EXTRA-CLASS BOOKING SYSTEM

UCS503 Software Engineering Project Report

End Semester Evaluation

Submitted By –

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TABLE OF CONTENTS

1.PROJECT OVERVIEW

Often the faculty members and various societies require rooms for carrying extra classes, workshops the entire process for the allotment of rooms is manual and sometimes even leads to clashes. Our Software is a Web Based Application which focuses on automating the entire process of room booking by booking rooms through our web app.

In this system we have made use of various desktop development frameworks like Javafx and Core Java for Application Development & MySQL for database design. The tables are normalized in order to make sure that there are no duplicate entries in the table so that clashes aren't there thereby providing a hassle free system to book rooms.

2. PROJECT REQUIREMENTS

2.1 FUNCTIONAL REQUIREMENTS

USER

1. Login/Register- A registration portal will be used to store data of various users..Hence only those with valid credentials will be allowed to book the room.

2. Room Booking- The rooms can be booked in one click by just selecting a time slot, room no and date thereby eliminating the entire manual process which is being followed.

3. Delete Booking-The booking can be deleted/cancelled in case of cancellation of the event and the room will be again available to other users for booking.

4. Show Bookings- The bookings of the entire day can be viewed by the user and a pdf can also be generated out of it.

5. Email Notification- A mail confirming the booking is sent through an API call.

6. Mobile Friendly- The web app can be used from both mobile phones as well as desktop without any problem.

7. Show Available Rooms- One can view all the available rooms corresponding to the timeslot and date entered by the user.

ADMIN

1. **Add User-** Admin can add a new user (faculty or society).

2. Add New Rooms- Admin can add new rooms as per the availability.

3. Edit Vacant Time Slots- Admin can add/delete time slots from existing rooms depending upon the time table for each semester.

2.2 Non Functional Requirements-

1. Recoverability: One can recover his/her account using forgot password feature.

2. Security: The password will be encrypted while storing it in the database also the data is backed up periodically.

3. Serviceability: The software provides hassle free booking in no time the room gets book.

4. Economical- It is quite economical as man power is reduced by much extend one doesn't need to go to the management for knowing the availability of the room as it is fully automated and only requires an internet connection.

5. Portability- It is supportable over various platforms likewise it can be opened in any browser.

6. Fast-Response and Throughput- The system has a fast response time and high throughput.

3. STRUCTURED ANALYSIS

3.1 DATA FLOW DIAGRAMS

A DFD represents the flow of data through a system. Data flow diagrams are commonly used during problem analysis. It views a system as a function that transforms the given input into required output. Movement of data through the different transformations or processes in the system.

3.1.0 DFD LEVEL 0

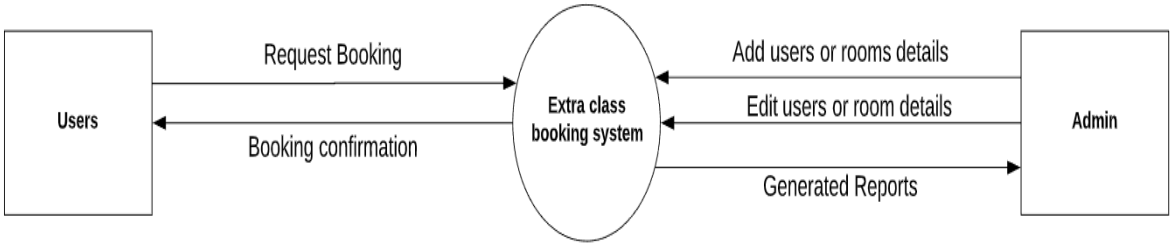

Figure 1- Context Level Diagram (DFD Level 0)

3.1.1 DFD LEVEL 1

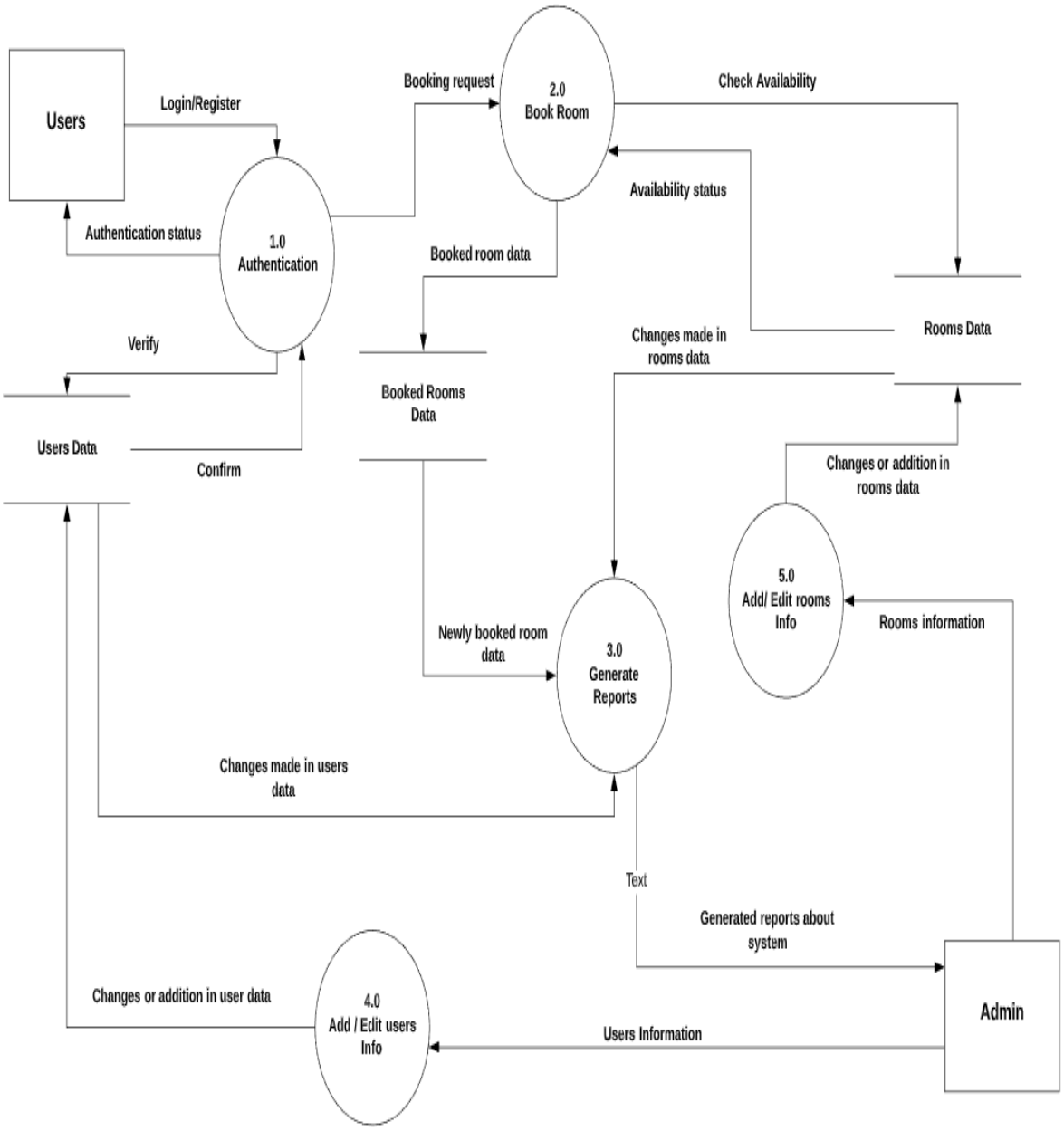

Figure 2- DFD Level 1

3.2 E.R. DIAGRAM

An entity relationship model also called an entity-relationship (ER) diagram, is a graphical representation of entities and their relationships to each other, typically used in computing in regard to the organization of data within databases or information systems.

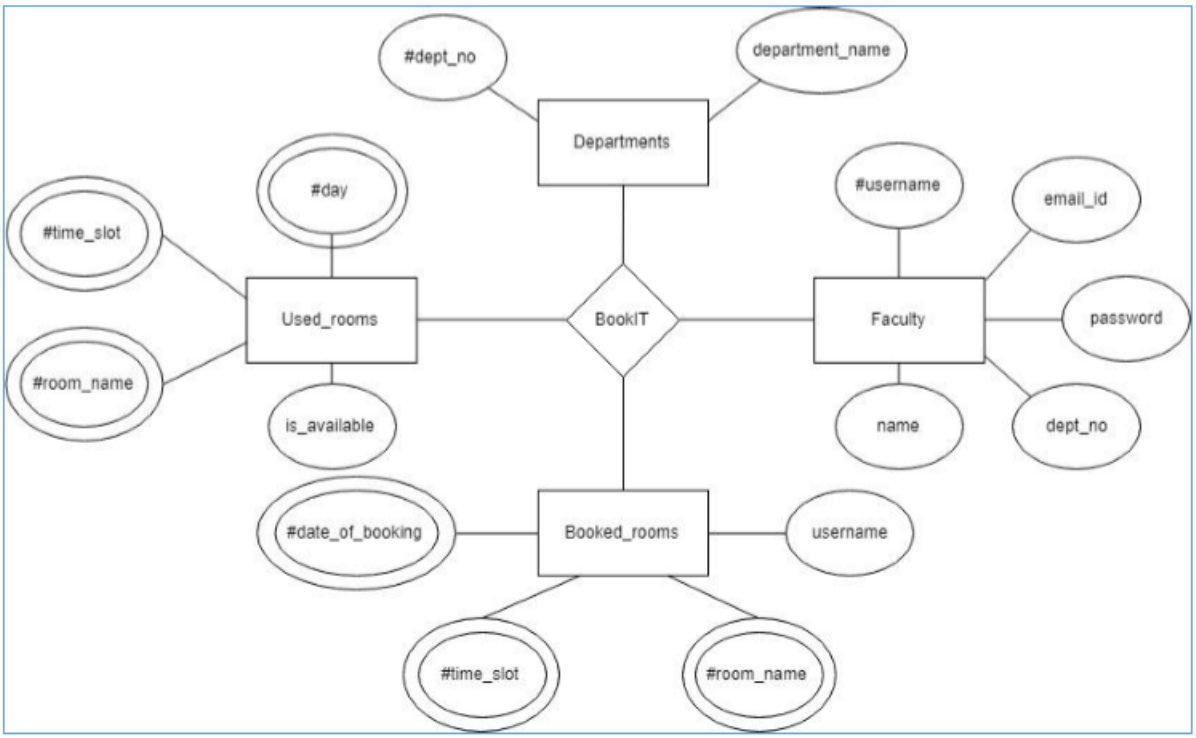

Figure 3-Entity Relationship Diagram

4.DATA DICTIONARY

4.1 PROCESS FLOW

Process Name	Input Data	Output Data	Description
Authentication	➢ Login/Register	➢ Authentication Status	User inputs credentials
	➢ User Data Confirmation	➢ User Detail Verification status	Verified user exists or not in the database
Book Room	➢ Room Availability status	➢ Check room availability	Shows all the available rooms for the selected date and time combination and incase of unavailability shows no rooms available
	➢ Booking Request	➢ Booked Room Data	System accepts the booking requests and shows the booked room data to the user
Generate Reports	➢ Changes made in room data ➢ Newly Booked room data ➢ Changes made in user ‘s data	➢ Generate Reports about system	Changes made in system like new room addition ,new user addition,etc will be notified to the admin
Add/Edit user info	➢ User ‘s information	➢ Changes or addition in user ‘s data	Admin can add or remove a user
Add/edit room info	➢ Room information	➢ Changes on room data	Admin can add or remove a room from booking

4.2 DATA FLOW

Object Name	Description	Range	Data Structure
Booked Room Data	It contains all the booked rooms	Valid string	<string>
User ‘s Data	It contains all the data of the users	Valid String	<string>
Room ‘s Data	Contains Data of Rooms	Valid String	<string>

5.. OBJECT ORIENTED ANALYSIS

5.1 USE CASE DIAGRAM

The use case diagram depicts the essential functionality and actors of the application.

Figure 4-Use Case Diagram

5.2 USE- CASE TEMPLATE

User Template	
1.User Case Title	Booking
2.User Case Id	1
3.Actor	User
4.Description User can book the rooms for extra classes or some event	
4.1 Pre-Condition 1. User must be logged in with valid credentials 2. Room must be available for booking in the desired time slot	
4.2 Task Sequence 1. Open Web app 2. Log in with valid credentials 3. Check available rooms 4. If it is available then book it	
4.3 Post Condition Confirmation is received	

5.3 Use Case Scenario –Booking

Normal Scenario

1. User opens the web app.
2. User logins in the app.
3. System shows the list of available rooms in the desired time slot
4. User chooses the desired room
5. System issues a confirmation mail to the user
6. Booking Confirmed

Alternative Flow of Events

1. In case user forgets the passwords system emails it the password on the registered email.
2. User can cancel the booking if there is some change in the planning.

Exceptional Flow

1. In case there is internet connection failure booking can’t be made
2. In case the connection with database is lost booking will be aborted.

6.STATE CHART DIAGRAM

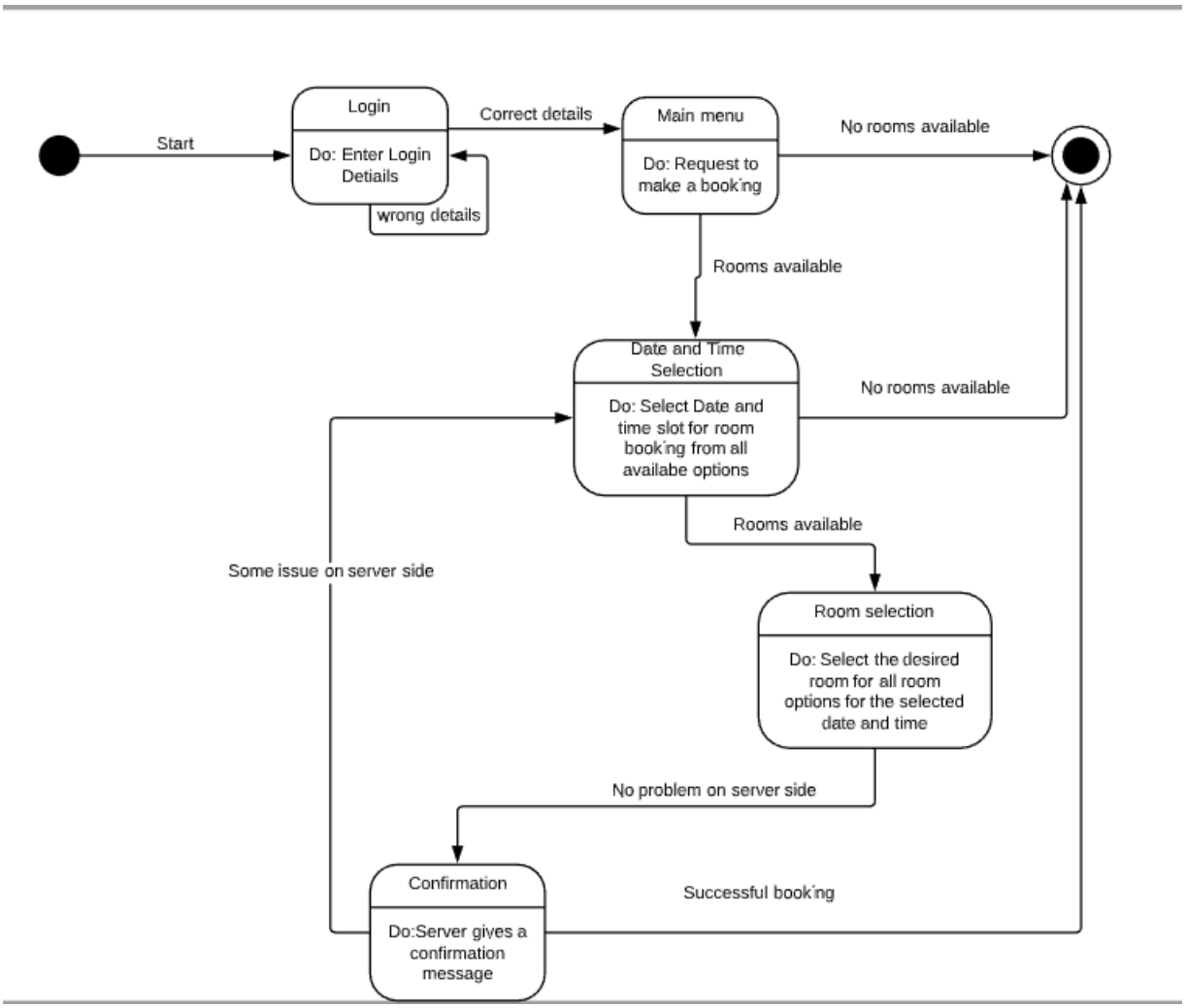

Figure 5-State Chart Diagram

7. CLASS- DIAGRAM

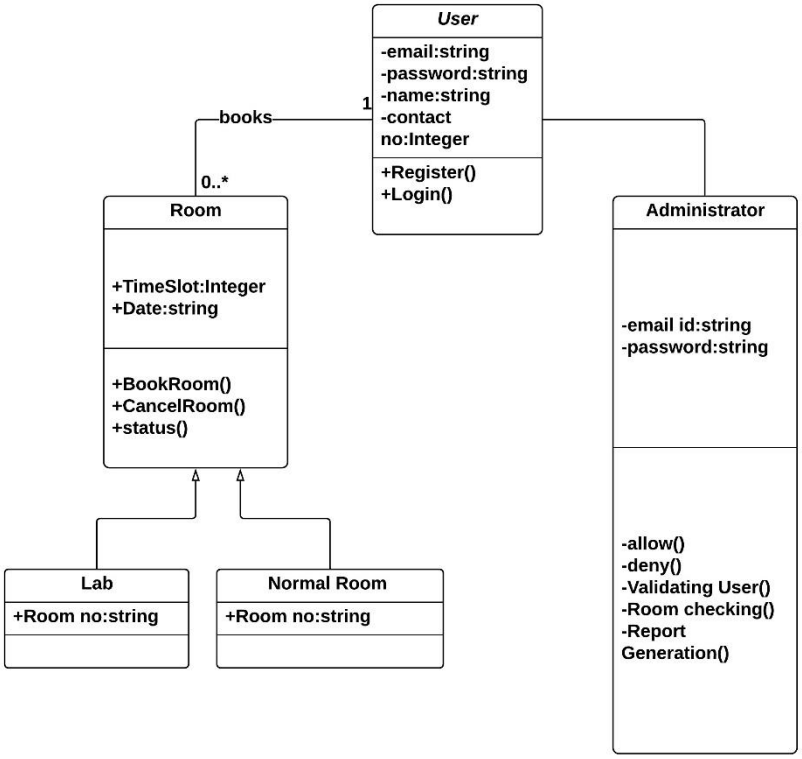

Figure 6- Class Diagram

8. SEQUENCE DIAGRAM

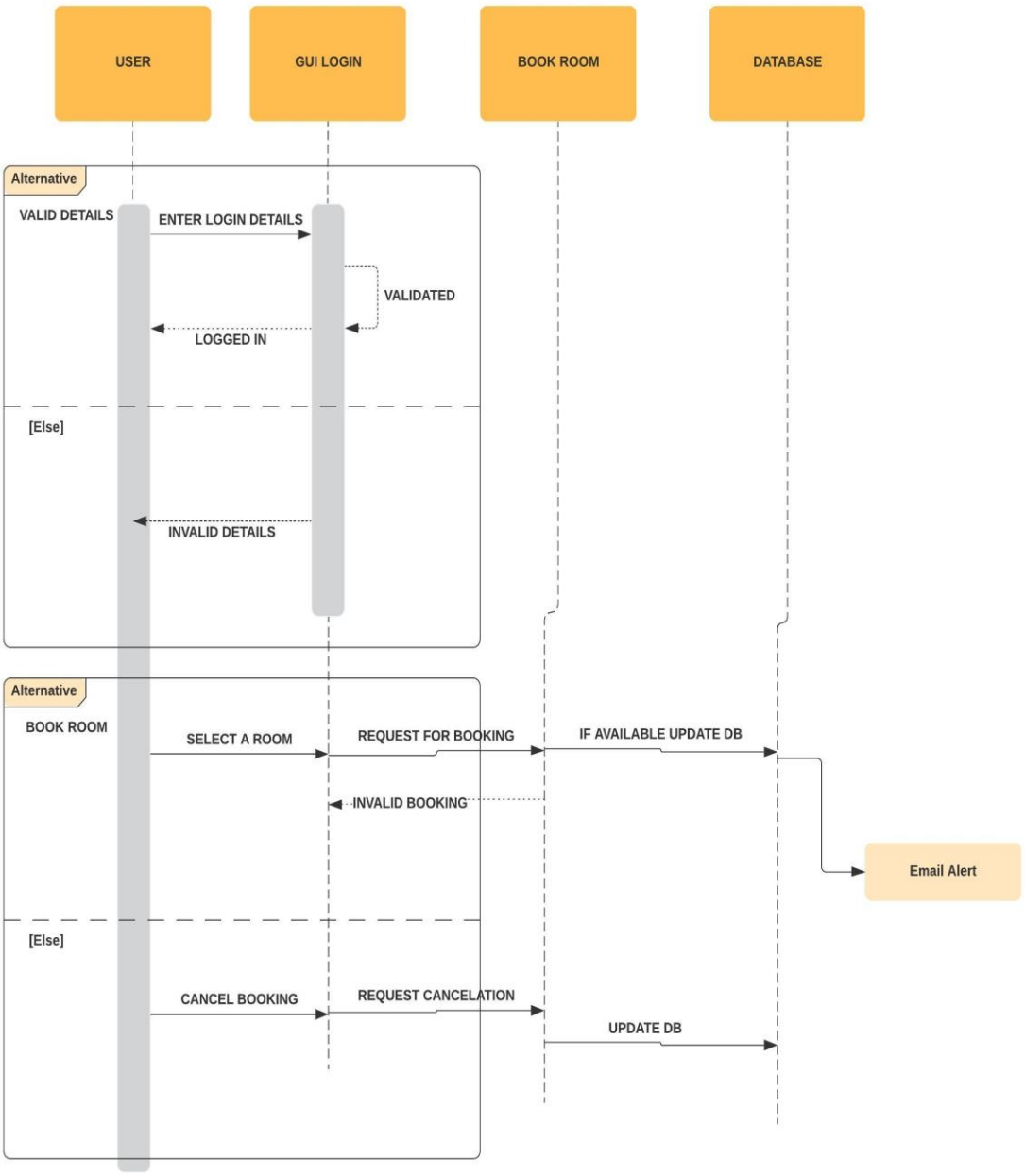

Figure 7- Sequence Diagram

9.ACTIVITY DIAGRAM

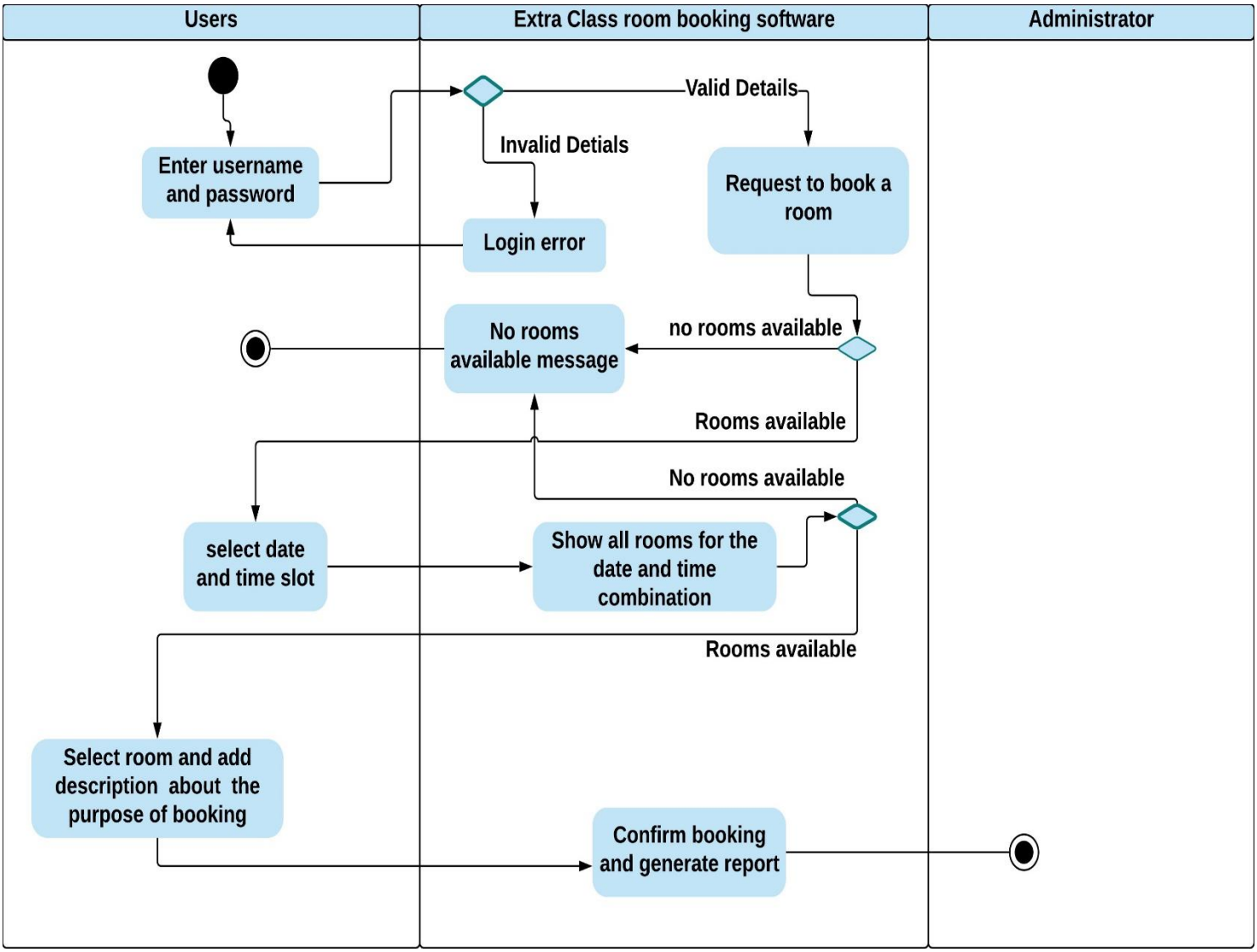

Figure 8- Activity Diagram

10. Collaboration Diagram

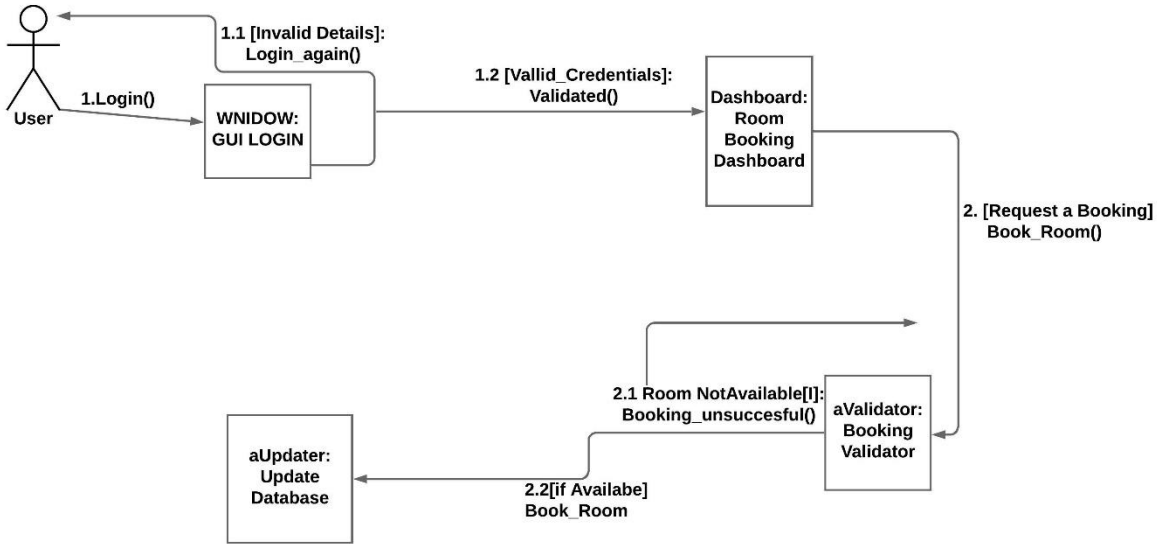

Figure 9-Collaboration Diagram

11. Component Diagram

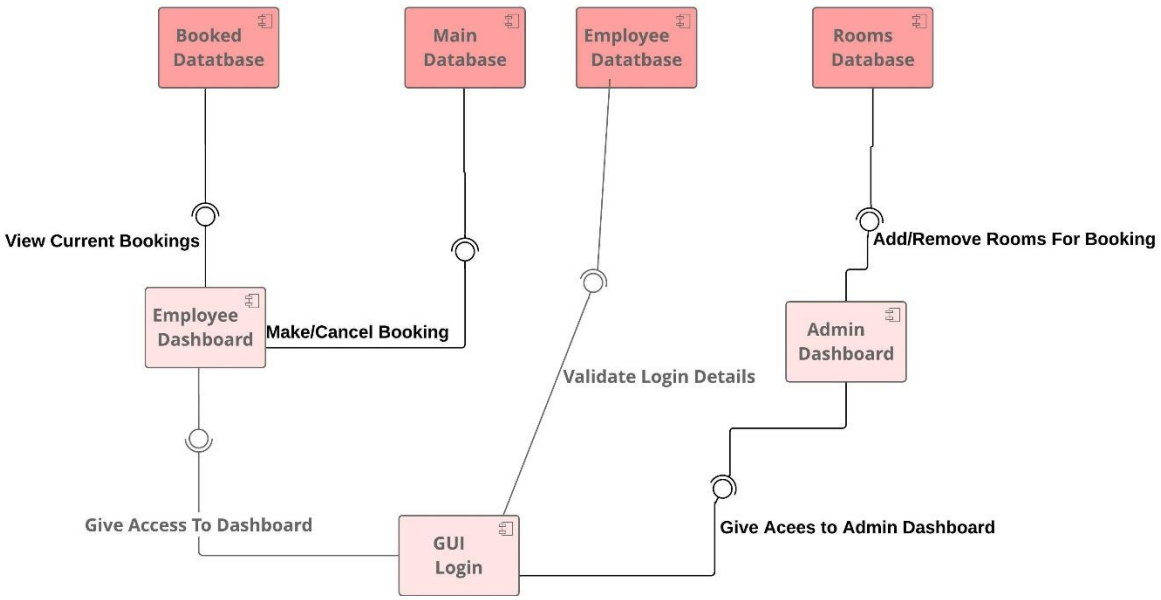

Figure 10-Component Diagram

12. Deployment Diagram

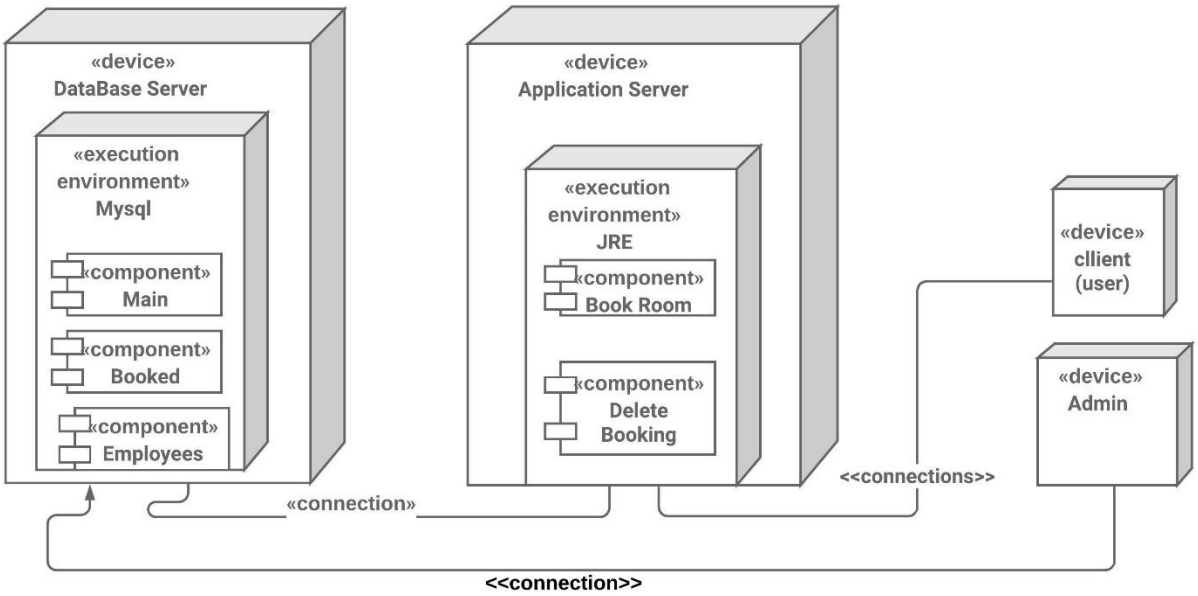

Figure 11-Deployement Diagram

13. Structure Diagram

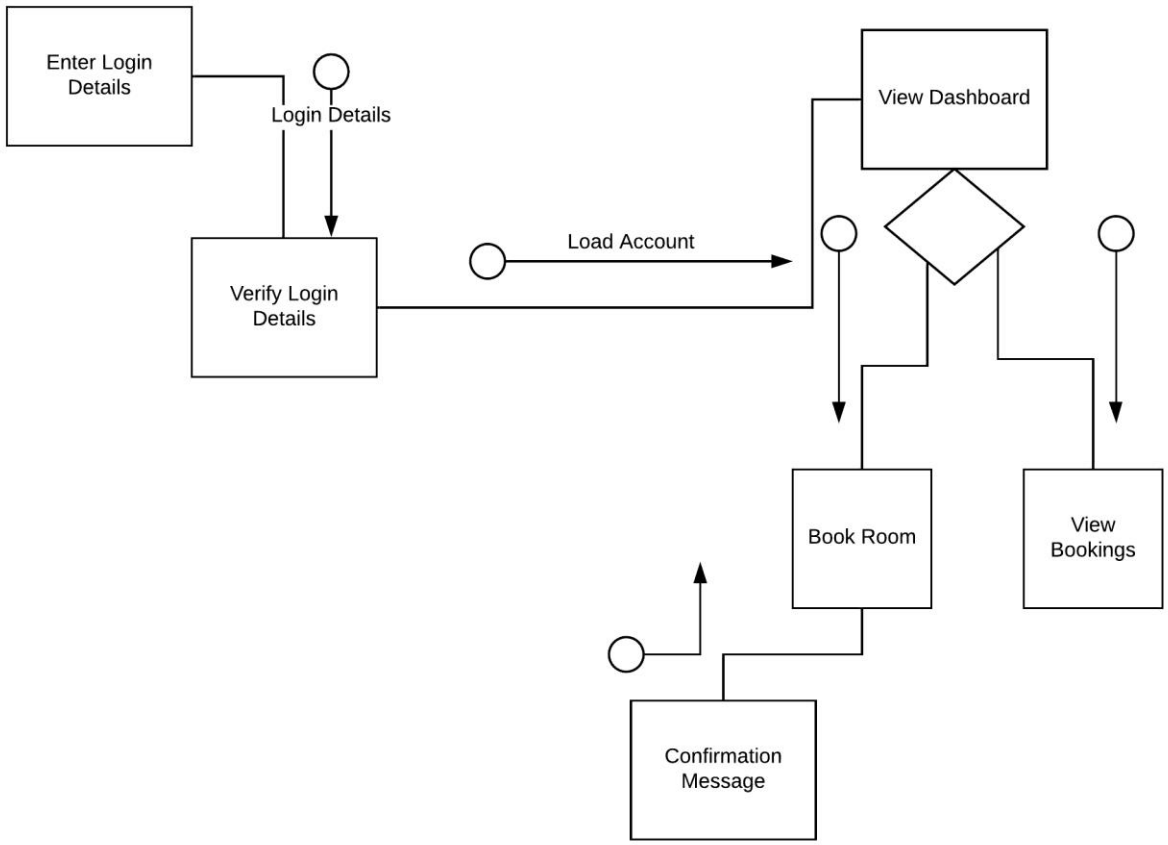

Figure 12-Structure Diagram

14. Testing

14.1 Test Case 1

14.1.1 Test Case 1 Plan

Test Case Name: Verify Login Functionality
System: Extra class booking system
Subsystem: Login
Designed by: Kunal bajaj
Executed by: Kunal bajaj
Design Date: 26/11/2019
Execution
Test Case Name: Login
Short Description: Test the Login Functionality of App.

14.1.2 Test Case 1 Report

Pre-conditions
The user is connected to database server correctly
The system displays the login screen

Step	Action	Expected System Response	Pass/ Fail	Comment
1	User opens the app	The system displays two text field asking the user to enter the username and password	Pass	The system is working correctly
2	User enters username and password	The system allows user to enter username and password	Pass	The system is working correctly
3	User clicks on Login Button	The system checks the employee database and opens the main dashboard for user if the login details were correct .	Pass	The system is working correctly
4	Repeat steps 1,2 but the user enters wrong login details	The system displays an error message that login details are invalid.	Pass	The system is working correctly

14.1.3 Screenshots

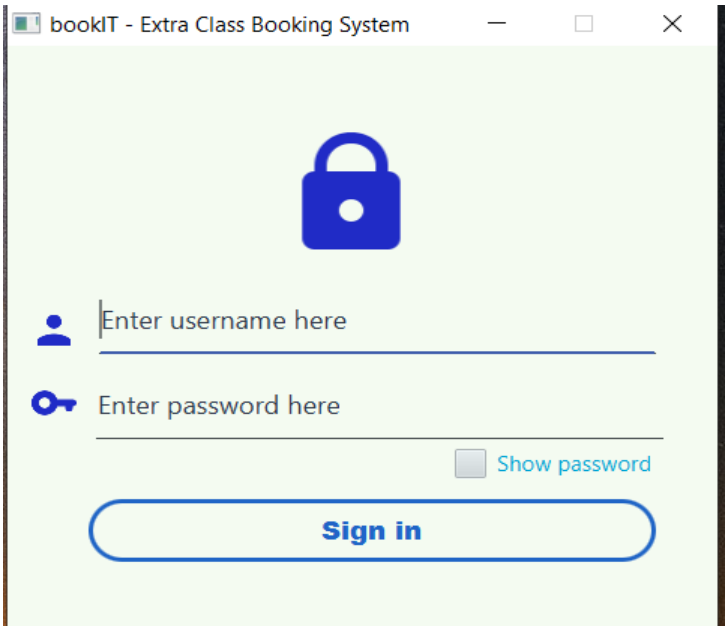

Figure 13.1-Intial Login Screen

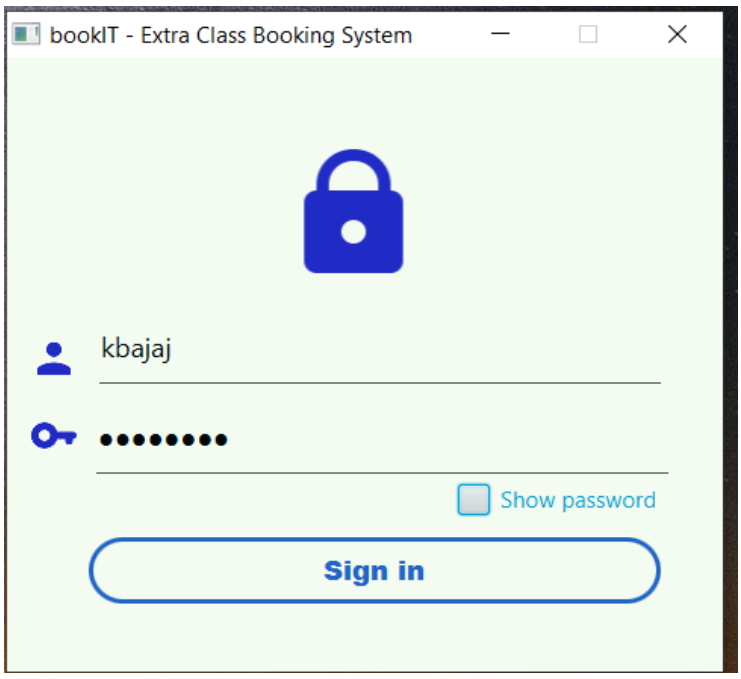

Figure 13.2-User enters the login details

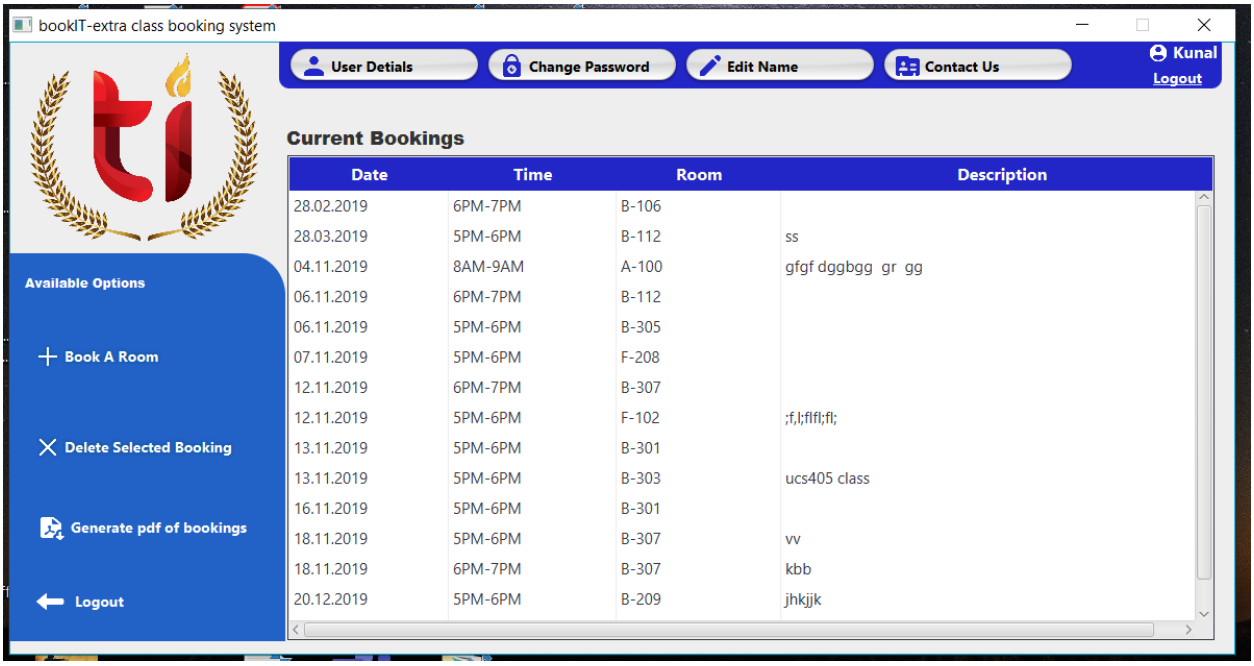

Figure 13.3-User enters the correct details and the dashboard opens

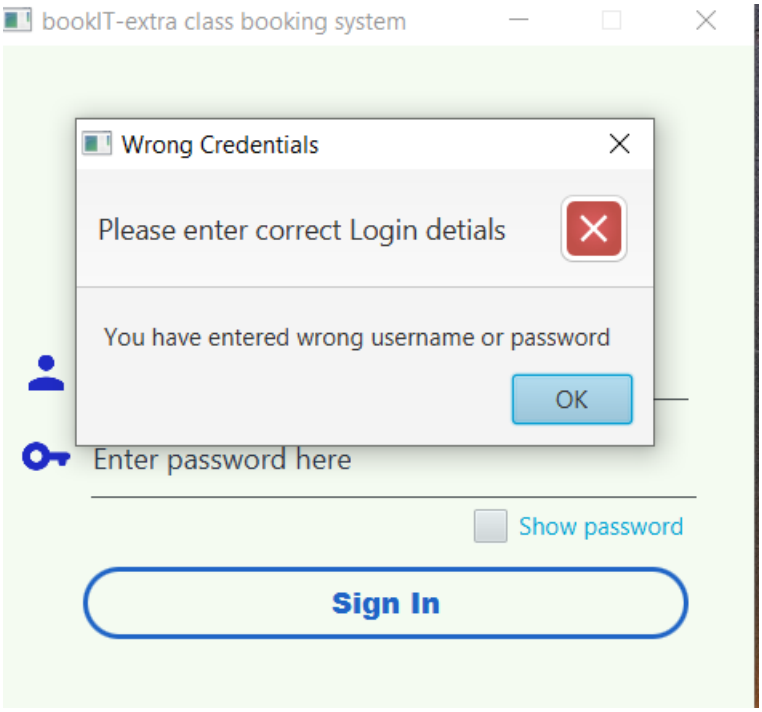

Figure 13.3-User enters the wrong details and an error message is shown

14.2 Test Case 2

14.2.1 Test Case 2 Plan

Test Case Name: Verify Functionality to book a room
System: Extra class booking system
Subsystem: Booking
Designed by: Kunal bajaj
Executed by: Kunal bajaj
Design Date: 26/11/2019
Test Case Name: Login
Short Description: Test the Booking Functionality of App.

14.2.2 Test Case 2 Report

Pre-conditions
The user is connected to database server correctly
The user has entered the correct Login details .
The system displays the dashboard screen

Step	Action	Expected System Response	Pass/ Fail	Comment
1	User clicks on the 'Book a new room' button .	The system displays a calender asking the user to select the desired date and a drop down list for the user to select the desired time.	Pass	The system is working correctly
2	User selects the date and time	The system allows user select the date and time .	Pass	The system is working correctly
3	User clicks on "Get available rooms" Button	The system checks the rooms database and displays all the rooms for the users selected date and time and opens a new screen	Pass	The system is working correctly
4	The user selects his desired room from a list adds some description regarding the booking in the description text field	The system displays a text field for entering description and a drop down list of available rooms	Pass	The system is working correctly
5	Check post condition 1		Pass	The system is working correctly
6	Repeat steps 1,2,3 and the user enters a date and time combination on which no rooms are free	The systems checks the rooms database and there are if there are no rooms available then it displays a message showing that no rooms are available for the desired date and time combination .	Pass	The system is working correctly

Post-conditions

1. The room booking is added to booked room database.

14.2.3 Screenshots

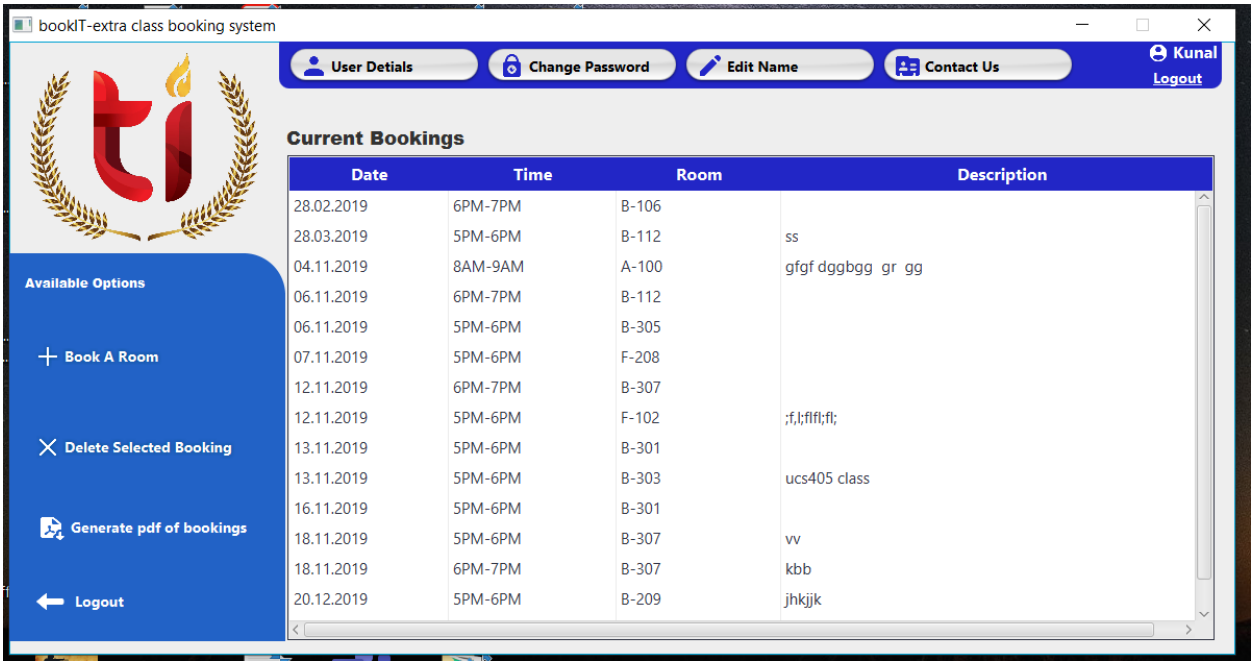

Figure 14.1-User click 'Book A Room, Button' from dashboard

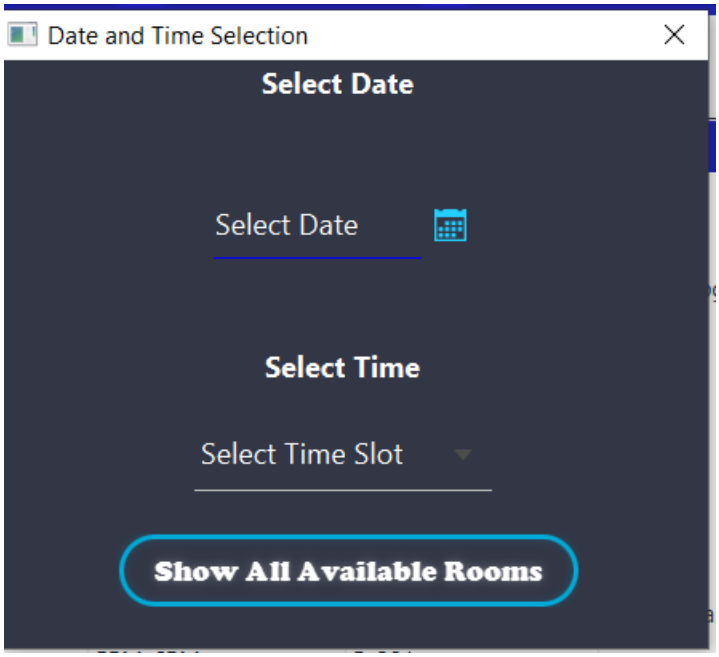

Figure 14.2-The App displays a screen for selecting desired date and time

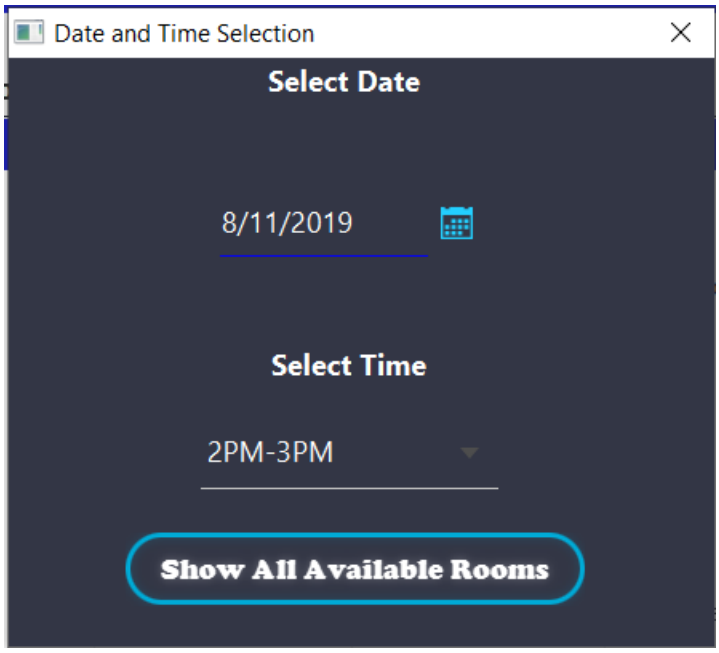

Figure 14.3-The User selects desired date and time

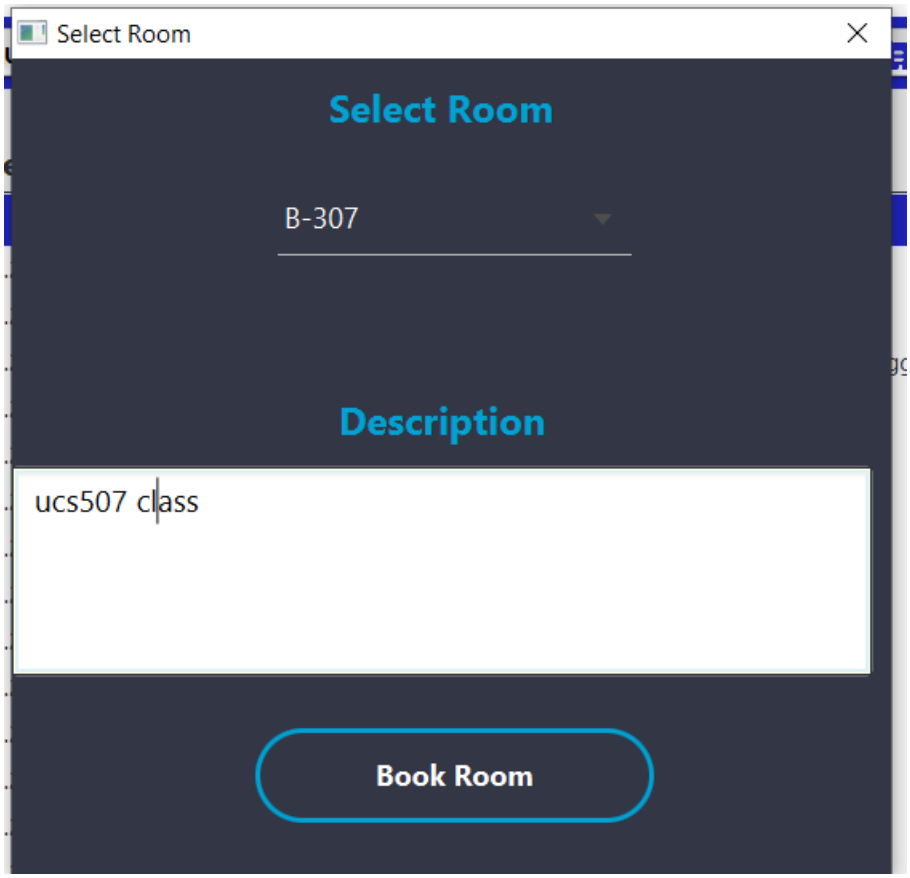

Figure 14.4-The App displays a screen for selecting desired room and adding a description

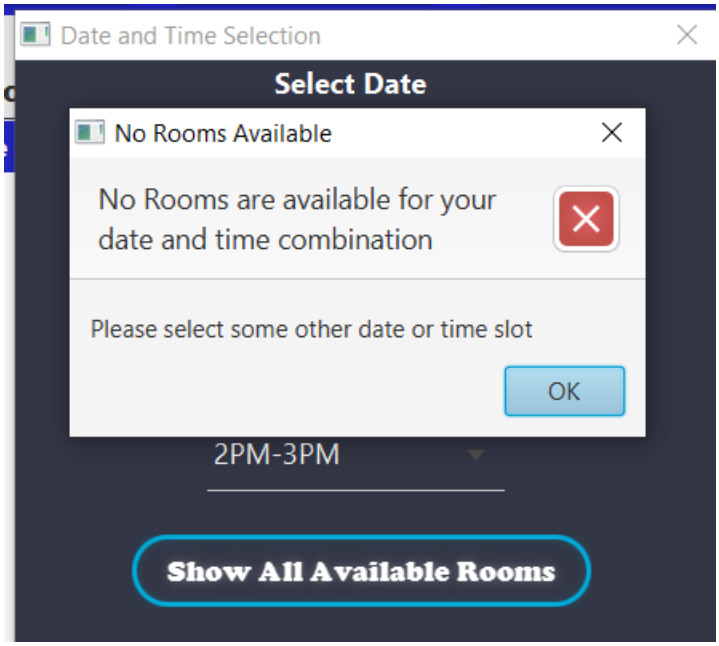

Figure 14.5-An error message is shown in case no rooms are available

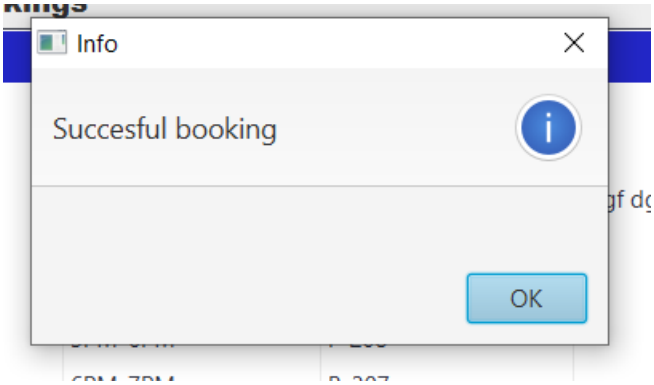

Figure 14.6-A Success message is shown in case of a successful booking