Requirement Analysis

**User (Customer) Features**

**1. User Account Management**

* Users can **register/login** using email or phone.
* Users can manage their **profile details** such as name, email, and phone.

**2. Browse Movies**

* Users can view a list of movies categorized as **Now Showing** and **Coming Soon**.
* Each movie displays details including **poster, trailer, cast, genre, language, duration, and rating**.

**3. Theater & Show Selection**

* Users can choose a **theater, date, and showtime** for the selected movie.

**4. Seat Selection**

* Users can view an **interactive seat layout** showing available and booked seats.
* Seats are categorized into **types** (e.g., Standard, Premium).

**5. Pricing & Payment**

* Pricing is applied based on **seat type, weekday/weekend, and dynamic demand**.
* The system supports **multiple payment gateways** (e.g., Stripe, Cash).
* Users can apply **promo codes or discounts** during payment.

**6. Registration & Booking Confirmation**

* Users receive an **email confirmation** after successful registration and booking.

**7. Booking History**

* Users can view their **past and upcoming bookings**.
* Users can **cancel bookings** (subject to rules) and receive a **refund or credit**.

**🎭 Admin / Theater Management Features**

**1. Theater Management**

* Admin can **add, edit, or delete theaters and screens**.
* Admin can **define seat layouts** once per screen.

**2. Movie & Show Management**

* Admin can **add, edit, or delete movies**.
* Admin can **schedule shows** with specific dates, times, and screens.

**3. Pricing Management**

* Admin can set **prices per seat type** (Standard, Premium, VIP).
* Admin can configure **weekday vs. weekend pricing**.
* Admin can enable **dynamic pricing** based on demand.

**4. Booking Management**

* System updates **seat availability in real time**.
* Admin can manage **cancellations and refunds**.
* The system ensures **no double-booking** through transaction handling.

**5. Reports & Analytics**

* Generate **daily/weekly sales reports**.
* Track **movie popularity and occupancy rates**.
* Monitor **revenue trends** for business insights.

**Performance**

* The system should support **at least 500–1000 concurrent users** without performance degradation.
* Seat booking transactions must be **processed in real-time** (seat status updates within 2 seconds).
* Average page load time should not exceed **3 seconds** on standard network conditions.

**2. Scalability**

* The system should be able to **scale horizontally** to handle peak loads (e.g., popular movie releases).
* Database design should support **multiple theaters, multiple cities, and unlimited users/movies**.

**3. Security**

* All sensitive data (passwords, payment details) must be **encrypted** in storage and transmission (SSL/TLS).
* Users must authenticate with **secure login (hashed passwords, JWT/session tokens)**.
* Admin and user roles must have **role-based access control (RBAC)**.
* Payment gateways must comply with **PCI DSS standards**.

**4. Usability**

* The system should have a **user-friendly interface** for both customers and admins.
* Mobile responsiveness is mandatory (users can book via mobile or desktop).
* Provide **seat color coding** (green = available, red = booked, yellow = selected).