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Group: SE2

1. Project Title

Movie Ticket Booking System

2. Problem Statement

Traditional movie ticket booking methods are often inefficient, requiring users to visit theaters physically or use outdated systems with limited features. Users face difficulties in checking real-time seat availability, getting notifications about upcoming movies, and accessing personalized experiences such as VIP seating or special offers. The lack of a centralized platform for multiple theaters further complicates the process.

3. Objectives

- Develop a web-based system that allows users to book movie tickets conveniently.
- Enable real-time seat availability tracking.
- Provide multiple theater support and categorized movie listings.
- Implement user authentication for secure bookings.
- Offer automated notifications for booking confirmations and reminders.
- Incorporate additional ticket features using a flexible system architecture.

4. Target Users

- Moviegoers: looking for a seamless booking experience.
- Theater Managers: manage schedules and bookings.
- Administrators :handling movie listings and user management.

5. Technologies and Frameworks

- Frontend: React.js
- Backend: Express.js (Node.js)
- Database: MongoSQL
- Authentication: JWT-based authentication
- Styling:Tailwind CSS / Bootstrap

6. Expected Design Patterns

- Abstract Factory Pattern: To create different types of movie categories dynamically.
- Observer Pattern: To notify users about booking confirmations and reminders.
- Decorator Pattern: To add special features to tickets (e.g., VIP seating, 3D glasses, free snacks).

7. Initial High-Level System Overview

- User Module: Authentication, profile management, booking history.

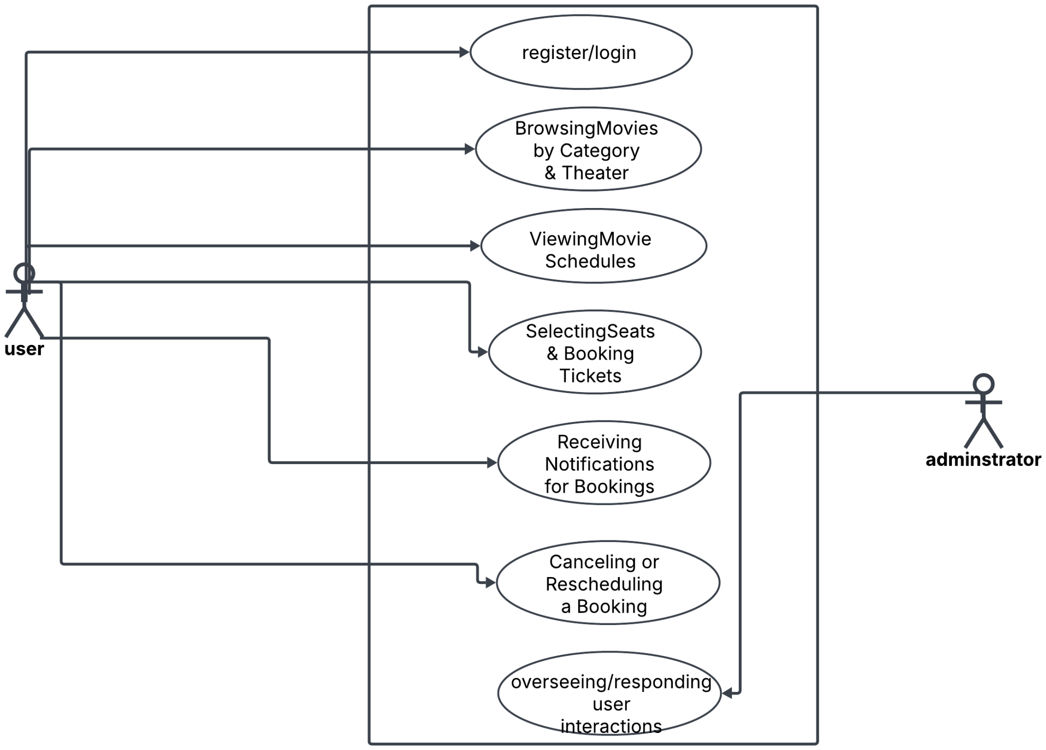
- Movie Module: Movie listings, categories, schedules.
- Theater Module: Multiple theaters with unique seat layouts.
- Booking Module: Real-time seat availability, secure payments.
- Notification System: Email/SMS reminders and booking confirmations.
- Admin Dashboard: Manage users, theaters, and schedules.

Week 2: Software Requirements Specification (SRS)

1. Functional Requirements

Use Cases

1. User Registration & Login
2. Browsing Movies by Category & Theater
3. Viewing Movie Schedules
4. Selecting Seats & Booking Tickets
5. Receiving Notifications for Bookings
6. Canceling or Rescheduling a Booking


register/login
BrowsingMovies by Category & Theater
ViewingMovie Schedules
SelectingSeats & Booking Tickets
Receiving Notifications for Bookings
Canceling or Rescheduling a Booking
overseeing/responding user interactions
user
adminstrator

User Stories

- As a user, I want to browse movies based on categories so that I can quickly find what I like.
- As a user, I want to receive booking confirmation notifications so that I know my ticket details.
- As an admin, I want to manage movie schedules so that I can update show times easily.

2. Non-Functional Requirements

- Security: JWT authentication, encrypted user data.
- Scalability: Ability to handle thousands of concurrent users.
- Performance: Booking transactions should be completed within 2 seconds.
- Usability: Responsive design, intuitive UI/UX.
- Availability: 99.9% uptime guarantee.

3. System Constraints

- The system must support multiple theaters with unique seating layouts.
- Payments must be processed through Stripe/PayPal.
- The system should support both web and mobile browsers.

4. Assumptions and Dependencies

- Users have access to an internet connection.
- Theaters provide accurate movie schedules.
- Third-party services (e.g., email/SMS notifications, payment gateways) function properly.