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Project title : Resource Booking System

Technical components

COMPONENT	TECH STACK
Frontend	React.js
Backend	Node.js with express.js
Database	Mongo db
API	Rest Api

Module Description

Resource Booking System - Implement a resource booking system for reserving facilities such as classrooms, labs, auditoriums, and seminar hall. Allow users to check availability, submit booking requests, receive confirmation notifications, and manage bookings.

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1. Overview

1.1 Purpose

The Resource Booking System aims to streamline the process of reserving facilities such as classrooms, labs, auditoriums, and seminar halls. It provides users with a convenient platform to check availability, submit booking requests, receive confirmation notifications, and manage their bookings efficiently. By automating the booking process, the system enhances organization and accessibility, saving time and reducing administrative workload.

1.2 Scope

The Resource Booking System will enable users to efficiently reserve facilities like classrooms, labs, auditoriums, and seminar halls. It includes user authentication, facility management, booking management, and booking administration modules for streamlined resource utilization.

2. System Description

The Resource Booking System will consist of the following modules:

2.1 User Authentication

- Users must register and log in to access the system.
- Different user roles will be defined (e.g., admin, faculty) with different access levels.

2.2 Facility Management

- Admins will be able to add, edit, and delete facilities.
- Each facility will have attributes such as name, capacity, and availability.

2.3 Booking Management

- Users can submit booking requests, specifying the desired facility, date, time, and purpose.
- Admin users will approve or reject booking requests.
- Users will receive confirmation notifications via email.

2.4 Booking Administration

- Admin users will be able to view, approve, reject, and manage bookings.
- Booking history and reports will be available for admin users.

3. Dependencies and Constraints

3.1 Dependencies

- **Database:** The system relies on a database to store information on facilities, users, bookings, and booking history.
- **User Interface:** A user-friendly interface is needed for users to interact with the system. The UI framework will be compatible with the chosen development environment.
- **Email System:** An email system is required to send confirmation notifications and reminders to users regarding their bookings.

3.2 Constraints

- **Security:** The system will enforce user authentication and authorization to restrict access to sensitive information.
- **Availability:** The will be highly available to ensure users can access booking functionality throughout the day.
- **Scalability:** The system will be scalable to accommodate an increasing number of users, facilities, and bookings.

3.3 Additional Considerations

- **Conflict Detection:** The system should automatically detect conflicts when a user tries to book a resource already reserved for the requested time slot.
- **Cancellation :** A clear cancellation policy will be defined within the system.
- **Notifications:** The system will allow users to receive notifications .

5. System Interfaces

5.1 User Interface

- The system will provide a portal-based interface for users to access the system.
- The interface will be accessible through web browsers, ensuring compatibility across devices.
- It will be designed to be user-friendly and intuitive, facilitating easy navigation and interaction with the system.

5.2. Node-mailer Integration

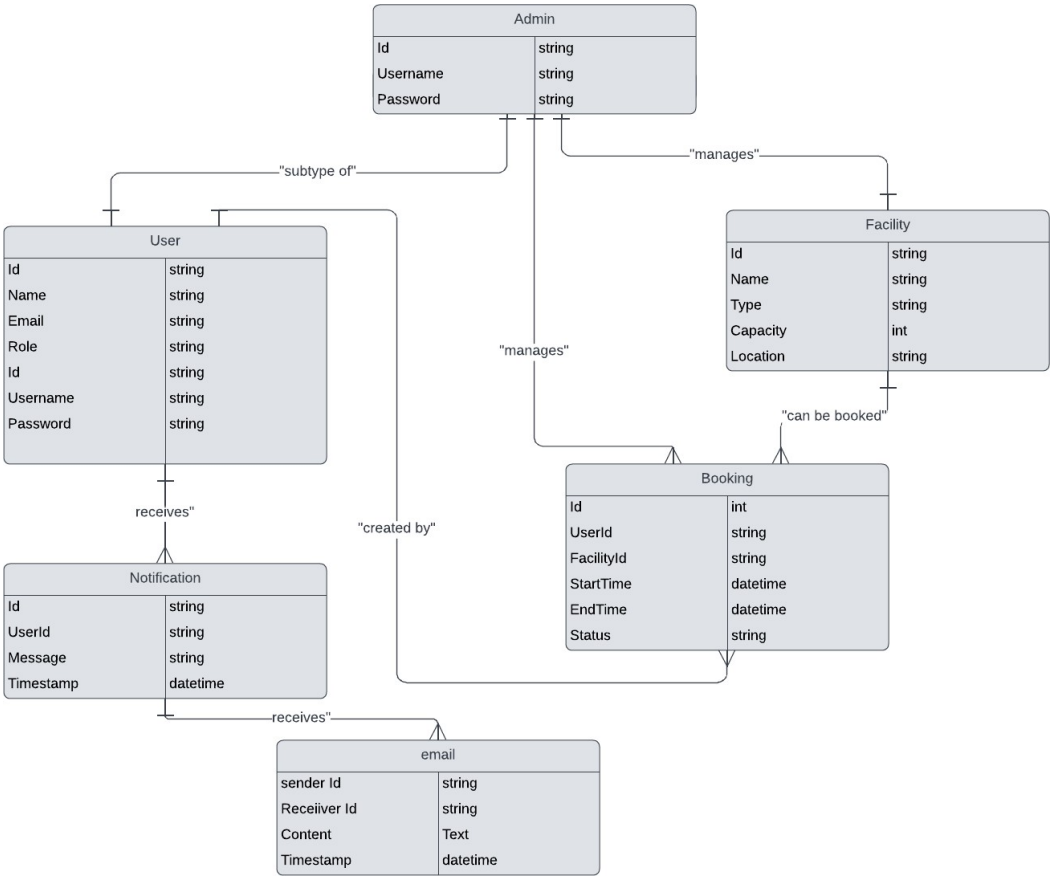
- Integration of Node-mailer for email notifications within the system.
- Node-mailer will be used to send confirmation notifications to users regarding their bookings and other relevant updates.

6. Glossary

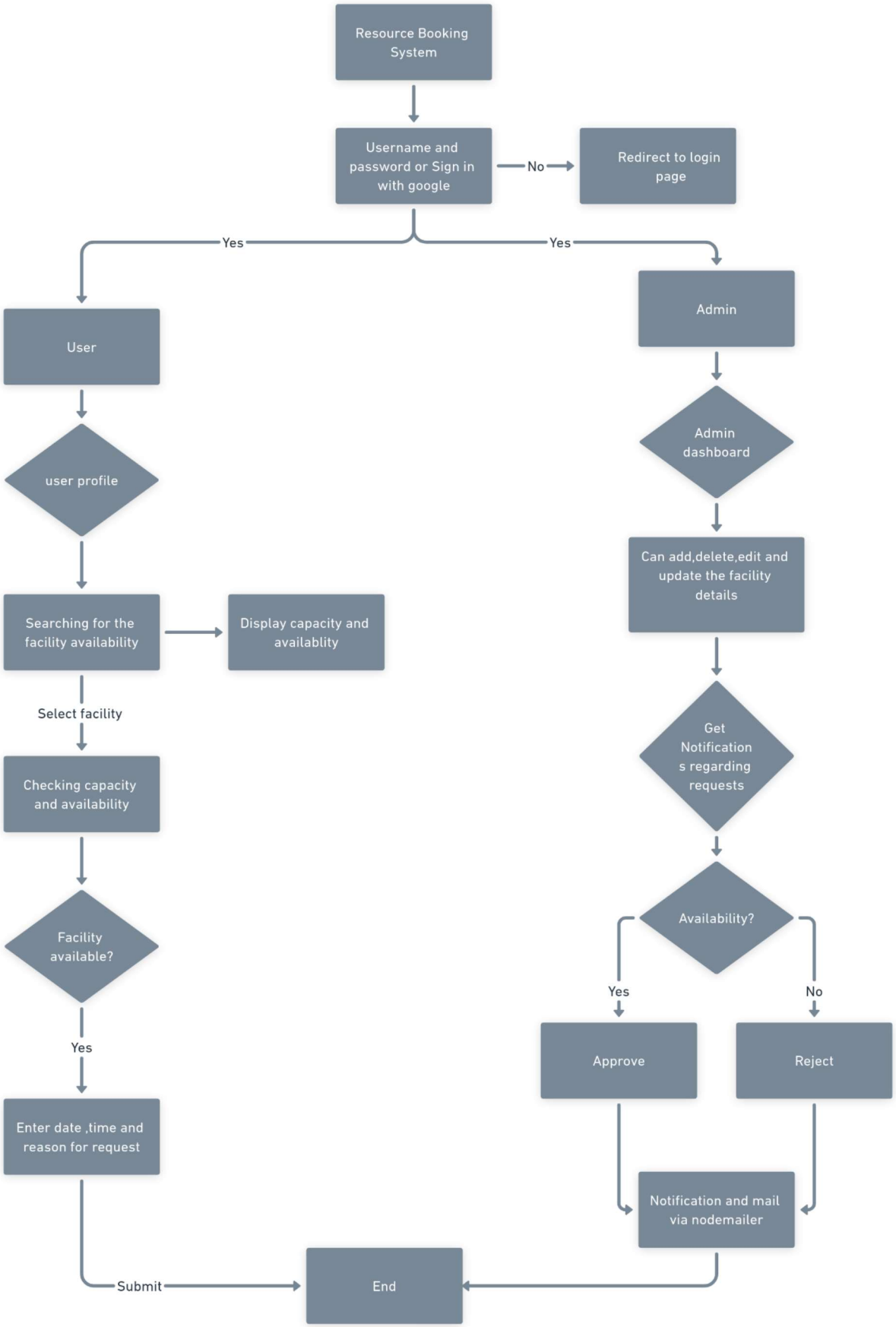
- Admin User: User with full access to the system for managing facilities and bookings.
- Facility: A room or space that can be reserved (e.g., classroom, lab, auditorium).
- Booking Request: A request submitted by a user to reserve a facility for a specific date and time.

STAKEHOLDERS	RESPONSIBILITIES
Administrators	Manage user accounts and permissions. Handle booking requests (approve, reject) - Generate reports on facility usage and booking statistics.
Users	Faculty: Book facilities for classes, workshops, seminars, etc.
System Developers	Develop, maintain, and update the booking system- Ensure system security, scalability, and user-friendliness- Implement new features and functionalities.

ER Diagram



Work Flow


Resource Booking System
Username and password or Sign in with google
No
Redirect to login page
Yes
Yes
User
Admin
user profile
Admin dashboard
Searching for the facility availability
Display capacity and availablity
Can add,delete,edit and update the facility details
Select facility
Checking capacity and availability
Get Notification s regarding requests
Facility available?
Availability?
Yes
No
Yes
Approve
Reject
Enter date ,time and reason for request
Notification and mail via nodemailer
Submit
End