Software Requirements Specification

for

Conference Room Booking System

Version 1.0 draft

Prepared by ByteCoders:
Aditya Rao:PES1UG21CS045,
Aavish Gilbert J:PES1UG21CS012,
Aashish Sharma:PES1UG21CS011,
Akash Shiddanagoudar:PES1UG21CS057.

PES University

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Revision History

Name	Date	Reason For Changes	Version
ByteCoders	15/09/2023	Initial Draft	1.0.01 Draft
ByteCoders	14/11/2023	Added RTM and updated a few requirements.	1.1 Draft

1. Introduction

1.1 Purpose

This SRS document describes the software functional and non-functional requirements for release 1.0 of the Conference Room Booking System. This document is intended to be used by the members of the project team that will implement and verify the correct functioning of the system. Unless otherwise noted, all requirements specified here are high priority and committed for release 1.0.

1.2 Document Conventions

- User: Refers to any individual using the software looking to book a room.
- Admin: Refers to system administrators responsible for managing room information and repair/addition requests.
- Room Specifications: Includes room size, equipment, amenities, and any additional infrastructure details.
- Capacity: The maximum number of occupants a room can hold.

1.3 Intended Audience and Reading Suggestions

The intended audience for this document includes developers, testers, project managers, and stakeholders involved in the development and deployment of the Conference Room Booking Software.
The following is a suggested sequence for reading this document:
1. Overview: This section provides an overview of the Conference Room Booking Software.
2. Functional Requirements: This section describes the features of the Conference Room Booking Software.
3. Non-Functional Requirements: This section describes the non-functional requirements of the Conference Room Booking Software, such as performance, security, and usability.
4. Design Considerations: This section discusses the design considerations for the Conference Room Booking Software.
5. Implementation Plan: This section describes the implementation plan for the Conference Room Booking Software.
6. Testing Plan: This section describes the testing plan for the Conference Room Booking Software.
7. Deployment Plan: This section describes the deployment plan for the Conference Room Booking Software.

Developers should start by reading the Overview section and then the Functional Requirements section. Testers should start by reading the Overview section and then the Test Cases section. Project Managers should start by reading the Overview section and then the Implementation Plan and Deployment Plan sections. Stakeholders should start by reading the Overview section.

1.4 Product Scope

The Conference Room Booking System will allow users in need of a conference room to view a list of available conference rooms with all necessary information for booking. The software hopes to streamline the process of booking and reserving rooms for events and ample tools for admins to manage the same.

1.5 References:

TBD

2. Overall Description

2.1 Product Perspective

The Conference Room Booking Software will be a standalone application accessible via web or mobile interfaces. It will interact with a database to store and retrieve information regarding room bookings, room specifications, and other relevant data.

2.2 Product Functions

1. Room Price Calculation:
   ● The software will calculate the price of a room based on its specifications.
2. View Room Specifications:
   ● Users can view detailed room specifications when booking a room.
3. Room Capacity:
   ● Users can view the maximum capacity of a room.
4. Waiting List:
   ● A waiting list will be maintained for fully booked rooms, allowing users to join and be notified of availability.
5. Already Booked Rooms:
   ● Users can view a list of rooms that are already booked for specific dates and times.
6. Room Management:
   ● Admins can add, modify, or remove rooms.
   ● Admins can update room specifications.
7. Permission Request:
   ● Users can submit requests for special events, which require permission from authorities.
   ● Authorities can approve or reject permission requests.
8. Additional Infrastructure:
   ● Admins can add additional infrastructure details to room specifications.

2.3 User Classes and Characteristics

Regular Users: These are regular users who have created an account within the system.Registered users can book conference rooms, view their booking history, and manage their profiles.They may have access to additional features, like reviewing invoices and receiving notifications.

Administrator: This user class typically has full control over the software and its settings.Admins can manage user accounts, configure rooms, set pricing, and booking history.They have the authority to make system-wide changes and resolve issues.

Room Owner/Staff: After User books a room , the details of the user will be sent to the room staff with the confirmed order details.
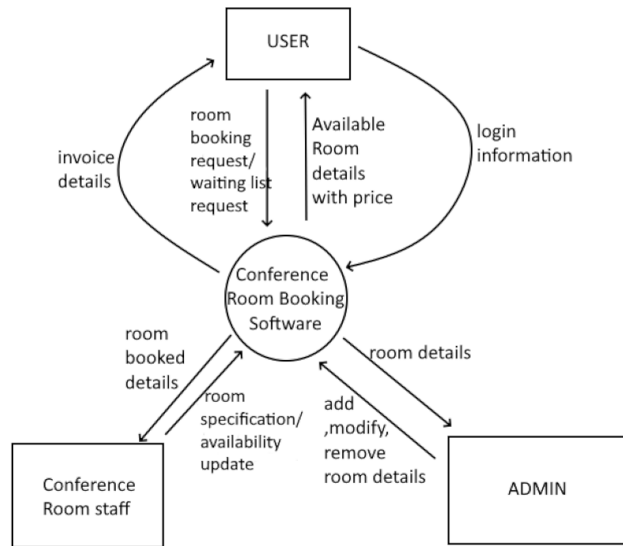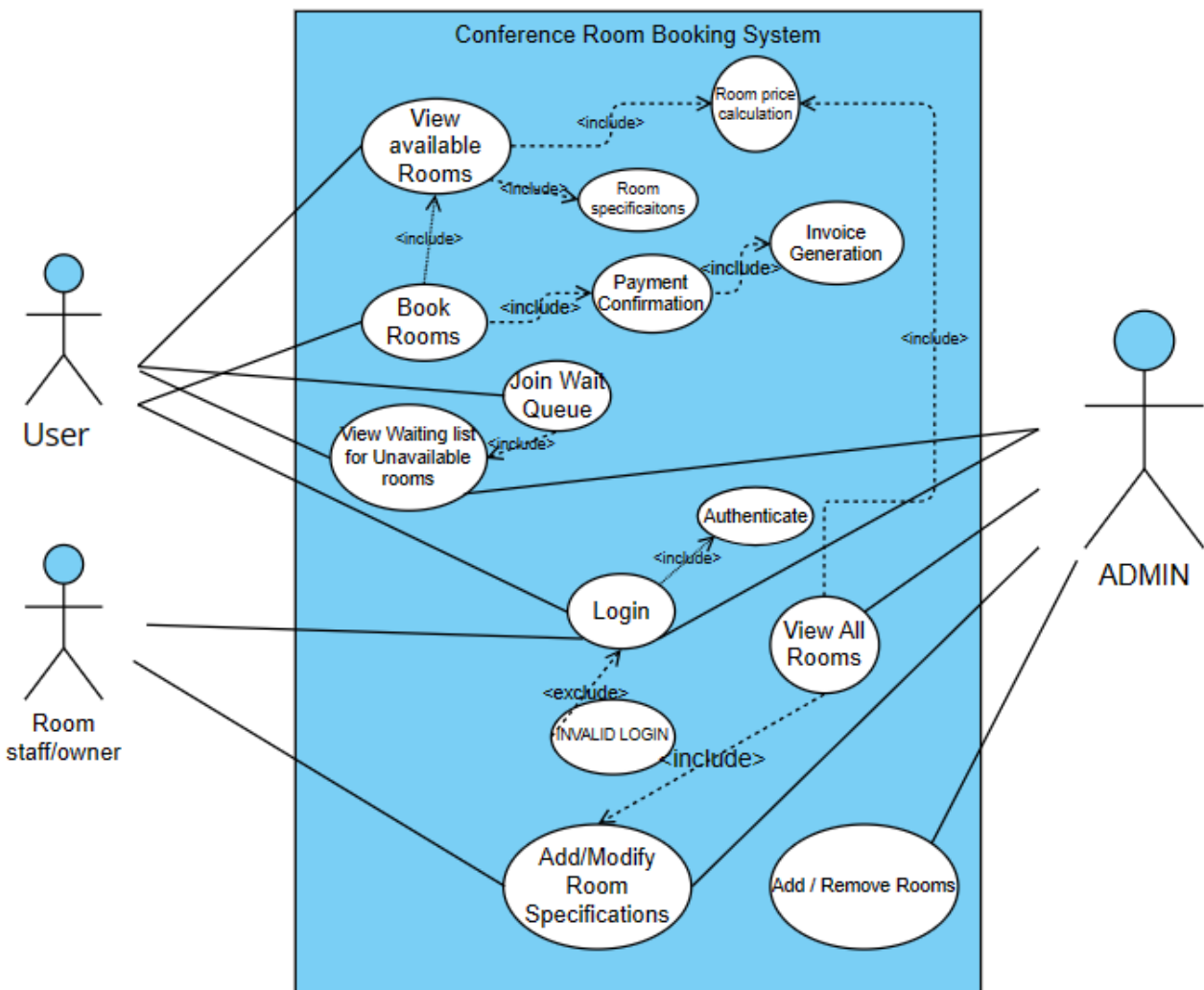
Figure-1:Context diagram for user classes

Figure-2:Use Case Diagram

2.4 Operating Environment

OE-1: The Conference Room Booking software shall operate with the following Web browsers: Microsoft Edge 114.0,115.0,116.0 , Chrome 115.0,116.0.

OE-2: The software will be hosted on Linux (e.g. Ubuntu, CentOS) or Windows Servers like ApacheHTTP Server or Nginx.

OE-3: Database Management System: SQLITE

OE-4: The Conference Room Booking Software will allow users to book rooms from their internet connection from home.

2.5 Design and Implementation Constraints

CO-1:   The software shall be user-friendly. Most features shall be accessible within 4 clicks from the homepage.
CO-2:   All Code shall be written in Python 3.x.
CO-3:   SQLITE is used for database management.

2.6 User Documentation

UD-1 : FAQ section will be provided for help with common queries.
UD-2 : Contact details as email will be provided for customer support.
UD-3 : Users will be made aware of OS and browser requirements.

2.7 Assumptions and Dependencies

AS-1:   The software assumes a stable internet connection for users to access the system.It depends on the availability of hardware and software resources for hosting.
DE-1: The successful operation of the booking system depends on integrating a payment gateway for processing online payments.
DE-2:   The website relies on a SQLITE database system to store user data, event details, and booking records. The choice of the database system is a critical dependency.

3. External Interface Requirements

3.1 User Interfaces

UI-1: **User Portal:** This interface is for general users who wish to book conference rooms. It provides features for browsing available rooms, making reservations, and managing bookings.

UI-2: **Admin Dashboard**: Designed for administrators, this interface allows them to manage users, rooms, bookings, and system configurations. It includes advanced features for monitoring usage and generating reports.

UI-3: **Authentication Screens**: These screens handle user login, registration, and password recovery processes. They ensure secure user access to the system.

3.2 Hardware Interfaces

HI-1: Servers shall be used to host the system's backend components, databases, and web servers.

HI-2: If applicable, Barcode-scanners can be used for quick check-in using the offline mode.

3.3 Software Interfaces

SI-1: **Relational Database Management Interface**

SI-1.1: The conference room booking system will use *Sqlite* for data storage.

SI-1.2: The system will exchange data items such as booking records, user profiles, room availability, and transaction logs with the database.

SI-1.3: This interface is responsible for persisting and retrieving booking-related data, managing user profiles, and maintaining room availability.

SI-1.4: As per the availability of the conference rooms, the *CRM* System will update the database accordingly. If a room is unavailable for a particular day, the database would be updated to delete the room's data for that day.

SI-2: **User Authentication Interface**

SI-2.1: The Authentication for the Conference Room Booking system will be implemented using OAuth2.0 for secure user authentication.

SI-2.2: The authentication interface shall provide users to login/signup and access their accounts

SI-3: **Operating System Compatibility**

SI-3.1: The system shall be compatible with Windows Server 2019, Ubuntu 20.04 LTS, and CentOS 7.

SI-3.2: Ensure seamless operation on supported operating systems while adhering to security and file management standards.

3.4 Communications Interfaces

CI-1: **Web Interfaces:** Modern web browsers will enable users to access the Conference Room Booking System and make bookings.

CI-2: **Network Server Communication:** The system shall use HTTP/HTTPS for facilitating data exchange between the client application and the server.

4. System Features

4.1 Room Booking

4.1.1 Description and Priority
This feature allows users to book conference rooms for their events or meetings. Users can select available rooms, specify the date and time, and make reservations. Priority: High.

4.1.2 Stimulus/Response Sequences
- User selects the "Book a Room" option.
- The system presents a list of available conference rooms with their specifications.
- User selects a room, specifies the booking date and time, and confirms the booking.
- The system confirms the booking and sends a confirmation email to the user.

4.1.3 Functional Requirements
REQ1: The system shall display a list of available conference rooms.
REQ2: Users shall be able to view rooms based on criteria such as room size and amenities.
REQ3: Users shall select a room and provide booking details including date and time.
REQ4: The system shall validate booking details for conflicts with existing bookings.
REQ5: Users shall have the option to cancel a booking if necessary.

4.2 View Room Specifications

4.2.1 Description and Priority
This feature allows users to view detailed specifications of available conference rooms before making a booking. Priority: Medium.

4.2.2 Stimulus/Response Sequences
- User selects a room from the list of available conference rooms.
- The system displays detailed room specifications, including size, equipment, and amenities.

4.2.3 Functional Requirements
REQ6: The system shall provide a detailed description of each conference room's specifications.
REQ7: Users shall access room specifications by selecting a room from the list.
REQ8: The system shall display the maximum capacity of each conference room.
REQ9: Users shall access room capacity information by selecting a room from the list.

4.3 Waiting List

4.3.1 Description and Priority
A waiting list feature allows users to join a waiting list for fully booked rooms and be notified when a room becomes available. Priority: Medium.

4.3.2 Stimulus/Response Sequences
- User selects the "Join Waiting List" option for a fully booked room.
- If a room becomes available, the system sends a notification to the user.

4.3.3 Functional Requirements
REQ10: Users shall have the option to join and unjoin a waiting list for fully booked rooms.
REQ11: The system shall notify users when a room becomes available.

4.4 Already Booked Rooms

4.4.1 Description and Priority
This feature allows users to view a list of rooms that are already booked for specific dates and times. Priority: Low.

4.4.2 Stimulus/Response Sequences
- User selects the "View Booked Rooms" option.
- The system displays a list of rooms that are already booked for the selected date and time.

4.4.3 Functional Requirements
REQ12: The system shall provide a list of booked rooms for the selected date and time. Users shall be able to view booking details for each room.

4.5 Room Management

4.5.1 Description and Priority
Administrators can manage conference rooms, including adding, modifying, or removing rooms and updating room specifications. Priority: High.

4.5.2 Stimulus/Response Sequences
- Administrator logs in to the system.
- Admin selects the "Room Management" option.
- The system provides options for adding, modifying, or removing rooms.

4.5.3 Functional Requirements

REQ13: Admins shall have the authority to add new conference rooms to the system.
REQ14: Admins shall be able to modify existing room details, including specifications and availability.

REQ15: Admins shall have the capability to add or modify infrastructure details for conference rooms.
REQ16: Admins shall have the capability to remove rooms from the system.

4.6 Permission Request

4.6.1 Description and Priority
This feature enables users to submit requests for special events that require permission from authorities. Authorities can approve or reject these requests. Priority: High.

4.6.2 Stimulus/Response Sequences
- User submits a permission request for a special event.
- Authorities approve or reject the request, and the user is notified.

4.6.3 Functional Requirements
REQ17: Users shall be able to submit permission requests for special events, providing event details.
REQ18: Authorities shall have the capability to approve or reject permission requests.
REQ19: Users shall be notified of the approval or rejection of their requests.

4.7 Invoice Generation

4.7.1 Description and Priority
This feature allows the system to generate invoices for users who have booked conference rooms. Invoices include details such as booking charges and date of booking. Priority: Medium.

4.7.2 Stimulus/Response Sequences
- After a successful booking, the system generates an invoice for the user.

4.7.3 Functional Requirements
REQ20: The system shall automatically generate invoices for each successful booking.

4.8 Notification System

4.8.1 Description and Priority
The notification system sends email notifications to users for booking confirmations, waiting list updates, and permission request responses. Priority: Medium.

4.8.2 Stimulus/Response Sequences

- Users on waiting lists receive notifications when rooms become available.
- Authorities receive notifications of permission requests and can respond through the system.

4.8.3 Functional Requirements
REQ21: The system shall have a page for all the notifications for the user.
REQ22: Users will have their notifications be ordered by date.

4.9 User Profile Management

4.9.1 Description and Priority
This feature allows registered users to manage their profiles. Users can update personal information, change passwords, and view booking history. Priority: Low.

4.9.2 Stimulus/Response Sequences
- Registered users log in to their accounts.
- Users can access and update their profiles.
- Users can view their booking history.

4.9.3 Functional Requirements

REQ23: Users shall be able to change their passwords.
REQ24: Users shall have access to their booking history within their accounts.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

PE-1: The system should be capable of handling a minimum of 500 concurrent user bookings during peak conference registration periods.

PE-2: Response time for processing booking requests should be less than 2 seconds.

PE-3: The system should be able to generate attendee badges and related documents for a conference of up to 1,000 attendees within 4 hours.

5.2 Safety Requirements

SA-1: The system must ensure that attendee personal data, including names and payment information, is securely stored and transmitted in compliance with data

protection regulations (e.g., GDPR).

SA-2: There should be a backup and disaster recovery plan in place to prevent data loss in case of system failures.

5.3 Security Requirements

SE-1: User authentication must be implemented, requiring a username and password for access.

SE-2: Access to administrative features, such as managing conference details, should be restricted to authorized personnel only.

5.4 Software Quality Attributes

- The system should provide an intuitive user interface to enhance usability.

- It should allow for easy customization of conference details and registration forms to improve flexibility.

- The system should be maintainable and support software updates and bug fixes with minimal downtime.

5.5 Business Rules

- Only registered users should be able to book conference tickets.

- Conference organizers should have the ability to set pricing tiers based on factors such as early bird registration and attendee type (e.g., student, regular).

6. Other Requirements

- The system should be compatible with popular web browsers (e.g.,Chrome, Firefox, Safari) and mobile devices (iOS and Android).

- Scheduled maintenance should be communicated to users in advance, and maintenance windows should be minimized during peak registration periods.

- The system should be designed to handle an increase in conference attendees and bookings without significant performance degradation.

- The system should provide real-time analytics to monitor registration progress.

Appendix A: Glossary

- OAuth 2.0 - An industry-standard protocol for authorization, used for secure user

authentication.

- Data Protection Regulations (e.g., GDPR) - Laws and regulations governing the protection of personal data, such as the General Data Protection Regulation.

- Payment Card Industry Data Security Standard (PCI DSS) - A set of security standards designed to ensure that all companies that accept, process, store, or transmit credit card information maintain a secure environment.

- Peak Conference Registration Periods - Times when there is a high volume of conference room bookings, often during conference planning phases.

Appendix B: Analysis Models
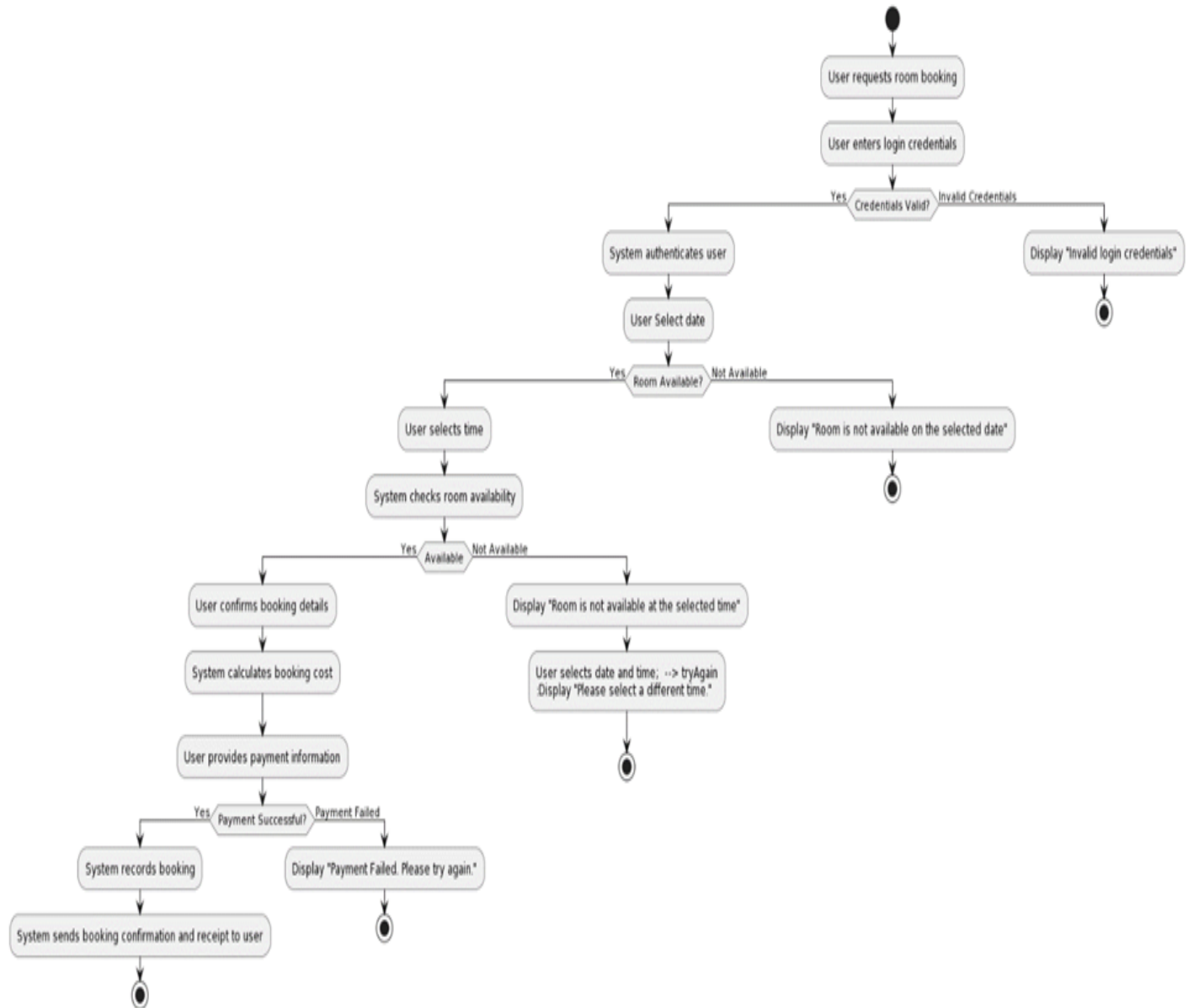
Appendix C: Requirement Traceability Matrix:

ID	Requirement	Specification	Test Case ID	Status
4.1	Room Booking	Users are able to book rooms.	RoomBooking_1 RoomBooking_2 RoomBooking_3 RoomBooking_4	Pending
4.2	View Room Specification	Users are able to view a list of rooms with specifications.	ViewRoom_1 ViewRoom_3	Pending
4.3	Waiting List	Users are able to join and unjoin the waiting list for a particular conference room.	WaitingList_1 WaitingList_2 WaitingList_3	Pending
4.4	View Booked Rooms	Users are able to view booked rooms for a particular date.	ViewRoom_2	Pending
4.5	Admin Room Management	Admins are able to add, remove ,modify room details.	RoomManagement_1 RoomManagement_2 RoomManagement_3	Pending
4.6	Permission request	Users are able to send permission request for special events to room owners	RoomBooking_4	Pending
4.7	Invoice Generation	Invoice is generated on room booking		
4.8	Notification System	Users have a notification page for all alerts.	NotificationSystem_1 NotificationSystem_2	Pending
4.9	User Profile Management	Users are able to view and manage their profile.	UserProfileCreation_1 UserProfileManagement_1 UserProfileManagement_2 UserProfileManagement_3 UserProfileManagement_4	Pending