
Software Requirements Specification

for

Conference Room Booking System

Version 1.0 draft

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Revision History

Name	Date	Reason For Changes	Version
ByteCoders	15/09/2023	Initial Draft	1.0.01 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.

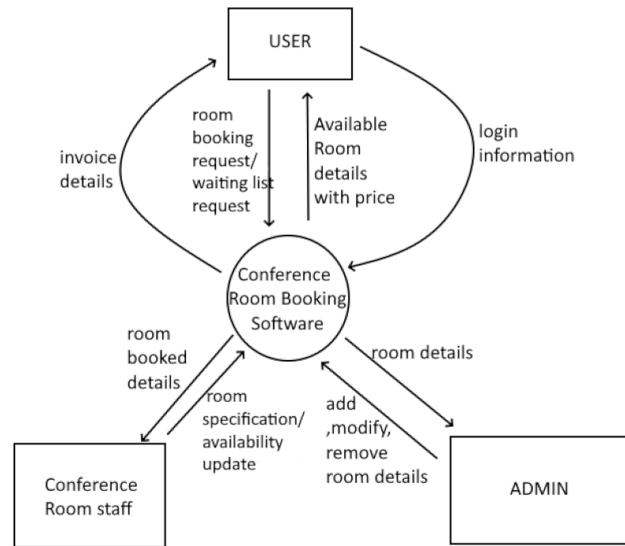


Figure-1:Context diagram for user classes

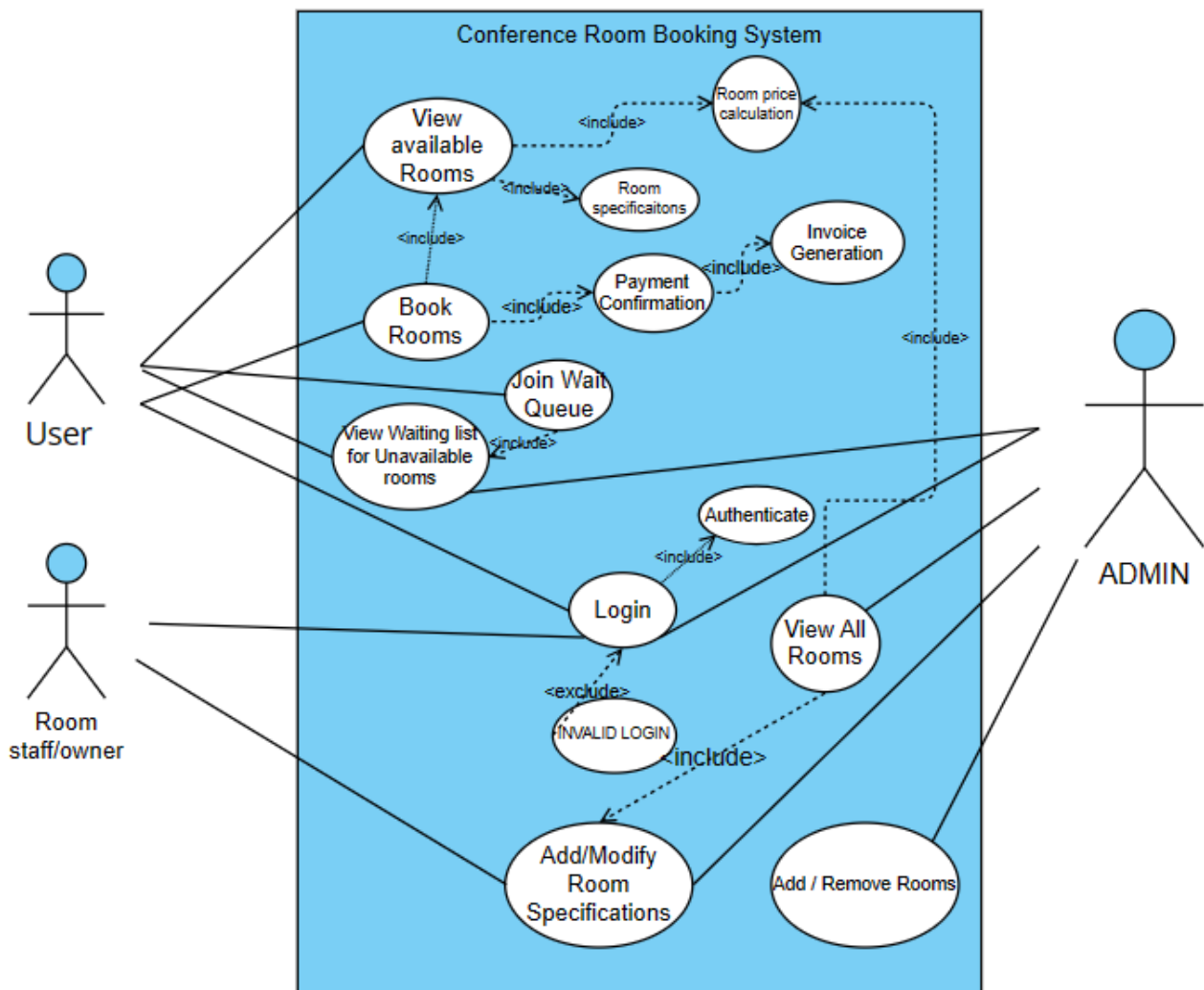


Figure-2:Use Case Diagram

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: MongoDB 6.0+.

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: MongoDB 6.0+ is used for database management.

CO-4: Software will comply with required rules of the payment interface (UPI).

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 MongoDB 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 *MongoDB 6.0+* 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: Payment Gateway Interface

SI-3.1: If applicable, the system shall integrate with a payment gateway service like PayU for processing room reservation fees.

SI-3.2: Payment transaction details, including payment details and account information shall be securely processed.

SI-4: Operating System Compatibility

SI-4.1: The system shall be compatible with Windows Server 2019, Ubuntu 20.04

LTS, and CentOS 7.

SI-4.2: Ensure seamless operation on supported operating systems while adhering to security and file management standards.

3.4 Communications Interfaces

CI-1: **Email Communication:** The Conference Room Booking System shall send well-structured e-mail messages to the Customer to confirm or remind them about their bookings. This shall be implemented using Simple Mail Transfer Protocol.

CI-2: **Web Interfaces:** Modern web browsers will enable users to access the Conference Room Booking System and make bookings.

CI-3: **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 filter 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 receive a booking confirmation email.

REQ6: 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

REQ7: The system shall provide a detailed description of each conference room's specifications.

REQ8: Users shall access room specifications by selecting a room from the list.

4.3 Room Capacity

4.3.1 Description and Priority

This feature enables users to determine the maximum capacity of a conference room, helping them choose a room suitable for their event. Priority: Medium.

4.3.2 Stimulus/Response Sequences

- User selects a room from the list of available conference rooms.
- The system displays the maximum capacity of the selected room.

4.3.3 Functional Requirements

REQ9: The system shall display the maximum capacity of each conference room.

REQ10: Users shall access room capacity information by selecting a room from the list.

4.4 Waiting List

4.4.1 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.

4.4.2 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.

4.4.3 Functional Requirements

REQ11: Users shall have the option to join a waiting list for fully booked rooms.

REQ12: The system shall notify users when a room becomes available.

4.5 Already Booked Rooms

4.5.1 Description and Priority

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

4.5.2 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.

4.5.3 Functional Requirements

REQ13: 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.

4.6 Room Management

4.6.1 Description and Priority

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

4.6.2 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.

4.6.3 Functional Requirements

REQ14: Admins shall have the authority to add new conference rooms to the system.

REQ15: Admins shall be able to modify existing room details, including specifications and availability.

REQ16: Admins shall have the capability to remove rooms from the system.

4.7 Permission Request

4.7.1 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.

4.7.2 Stimulus/Response Sequences

- User submits a permission request for a special event.
- Authorities receive and review the request.
- Authorities approve or reject the request, and the user is notified.

4.7.3 Functional Requirements

REQ17: Users shall be able to submit permission requests for special events, providing event details.

REQ18: Authorities shall receive and review permission requests.

REQ19: Authorities shall have the capability to approve or reject permission requests.

REQ20: Users shall be notified of the approval or rejection of their requests.

4.8 Additional Infrastructure

4.8.1 Description and Priority

Administrators can add additional infrastructure details to room specifications, such as audiovisual equipment or seating arrangements. Priority: Medium.

4.8.2 Stimulus/Response Sequences

- Administrator selects a conference room for modification.
- Admin adds or updates infrastructure details for the room.

4.8.3 Functional Requirements

REQ21: Admins shall have the capability to add or modify infrastructure details for conference rooms.

REQ22: Infrastructure details shall include information on equipment and seating arrangements.

4.9 Invoice Generation

4.9.1 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, additional services, and payment instructions. Priority: Medium.

4.9.2 Stimulus/Response Sequences

- After a successful booking, the system generates an invoice for the user.
- The user can access and download the invoice from their account.

4.9.3 Functional Requirements

REQ23: The system shall automatically generate invoices for each successful booking.

REQ24: Invoices shall include details of the booking, charges, and payment instructions.

REQ25: Users shall be able to access and download their invoices from their accounts.

4.10 Notification System

4.10.1 Description and Priority

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

4.10.2 Stimulus/Response Sequences

- When a user makes a booking, the system sends a booking confirmation email.
- Users on waiting lists receive notifications when rooms become available.
- Authorities receive notifications of permission requests and can respond through the system.

4.10.3 Functional Requirements

REQ26: The system shall send email notifications for booking confirmations, waiting list updates, and permission request responses.

REQ27: Users shall have the option to opt in or out of receiving email notifications.

4.11 User Profile Management

4.11.1 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.

4.11.2 Stimulus/Response Sequences

- Registered users log in to their accounts.
- Users can access and update their profiles.
- Users can view their booking history.

4.11.3 Functional Requirements

REQ28: Registered users shall have the ability to update personal information in their profiles.

REQ29: Users shall be able to change their passwords.

REQ30: 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.

SE-3:Credit card information for payment processing must be encrypted and compliant with Payment Card Industry Data Security Standard (PCI DSS) requirements.

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).
- Cancellation policies should be enforced, with refunds processed according to predefined rules (e.g., full refund if canceled 30 days before the event).

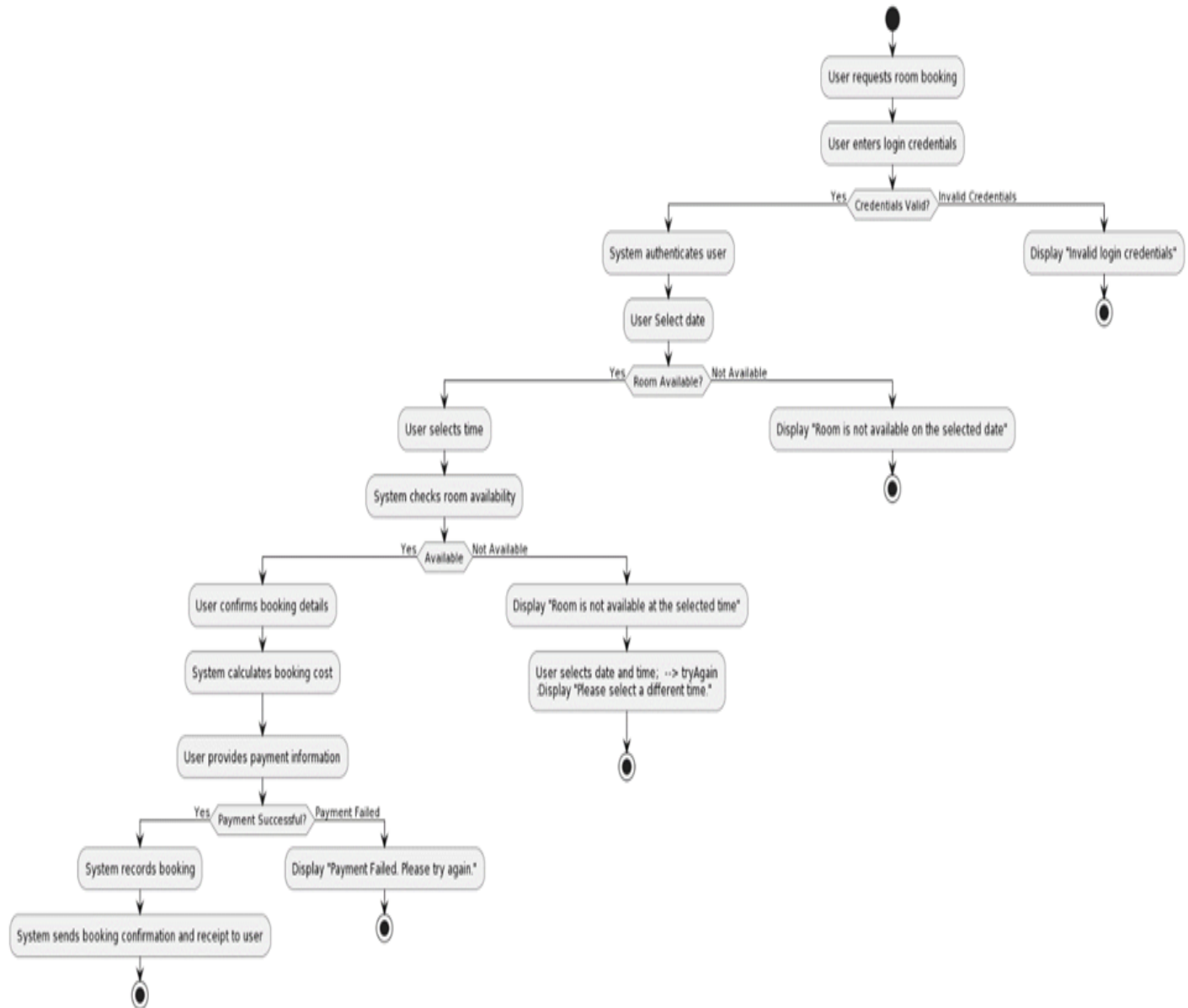
6. Other Requirements

- 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

- Payment Gateway - A service that facilitates online payments securely.
- 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.
- MongoDB: A popular NoSQL database management system used for storing and retrieving data in the Conference Room Booking System.

Appendix B: Analysis Models



Appendix C: To Be Determined List