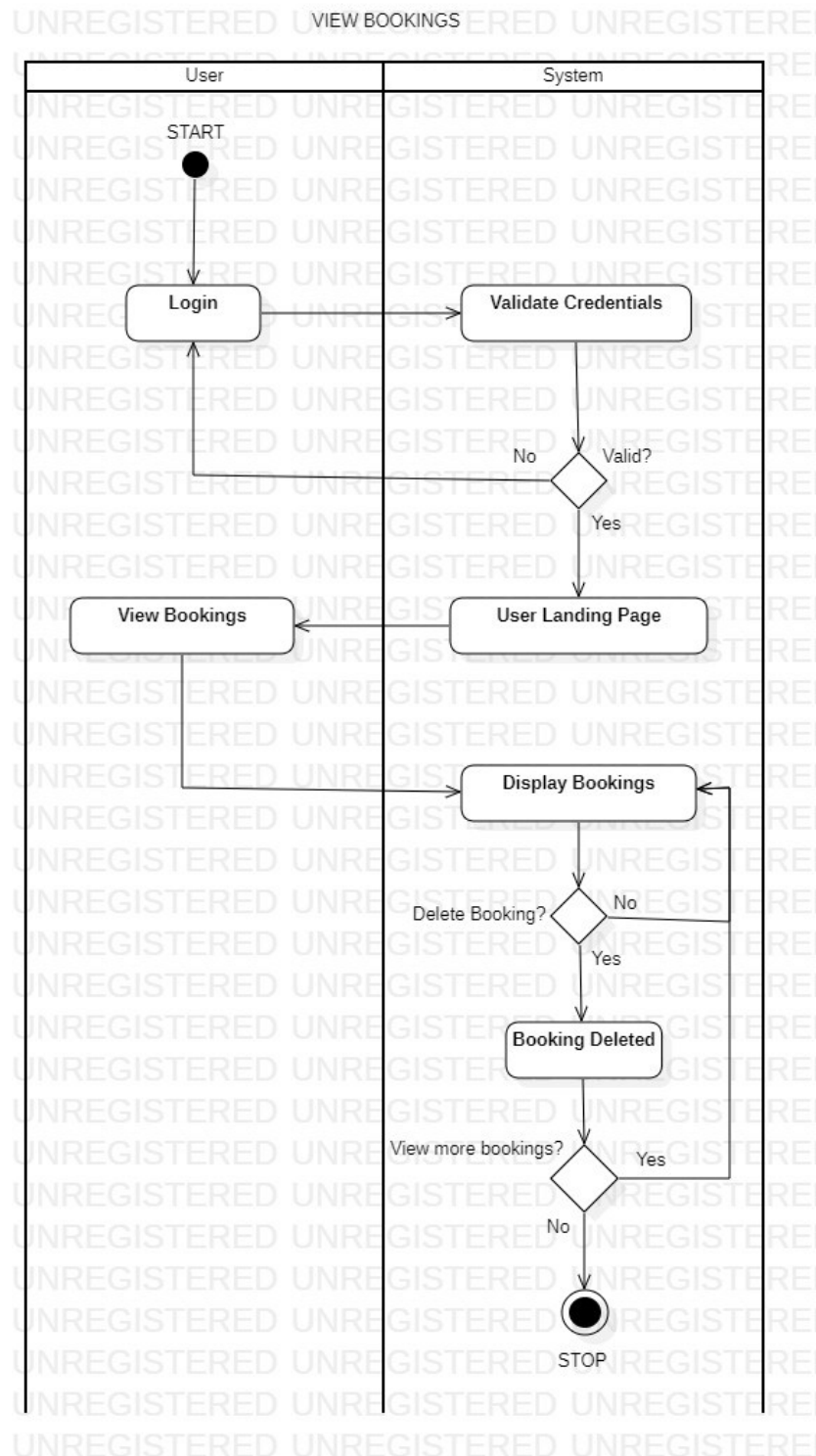
### 1.5.2 Book Slot

While user is logged in, he can book slots by choosing a date then available slots of that date and finally providing purpose of booking and contact number.



### 1.5.3 View Bookings

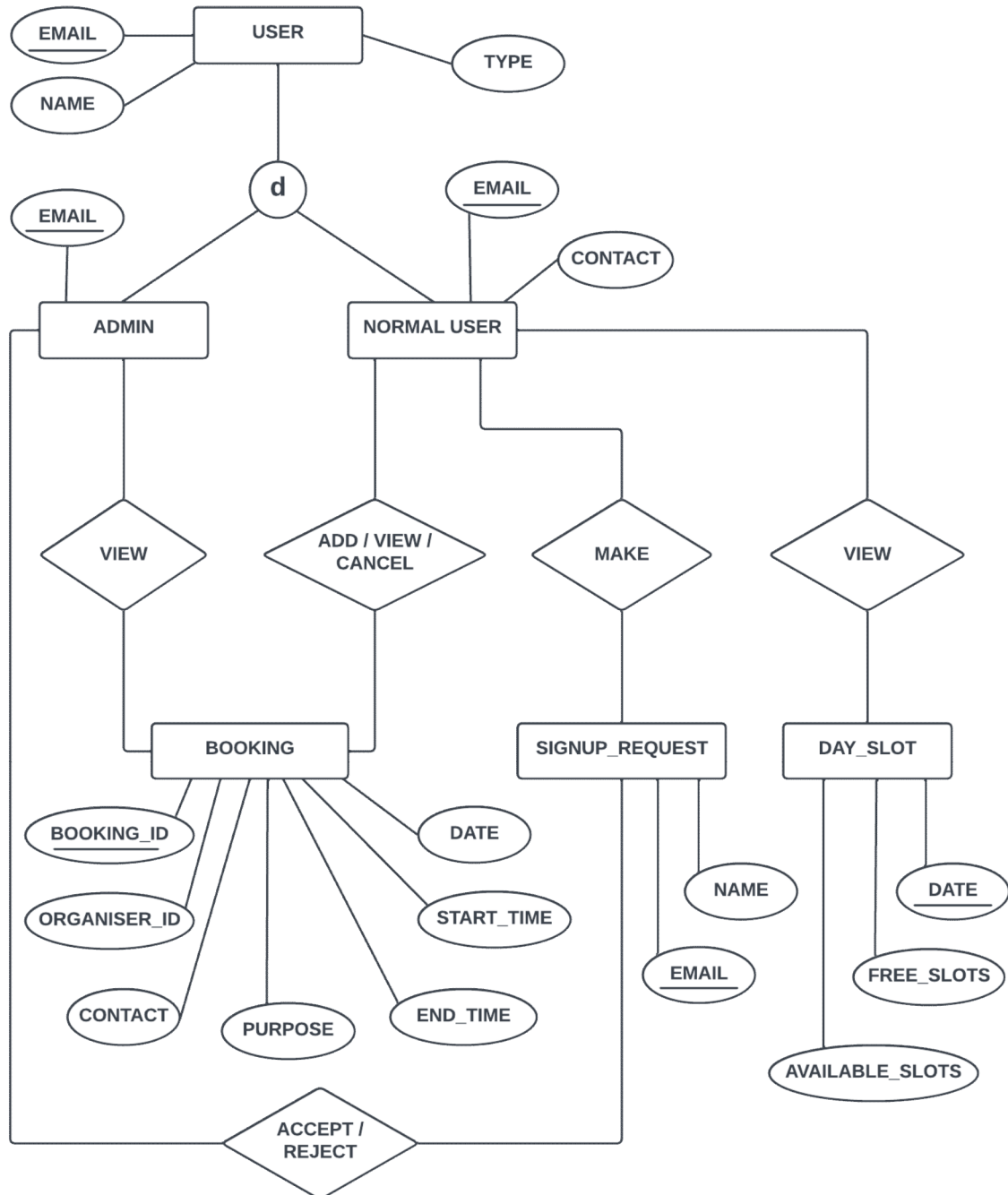
User will be shown his bookings on choosing view booking options while he's logged in. He'll also be provided with option of cancel that booking upon clicking that booking





## 2. Database Design

### 2.1 ER Diagram



---

## 3. Implementation Plans

### 3.1 Technology Stack

Software platform used :

For writing source codes : Android Studio

For DBMS : Firebase

For cloud services : Firebase

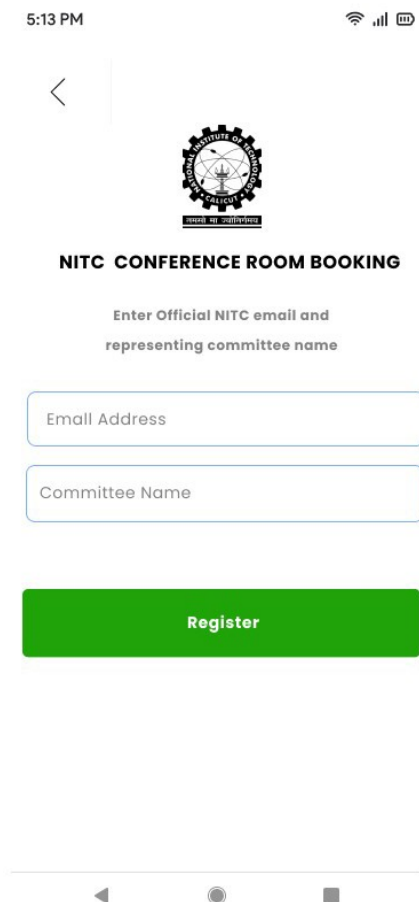
Programming language used :

For writing source codes : Java

For designing : XML


### 3.2 User Interface Prototyping

1. User signup and login page UI.



5:13 PM

<



**NITC CONFERENCE ROOM BOOKING**

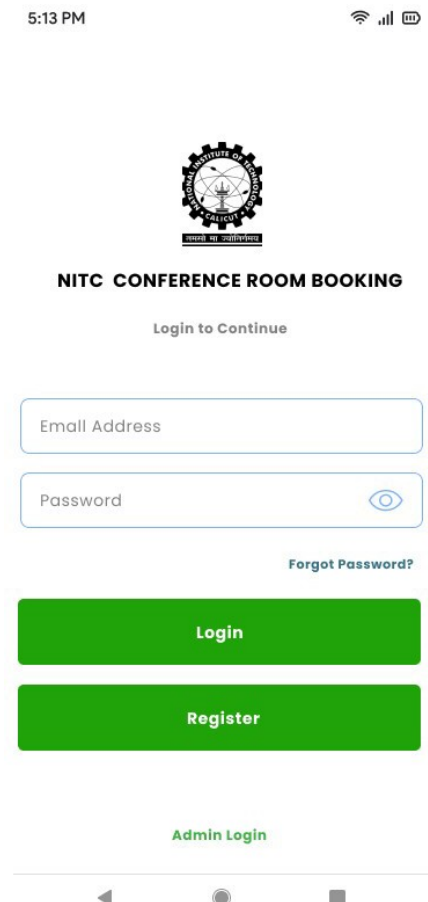
Enter Official NITC email and  
representing committee name

Email Address


Committee Name

**Register**

Navigation icons: back, home, recent apps




5:13 PM



**NITC CONFERENCE ROOM BOOKING**

Login to Continue

Email Address

Password 

[Forgot Password?](#)

**Login**

**Register**

[Admin Login](#)

Navigation icons: back, home, recent apps

## 2. User and Admin Home page UI.

5:13 PM



### NITC CONFERENCE ROOM BOOKING

Welcome

Book Conference Room

View Bookings

Sign Out



5:13 PM



### NITC CONFERENCE ROOM BOOKING

Welcome Admin

Sign Up Requests

4


View Bookings

Sign Out



### 3. Room booking by user UI.

5:13 PM



**SELECT A DATE**

06/09/2023


<September 2023>

S	M	T	W	T	F	S
24	25	26	27	28	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

Up to two weeks from the present date

**Confirm Date**

5:13 PM



**SELECT TIME SLOT(S)**

**06 SEPTEMBER 2023**

☐ 06:00 AM - 07:00 AM

☐ 07:00 AM - 08:00 AM

☐ 08:00 AM - 09:00 AM

☐ 09:00 AM - 10:00 AM

☐ 10:00 AM - 11:00 AM

☒ 11:00 AM - 12:00 PM

☒ 12:00 PM - 1:00 PM


☒ 01:00 PM - 2:00 PM

☐ 02:00 PM - 3:00 PM

☐ 03:00 PM - 4:00 PM

**Confirm Time Slots**

5:13 PM



**NITC CONFERENCE ROOM BOOKING**

**Purpose of booking**

**Booking Date**

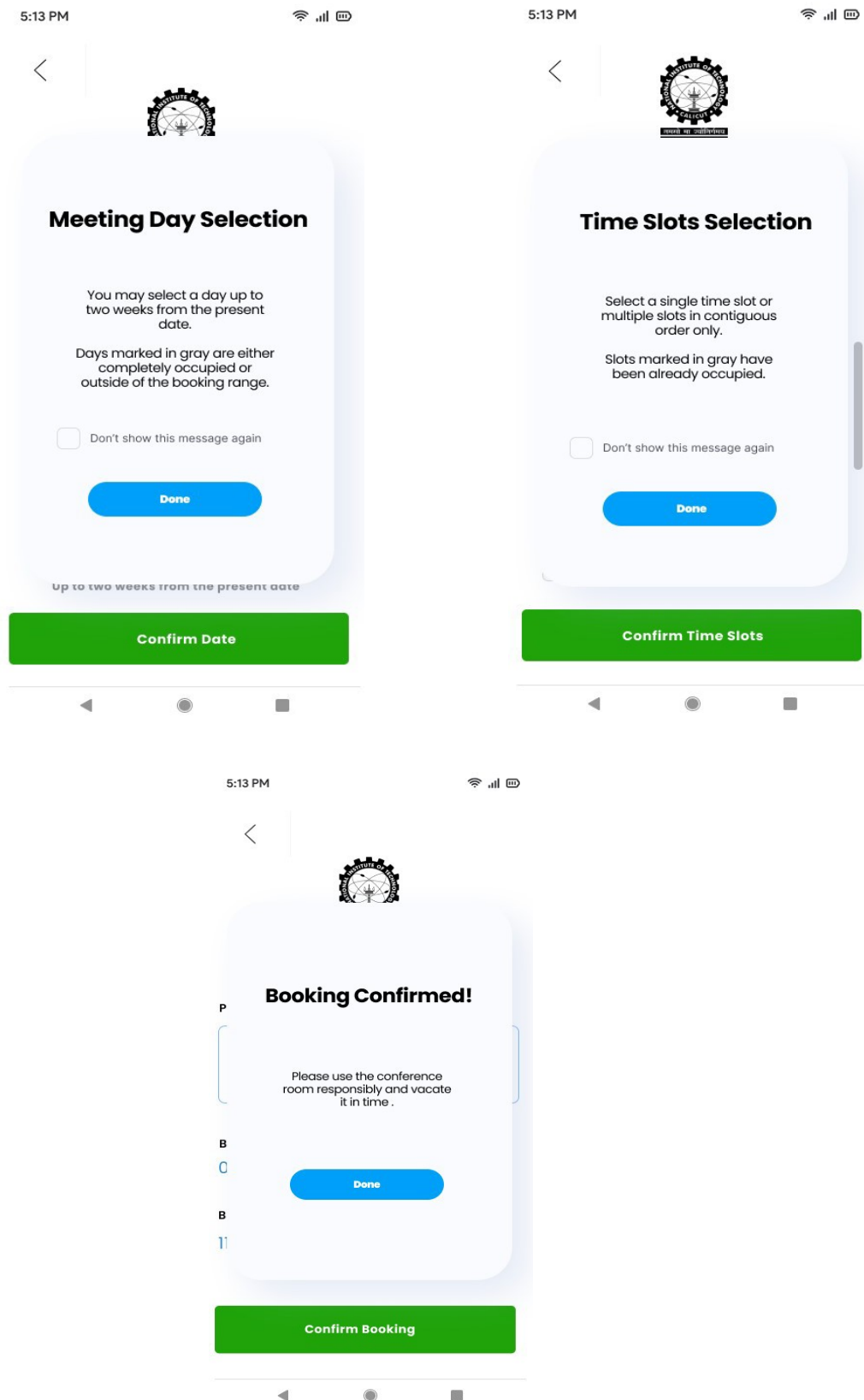
06 SEPTEMBER 2023

**Booking Time**

11:00 AM - 2:00 PM

**Confirm Booking**

#### 4. Pop-up instructions for room booking process.I.



---

## 4. Test Cases

### 4.1 Test Case #1 (Test\_login)

**Author:** Rajkumar Rajput

**Test Case Description:**

Verify for validity of user.

**Pre-Conditions:**

User must have an NITC mail ID and corresponding password.

**Test Steps:**

Enter email ID.  
Enter password.  
Click Login button.

**Test Data:**

Email : literature@nitc.ac.in  
Password : literature@123

**Expected Result:**

User will be logged in.

**Post Condition:**

User will go to User home page if his ID is verified and approved by admin. Else he will be redirected to a page where it's shown whether his ID not verified or pending approval by admin.

---

## 4.2 Test Case #2 (Test\_signup)

**Author:** Arham Siddiki

**Test Case Description:**

Create a new user in system.

**Pre-Conditions:**

User must have an NITC mail ID of any NITC community and he must be representative of some community of NITC.

**Test Steps:**

Enter community name.

Enter email ID.

Enter password.

Confirm password.

Click SignUp button.

**Test Data:**

Name : Literature Society

Email : literature@nitc.ac.in

Password : literature@123

Confirm password : literature@123

**Expected Result:**

User will be signed up.

**Post Condition:**

User will receive an email containing a profile verification link, profile will be activated once he clicks that link. Also user profile will be endorsed to admin for approval.

---

### 4.3 Test Case #3 (Test\_bookSlot)

**Author:** Joel L. Ralte

**Test Case Description:**

Booking of a slot by user.

**Pre-Conditions:**

User must be logged in

**Test Steps:**

Click “Book Slot” option on User Home Page.

Select any of available dates as shown in calendar and click “okay”.

Select contiguous time slots and click “okay”.

Provide details asked such as :

Purpose

Contact number

Click “submit”.

Room is booked for selected slots.

**Test Data:**

Date : 08/04/2023

Slots : 8:00 AM - 11:00 AM

Purpose : Literature society meet.

Contact : 9876543210

**Expected Result:**

The slots selected will be booked for user.

**Post Condition:**

The selected slots will be shown as occupied and user will be able to see his booking inside “View Bookings” section on his Home Page.



## 5. Traceability

			TEST CASES	
			Input-1	Result
REQUIREMENTS	F1	Test_signup	Name : Literature Society Email : literature@nitc.ac.in Password : literature@123 Confirm password : literature@123	User signed up successfully.
	F1,F7	Test_login	Email : literature@nitc.ac.in Password : literature@123	Login successful.
	F5	Test_bookSlot	Date : 08/04/2023 Slots : 8:00 AM - 11:00 AM Purpose : Literature society meet. Contact : 9876543210	Slot booked.

---

## 6. References

<https://holub.com/uml/>

<https://hub.packtpub.com/design-documentation/>

[https://www.tutorialspoint.com/uml/uml\\_quick\\_guide.htm](https://www.tutorialspoint.com/uml/uml_quick_guide.htm)

<https://www.perforce.com/blog/alm/how-write-software-requirements-specification-srs-document>