

# Online Movie Ticket Booking System

## Functional Requirements

### User Management

- FR1: The system shall allow users to create accounts using their email addresses.
- FR2: The system shall allow users to log in to their accounts to access personalized features.

### Movie Information

- FR3: The system shall fetch movie information, including titles, descriptions, showtimes, and pricing, from a third-party API (e.g., Cineplex).
- FR4: The system shall update the movie information at regular intervals to ensure accuracy.

### Booking and Payment

- FR5: The system shall allow users to select movies, choose showtimes, and book tickets.
- FR6: The system shall provide a secure payment gateway for users to pay for their tickets online.
- FR7: The system shall send a confirmation email to users upon successful booking and payment.

### Filtering and Search

- FR8: The system shall allow users to filter movies based on criteria such as genre, ratings, and showtimes.
- FR9: The system shall provide search functionality for users to find movies by title or actor names.

## Non-Functional Requirements

### Performance

- NFR1: The system shall ensure a response time of less than 2 seconds for fetching movie information.
- NFR2: The system shall support concurrent access by up to 10,000 users.

### Security

- NFR3: The system shall implement secure authentication mechanisms for user login.
- NFR4: The system shall ensure secure transactions using SSL encryption for all payments.

### Usability

- NFR5: The system shall provide an intuitive and user-friendly interface for booking and payment processes.
- NFR6: The system shall be accessible on both desktop and mobile platforms.

### Reliability

- NFR7: The system shall ensure an uptime of 99.9%.
- NFR8: The system shall provide error messages and guidance for users in case of failed transactions or booking issues.

## **Scalability**

- NFR9: The system shall be designed to easily accommodate an increase in user load and data volume.

## **Compliance**

- NFR10: The system shall comply with data protection regulations for handling user information and payment data.

## **Project Structure**

### **1. User Management Service**

- Endpoints:
- /api/users/register: POST endpoint for user registration.
- /api/users/login: POST endpoint for user login.
- /api/users/profile: GET endpoint to retrieve user profile information.

### **2. Movie Information Service**

- Endpoints:
- /api/movies: GET endpoint to fetch a list of available movies.
- /api/movies/{movieId}: GET endpoint to retrieve details of a specific movie.

### **3. Booking Service**

- Endpoints:
- /api/bookings: POST endpoint to book tickets for a movie showtime.
- /api/bookings/{bookingId}: GET endpoint to retrieve booking details.
- /api/bookings/{bookingId}/cancel: POST endpoint to cancel a booking.

### **4. Showtime Service**

- Endpoints:
- /api/showtimes/{movieId}: GET endpoint to fetch showtimes for a specific movie.
- /api/showtimes/{showtimeId}: GET endpoint to retrieve details of a specific showtime.

## 6. Payment Service

- Endpoints:
- `/api/payments/process`: POST endpoint to handle payment processing for ticket bookings.
- `/api/payments/{paymentId}`: GET endpoint to retrieve payment details.

### Additional Considerations:

- Implement RESTful APIs with proper authentication and authorization mechanisms.
- Ensure each microservice is independently deployable and scalable to handle varying loads efficiently.
- Use Swagger or OpenAPI specifications for documenting and testing the APIs across microservices.

## Front-End using Angular JS

### Color Palette

- Primary: #E6191B (Cherry Red) - Represents excitement and action
- Secondary: #FACC2E (Mustard Yellow) - Represents vibrancy and fun
- Background: #F2F2F2 (Light Gray) - Creates a clean and modern feel

### Graphics

- Use high-quality images of movie posters throughout the website.
- Consider subtle animations for hover effects on buttons and calls to action.
- Include icons to represent different functionalities (e.g., search, location, profile).

## UI/UX Design

### Homepage:

- A large banner showcasing upcoming movies or popular releases with trailers that play on hover.
- A search bar for finding specific movies or genres.
- "Now Showing" section with movie posters, showtimes, and a "Buy Tickets" button.

### Movie Listing Page:

- Display the movie poster, title, release date, and synopsis.
- Showtimes with clear timings and available seats.

- Seat selection with an interactive seat map (clickable seats with color indicators for availability).
- Option to choose ticket type (adult, child, senior).
- A clear "Checkout" button.

### **Checkout Page:**

- User login/registration section (optional).
- Order summary showing movie title, date, time, number of tickets, and total price.
- Secure payment gateway integration for credit card or other payment methods.
- A confirmation page with ticket details and QR code for easy access.

### **Additional Considerations**

- Ensure the website is responsive and adapts to different screen sizes (desktop, mobile, tablet).
- Include clear and concise instructions throughout the booking process.
- Offer customer support options like a chatbot or FAQ section.