

# Software Requirement for Resource Booking System

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<b>Problem Statement</b>	Resource Booking System

## Technical Components:

**Back End** : Node.js,Express.js

**Front End** : Angular

**Database** : MongoDB

**API** : RestFul API

## PROBLEM STATEMENT:

The lack of reserving facilities in educational institutions leads to several challenges, including:

- **Inefficient Resource Utilization:** Without insights into usage patterns and demand for facilities, resource utilization may be suboptimal. Some facilities might be overused while others remain idle, leading to inefficiencies in resource allocation

- **Limited Accessibility:** We may face challenges in accessing and booking facilities, especially if the process relies on physical presence or manual coordination during specific office hours.
- **Manual Booking Processes:** Without a centralized system, booking facilities often rely on manual processes such as email requests, phone calls, or in-person visits.

## **PROJECT-FLOW:**

### **Purpose:**

To develop the Resource Booking System For Reserving facilities that helps to book the certain venues for wanted Time.It also reduces the time waste by checking availability.

### **Scope:**

The system consists of User and admin authentication,availability of venues such as classroom,labs,auditorium and seminar hall.And users are able to request for certain venues to book the resources.

### **Business Context:**

The Resource management system is enhanced for reserving the venues in BIT,this also reduces the time to check the availability and manual booking of the venue.Primary stakeholders include students, faculty, administrative staff, and event coordinators.

**Consideration:**

- The Admin is responsible for confirm the Booking of venues
- All users possess active Google accounts or user accounts for authentication.

**Dependencies:**

- Mail account must need to receive the confirmation notification
- Integration with Database Server for availability updates.

**User personas:**

Faculty: For Book the lab or classroom for academic purposes

Event Coordinator: To book the seminar hall and auditorium for the club event and club meeting

Admin Staff: Manages system operations, resolves availability, and approves the resource requests.

**User Stories:**

- As a Faculty, I Want to check Availability and book the certain venues for academic purpose like labs, Classroom and Seminar hall
- As an Event Coordinator, I want to check the availability and capacity of certain venues like Auditorium, seminar halls to make the event pleasantful.
- As a Student, I Want to reserve a place in the department lab for my Own project, lab project and to study during the PT exams or Internal Exams.

## **Functional Requirements:**

- User Authentication: login using user account or Google Account.
- Admin Authentication: login using admin account.
- Facility Management: Admin ability to add, edit, and delete facilities. Each facility should have attributes like capacity, equipment, availability schedule, etc.
- Availability Checker: Users should be able to check the availability of facilities based on date, time, and other parameters.
- Booking Requests: Users should be able to submit booking requests specifying the facility, date, time, purpose, etc.
- Confirmation Notifications: Automatic confirmation emails or notifications should be sent to users upon successful booking After by admin.
- Booking Modification and Cancellation: Users should be able to modify or cancel their bookings within a specified time frame.

## **Non-Functional Requirements:**

- Performance: Ensure the system can handle concurrent users and large datasets efficiently.
- Scalability: Design the system to scale horizontally or vertically as the user base grows.
- Security: Implement measures such as data encryption, secure authentication, input validation, etc., to protect against security threats.
- Reliability: Minimize downtime and ensure high availability of the system.
- Usability: Conduct usability testing to ensure the system is intuitive and easy to use.

