

# Project Report

## 1. INTRODUCTION

### 1.1 Project Overview

The **I-Movies Movie Ticket Booking System** is a comprehensive, web-based application developed using the **MERN stack** (MongoDB, Express.js, React.js, Node.js), which allows users to conveniently browse, select, and book movie tickets from the comfort of their devices. The system brings together modern web technologies to deliver a responsive, scalable, and user-centric platform for online movie ticket reservations.

This system aims to transform the traditional process of booking tickets at cinema counters into a digital experience by enabling real-time movie listings, show schedules, seat maps, and secure payments. Users can view movie details, trailers, ratings, and available seats before making a booking decision. The application supports both desktop and mobile views, ensuring accessibility and convenience.

On the administrative side, the system empowers cinema staff to manage theaters, shows, and movies through an intuitive dashboard. They can create new listings, set show timings, define pricing, and monitor bookings. It also includes tools for reporting and analytics to help theater owners track performance and optimize scheduling.

Key highlights of the I-Movies system include:

- Responsive user interface using React.js for seamless interaction.
- RESTful API backend powered by Node.js and Express.js.
- MongoDB as a NoSQL database for handling flexible data models.
- Secure payment integration with real-time booking status.
- Dynamic seat mapping and booking confirmation via email/SMS (optional).

### 1.2 Purpose

The main purpose of the **I-Movies Movie Ticket Booking System** is to address the inefficiencies of traditional ticket booking methods and existing online systems by offering a smoother, smarter, and more integrated booking experience. The project is designed with a user-first approach, ensuring clarity, reliability, and convenience at every step of the booking journey.

## **Objectives:**

- **Enhance User Experience:** Provide a clean, intuitive interface for browsing movies, selecting seats, and completing bookings with minimal friction.
- **Streamline Booking Process:** Ensure real-time seat availability and prevent double-bookings through dynamic updates.
- **Increase Accessibility:** Enable users to book tickets anytime, anywhere, without the need to stand in long queues or rely on limited physical outlets.
- **Empower Administrators:** Offer a flexible backend interface for admins to manage shows, movies, and theaters without technical assistance.
- **Improve Transparency:** Ensure that booking status, payment success, and cancellation policies are clearly communicated to users.
- **Support Personalization:** Lay the groundwork for personalized content, such as recommendations based on genre preferences, booking history, or user ratings.
- **Ensure Scalability:** Build the system using scalable technologies that can support future features such as offers, loyalty programs, and integrations with third-party services.

## **2. IDEATION PHASE**

### **2.1 Problem Statement**

In today's fast-paced world, moviegoers seek convenience, speed, and personalization when booking movie tickets. However, most existing online booking platforms suffer from issues such as poor user experience, lack of real-time seat updates, rigid modification policies, and inefficient administrative tools. These shortcomings result in user frustration, booking errors, and operational delays.

The I-Movies system aims to resolve these pain points by creating a movie ticket booking platform that is:

- **User-friendly** with intuitive navigation and real-time seat updates.
- **Dynamic** with easy admin controls for theater management.
- **Flexible** in handling cancellations and modifications.
- **Integrated** with secure and reliable payment gateways.
- **Personalized** to enhance user engagement and satisfaction.

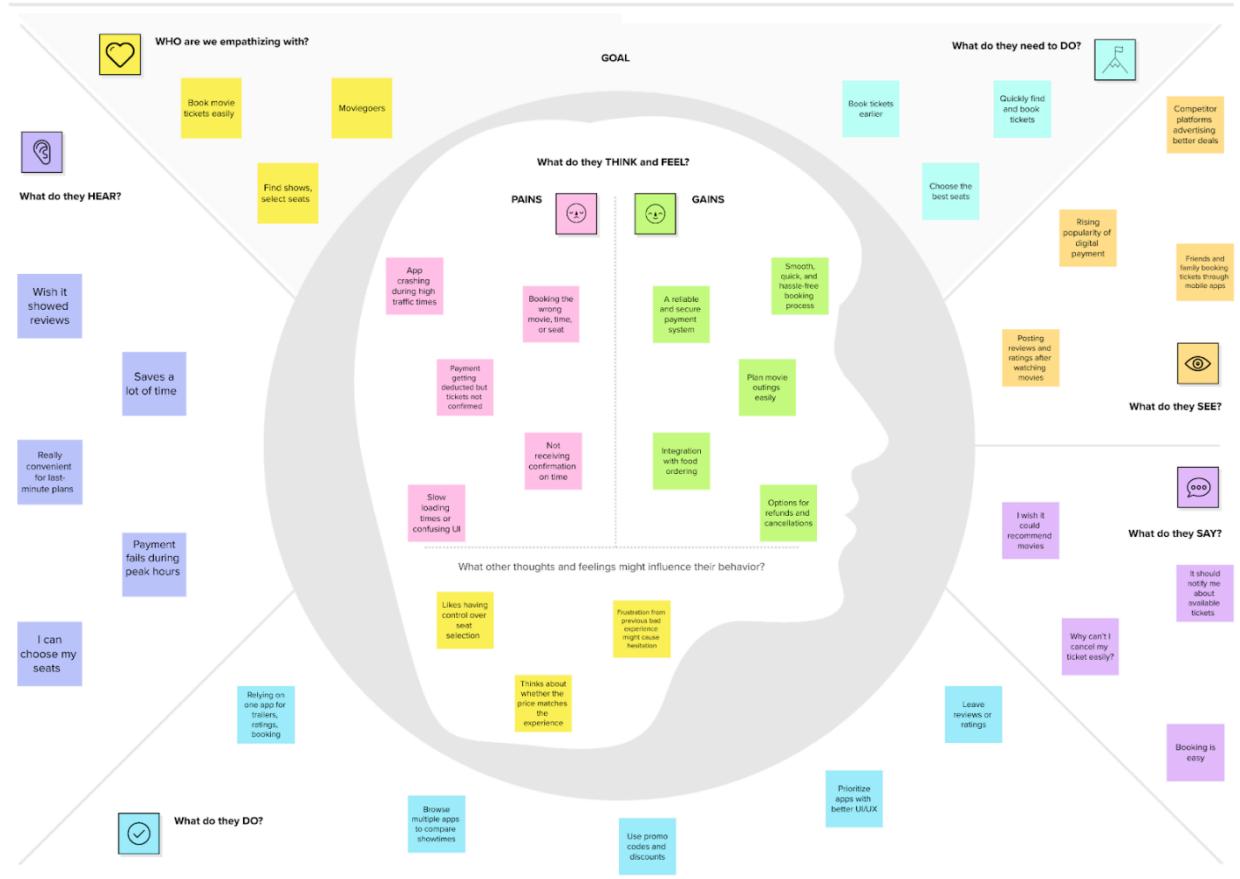
The project focuses on delivering a seamless movie booking experience while ensuring efficient backend operations for theater administrators.

<b>Problem Statement (PS)</b>	<b>I am (Customer)</b>	<b>I'm trying to</b>	<b>But</b>	<b>Because</b>	<b>Which makes me feel</b>
PS-1	A movie enthusiast	Book movie tickets conveniently	The seat selection process is confusing	The platform UI is not user-friendly	Frustrated
PS-2	A casual moviegoer	Find the best available seats	The payment options are limited or unreliable	Payment gateways sometimes fail	Annoyed due to wasted time
PS-3	A family member planning a movie outing	Choose a cinema close to my location	The real-time seat availability is not accurate	There are delays in updating booked seats	Disappointed with the service
PS-4	A person looking for entertainment	Select a preferred showtime	The booking process takes too long	The system lacks features for easy booking management	Uncertain if my booking was successful
PS-5	Someone who prefers online ticket booking	Get discounts or offers on tickets	The system crashes or lags during peak hours	The admin panel has limitations in handling seat availability updates	Concerned about payment security
PS-6	A busy professional with limited time	Manage my bookings easily	There is no option to modify bookings	The customer support response is slow	Likely to switch to another booking service

## 2.2 Empathy Map Canvas

The Empathy Map Canvas helps us understand the users more deeply by identifying their needs, emotions, and pain points. Below is a simplified empathy map tailored to both **end-users (moviegoers)** and **administrators (theater managers)**

### I-Movies : Movie Ticket Booking System



### 2.3 Brainstorming

During the ideation phase, multiple brainstorming sessions were conducted with potential users, technical peers, and stakeholders to identify key features and improvements for the system. Ideas were categorized into **User-side**, **Admin-side**, and **Technical** features.

### Step-1: Team Gathering, Collaboration and Selecting the Problem Statement

## Brainstorm & idea prioritization

Structure brainstorming sessions for I-Movies, ensuring that ideas align with project goals like seamless ticket booking, efficient seat selection, and a smooth payment experience.

**⌚ 10 minutes to prepare**  
**💡 1 hour to collaborate**  
**👤 4 people**

### Before collaboration

- A Team gathering**  
Team Lead: Sanskriti Tyagi  
Members: Anushka Singh  
Eishani Bhattacharya  
Khushi Thakur
- B Set the goal**  
Enhance the I-Movies booking experience by improving ticket selection, payment efficiency, and user engagement.
- C Learn how to use the facilitation tools**
  1. Use wireframing tools for UI ideas.
  2. Set up a shared document for real-time collaboration.

### Defining the problem statement

**PROBLEM**  
How might we streamline the I-Movies ticket booking journey to minimize drop-offs and enhance user satisfaction through seamless seat selection, quick loading, and hassle-free payments?

### Key rules of brainstorming

To run an smooth and productive session

- Stay focused.**
- Build on each other's ideas.**
- Defer judgment.**
- Keep it user-centric.**
- Aim for quantity.**
- If possible, be visual.**

## Step-2: Brainstorm, Idea Listing and Grouping

### 3 Brainstorm

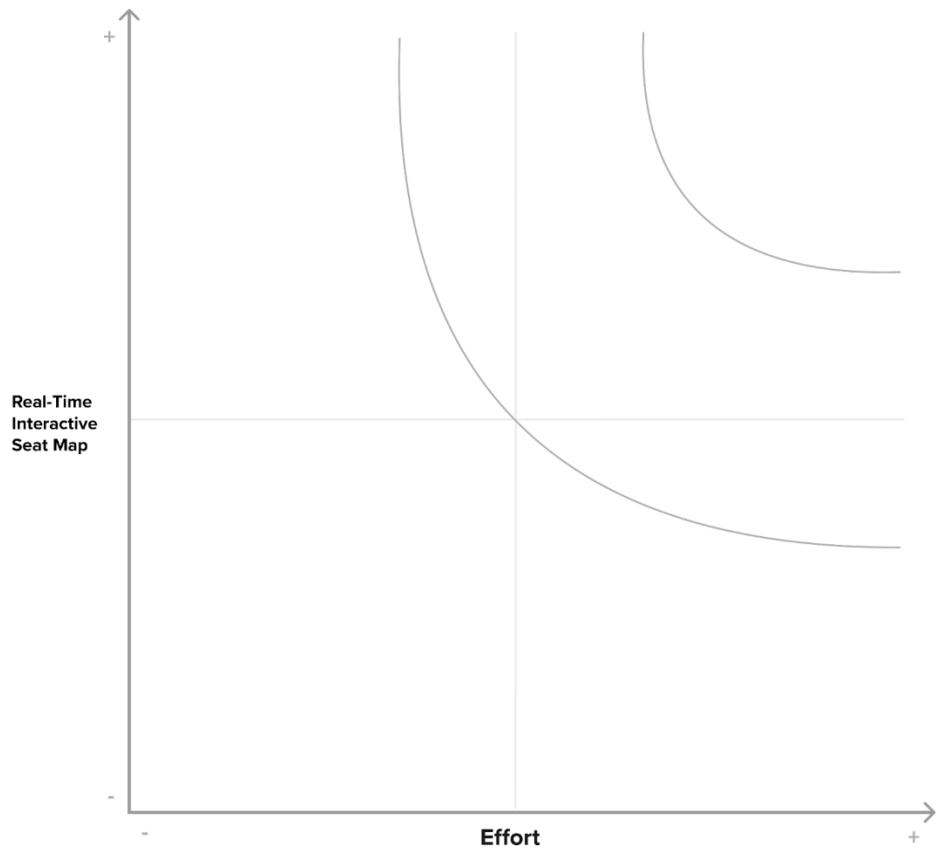
Anushka Singh	Interactive seat map with real-time availability.	Eishani Bhattacharya	Retry mechanism for payment failures.
	Auto-hold seats during payment.		Offer guest checkout option.
	Single-page booking interface.		Exit intent popups for incomplete bookings.

### 3 Group ideas

<b>Simplifying and Speeding Up the Booking Flow</b>	<b>Enhancing User Convenience and Trust</b>
<ul style="list-style-type: none"> <li>Interactive seat map with real-time availability</li> <li>Single-page booking interface</li> <li>Progress bar for booking flow</li> <li>Optimize API response times</li> <li>Auto-hold seats during payment</li> <li>Retry mechanism for payment failures</li> </ul>	<ul style="list-style-type: none"> <li>Guest checkout option</li> <li>Booking confirmation via WhatsApp/SMS instantly</li> <li>In-app promotions and loyalty points</li> </ul>
<b>Recovering Drop-Offs and Boosting Engagement</b>	<b>Leveraging Analytics for Continuous Improvement</b>
<ul style="list-style-type: none"> <li>Exit intent popups for incomplete bookings</li> <li>A/B testing of different booking flows</li> <li>Heatmap analysis of booking drop-offs</li> </ul>	<ul style="list-style-type: none"> <li>Heatmap analysis of booking drop-offs</li> <li>Exit intent popups based on user behavior patterns</li> <li>Heatmap analysis of booking drop-offs</li> </ul>

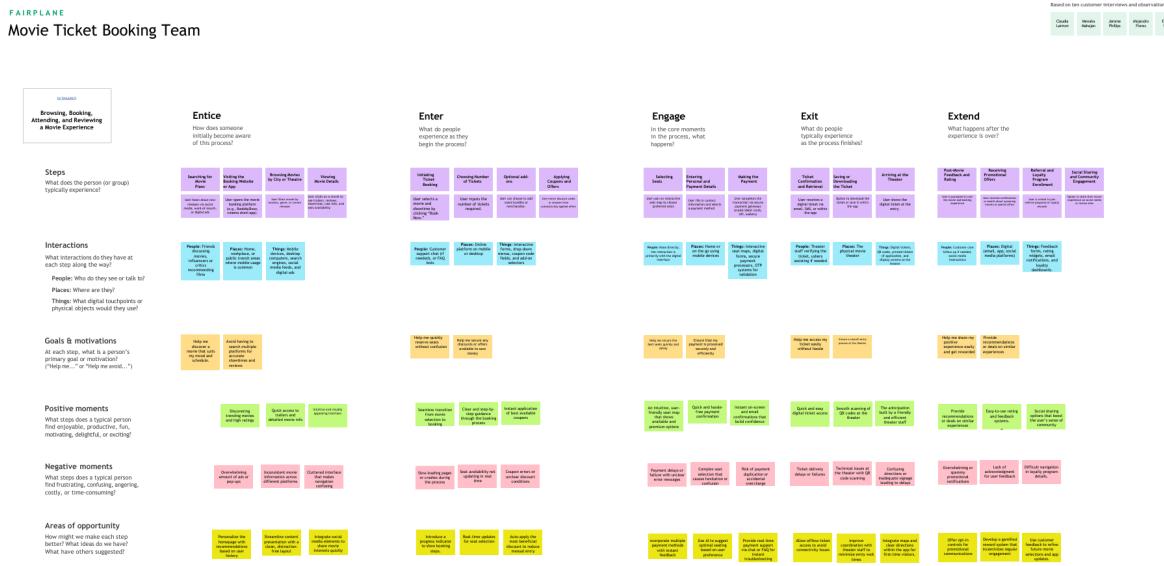
## Step-3: Idea Prioritization

4  
Prioritize



### 3. REQUIREMENT ANALYSIS

#### 3.1 Customer Journey map



## 3.2 Solution Requirement

**Functional Requirements:** Following are the functional requirements of the proposed solution:

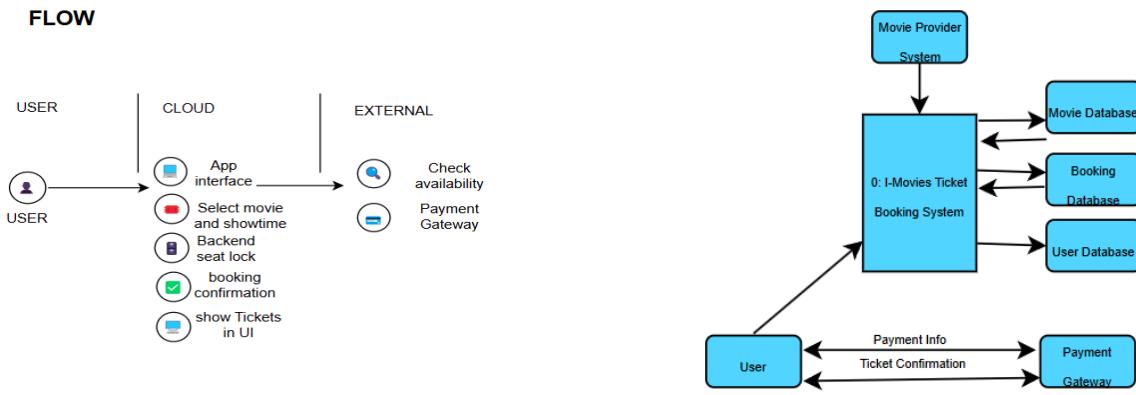
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIn
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Movie Booking	View list of movies and showtimes Select preferred movie and time Choose seats Proceed to payment
FR-4	Payment Processing	Payment via UPI Payment via Debit/Credit Card Payment via Wallet

FR-5	Booking History	View list of previous bookings Download or view ticket details
FR-6	Customer Support	Raise a complaint Track complaint status Get resolution assistance from Customer Care Executive
FR-7	Admin Controls	Manage users and roles Upload/manage movies and schedule Generate reports

**Non-functional Requirements:** Following are the non-functional requirements of the proposed solution:

FR No.	Non-Functional Requirement	Description
NFR-1	<b>Usability</b>	Easy-to-use interface for all user types
NFR-2	<b>Security</b>	Secure login, encrypted transactions, and data access
NFR-3	<b>Reliability</b>	System should be highly reliable with backup support
NFR-4	<b>Performance</b>	Fast response times and smooth navigation
NFR-5	<b>Availability</b>	24/7 system availability with minimal downtime
NFR-6	<b>Scalability</b>	Able to handle growing users and movie entries

### 3.3 Data Flow Diagram



### 3.4 Technology Stack

S. No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Core business logic (ticket booking, payment)	Java / Python
3.	Application Logic-2	Voice command processing	IBM Watson STT service
4.	Application Logic-3	Conversational chatbot for support	IBM Watson Assistant
5.	Database	Manages user, movies, booking data	MySQL
6.	Cloud Database	Scalable cloud storage for data	IBM Cloudant
7.	File Storage	Store movie posters, QR codes, logs	IBM Block Storage / Local Filesystem
8.	External API-1	Weather API to suggest movies during weather conditions	IBM Weather API
9.	External API-2	User authentication via Aadhar	Aadhar API
10	Machine Learning Model	Predict popular movies, user preferences	Recommendation ML Model (scikit-learn)
11	Infrastructure (Server / Cloud)	Hosting the full app stack:	Cloud Foundry / Kubernetes / Local Server

**Table-2: Application Characteristics:**

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	React, Node.js, Flask/Django, scikit-learn	JavaScript, Python, Java
2.	Security Implementations	SHA-256 for passwords, OAuth2, JWT, IAM, OWASP practices	Encryption, Authentication APIs
3.	Scalable Architecture	Microservice-based, containerized apps using Docker & Kubernetes	Kubernetes, Docker
4.	Availability	Load balancing, fallback replicas, distributed servers	Nginx, IBM Load Balancer
5.	Performance	CDN for fast content delivery, caching, async processing	Redis Cache, Cloud CDN, Asynchronous APIs

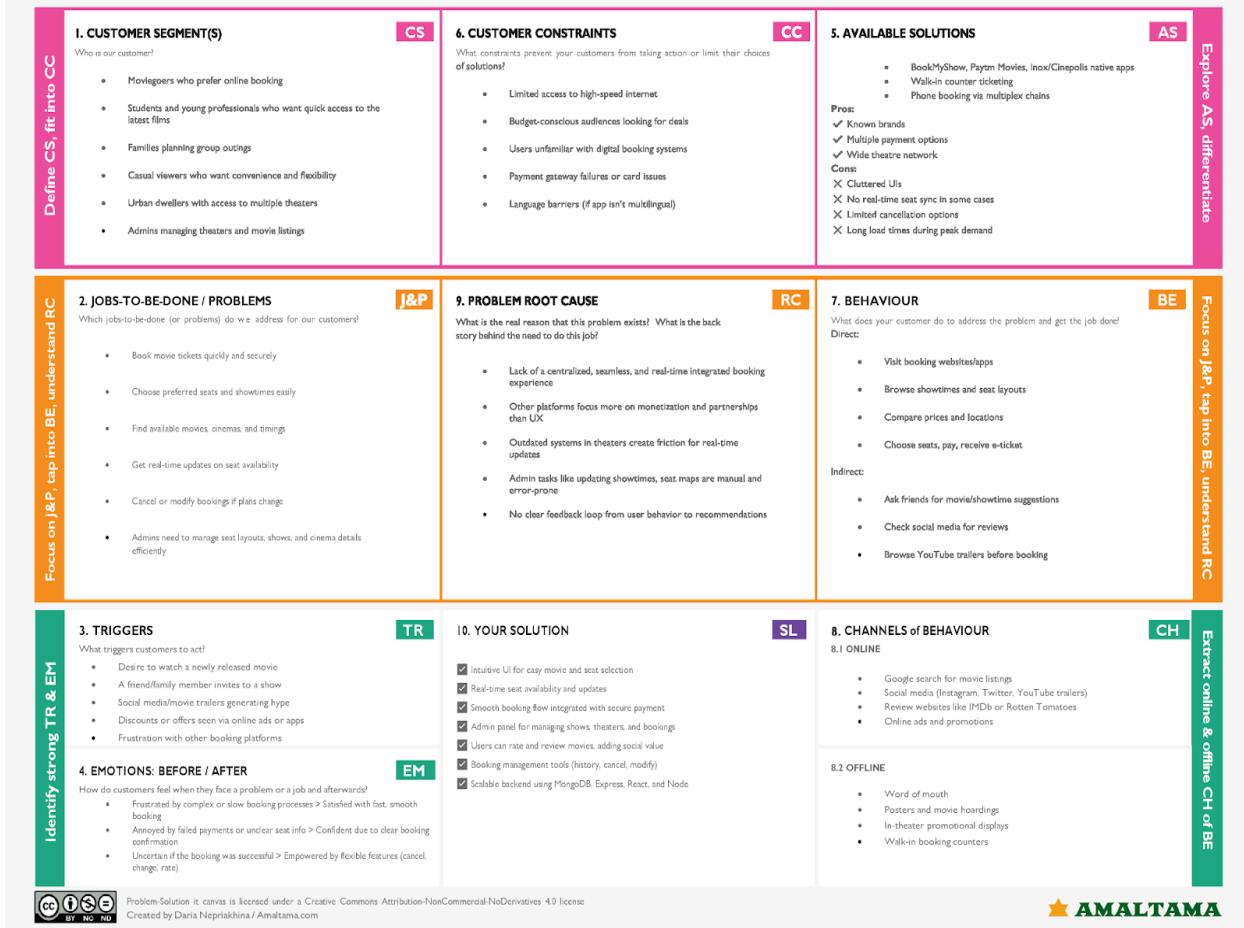
## 4. PROJECT DESIGN

### 4.1 Problem Solution Fit

To ensure that our application effectively addresses the pain points identified during the ideation phase, we conducted a **Problem-Solution Fit analysis**. This process validated whether the proposed features and functionalities directly respond to user needs.

## Problem-Solution fit canvas 2.0

Purpose / Vision



## 4.2 Proposed Solution

S. No.	Parameter	Description
01.	Problem Statement (Problem to be solved)	Users face difficulty in booking movie tickets due to non-intuitive interfaces, lack of real-time seat availability, limited management options, and poor user experience across platforms. Admins struggle with manual show and seat configurations, leading to inefficiencies and errors.
02.	Idea / Solution description	I-Movies is a full-stack MERN-based movie ticket booking platform that allows users to register, search movies, view theaters, select seats, and make secure payments in real time.

		Admins can manage movies, cinemas, seating layouts, and showtimes using a dedicated dashboard.
03.	Novelty / Uniqueness	Unlike traditional systems, I-Movies offers a minimalist UI, real-time seat updates using MongoDB's dynamic schema, admin seat layout customization, and user reviews for social proof. The tech stack ensures high performance and easy integration of future AI recommendations.
04.	Social Impact / Customer Satisfaction	Users benefit from convenience, reduced waiting times, and seamless ticketing experiences, increasing accessibility to entertainment. Admins reduce overhead and improve operational accuracy. Overall, the platform fosters better trust, engagement, and satisfaction.
05.	Business Model (Revenue Model)	Revenue can be generated through booking fees, partnerships with cinemas, premium listings for movie promotions, targeted in-app advertisements, and subscription plans for frequent users.
06.	Scalability of the Solution	Built using the MERN stack, the platform is scalable both horizontally and vertically. It supports cloud deployment (e.g., AWS, Heroku), multi-theater support, microservices for ticketing and payments, and can easily integrate with third-party APIs (e.g., Google Pay, Razorpay).

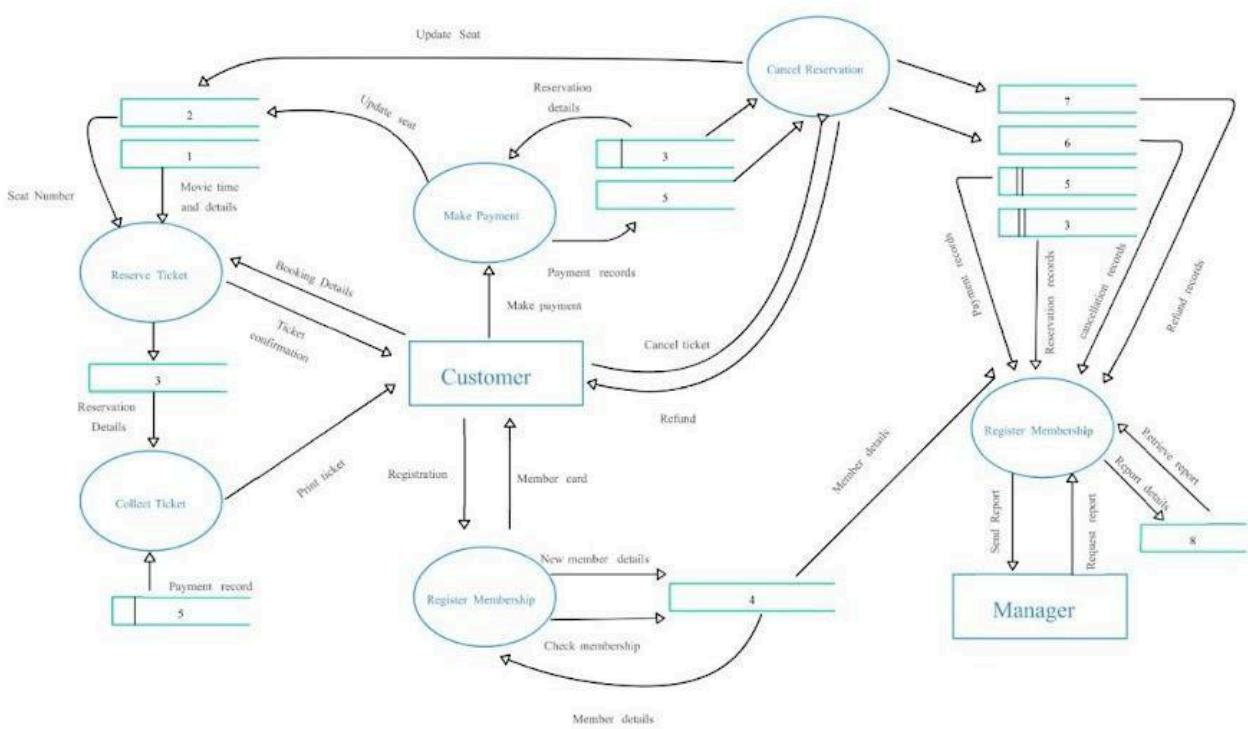
#### 4.3 Solution Architecture

Solution architecture for **I-Movies: Movie Booking System** is a multifaceted process that connects business needs with effective technology solutions. Its primary goals are to:

- Identify the most suitable technological approach to streamline and enhance the movie booking experience.
- Outline the structure, behavior, characteristics, and technical design of the I-Movies platform to all stakeholders.

- Define core features such as movie listings, seat selection, ticket booking, payment processing, and user management, along with development phases and system requirements.
- Provide detailed specifications that guide how the I-Movies solution is planned, implemented, managed, and delivered.

### Solution Architecture Diagram:



## 5. PROJECT PLANNING & SCHEDULING

### 5.1 Project Planning

#### Product Backlog, Sprint Schedule, and Estimation:

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint -1	Registration	USN-1	As a user, I can register using email,	2	High	Sanskriti Tyagi

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
			password, and confirm password.			
Sprint -1	Registration	USN-2	As a user, I receive confirmation email after registration.	1	High	Khushi Thakur
Sprint -1	Registration	USN-3	As a user, I am notified if I enter mismatching passwords or invalid email formats during registration.	1	High	Eishani, Anushka
Sprint -1	Registration	USN-4	As a user, I can register for the application through Gmail	2	Medium	Anushka Singh
Sprint -1	Login	USN-5	As a user, I can log into the application by entering email & password	1	High	Eishani Bhattacharya
Sprint -2	Login	USN-6	As a user, I can recover my password via email verification.	2	Medium	Khushi Thakur
Sprint -2	Movie Listings	USN-7	As a user, I can view currently available movies with posters and descriptions.	2	High	Sanskriti Tyagi
Sprint -2	Show Timings	USN-8	As a user, I can view show timings of selected movies.	2	High	Anushka Singh
Sprint -3	Seat Selection	USN-9	As a user, I can view and select seats from visual layout	3	High	Eishani Bhattacharya
Sprint -3	Ticket Booking	USN-10	As a user, I can confirm my booking after selecting the show and seats.	2	High	Sanskriti Tyagi
Sprint -3	Payment Integration	USN-11	As a user, I can pay using debit card, UPI, etc	3	High	Khushi Thakur
Sprint -4	Booking History	USN-12	As a user, I can view my past bookings and status.	2	Medium	Anushka Singh

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint -4	Cancellation	USN-13	As a user, I can cancel my ticket before show time.	2	Medium	Eishani Bhattacharya
Sprint -4	Admin Management	USN-14	As an admin, I can add/remove movies and manage users.	3	Medium	Sanskriti, Khushi

### Project Tracker, Velocity & Burndown Chart:

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint -1	6	6 Days	10 Mar 2025	15 Mar 2025	7	15 Mar 2025
Sprint -2	6	6 Days	17 Mar 2025	22 Mar 2025	6	22 Mar 2025
Sprint -3	8	6 Days	24 Mar 2025	29 Mar 2025	8	29 Mar 2025
Sprint -4	7	6 Days	31 Mar 2025	5 April 2025	7	5 April 2025

**Velocity:** We have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Then, the team's average velocity (AV) per iteration unit (story points per day) is:

$$AV = \frac{\text{sprint duration}}{\text{velocity}} = \frac{20}{10} = 2$$

$$\text{Velocity} = \text{Total Story Points Completed} / \text{Number of Sprints}$$

$$= (7 + 6 + 8 + 7) / 4$$

$$= 28 / 4 = 7 \text{ story points per sprint}$$

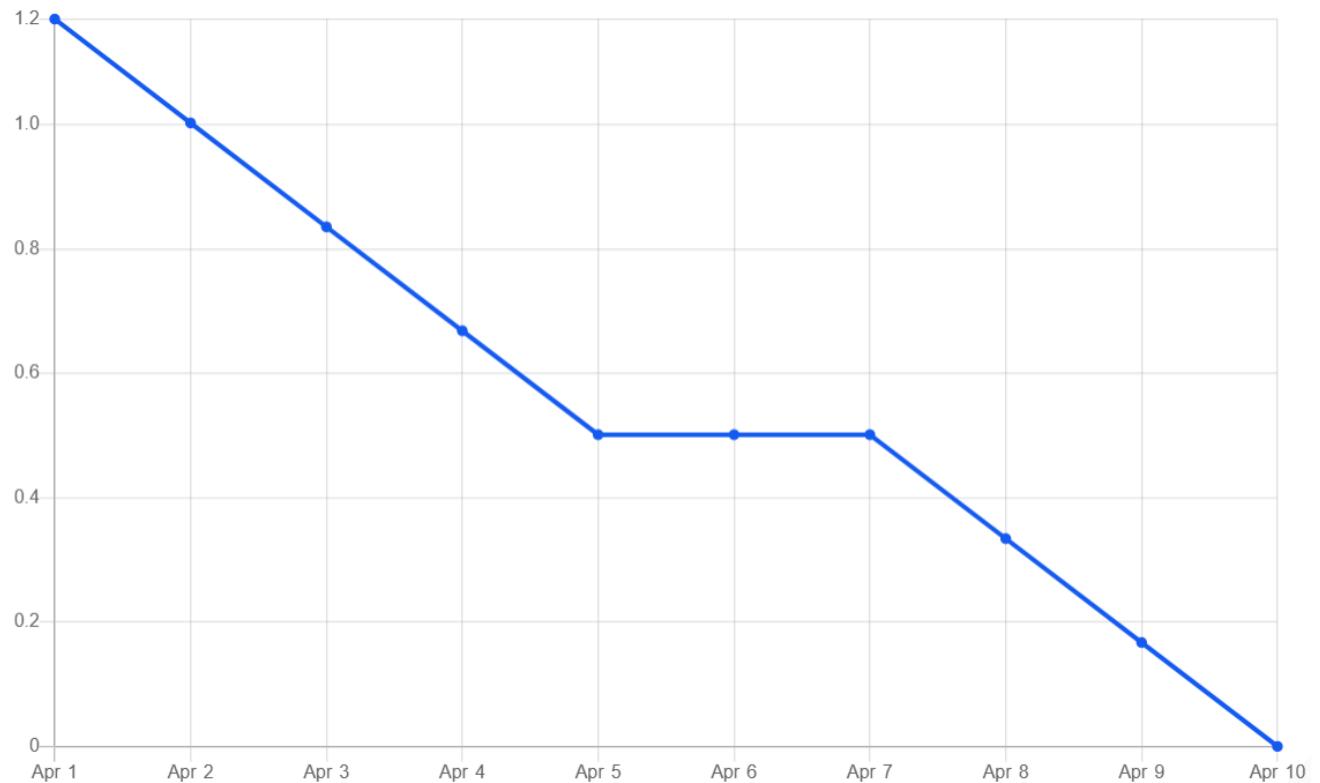
$$\text{Average Story Points Per Day} = 7 \div 6$$

$$= \sim 1.17 \text{ story points/day}$$

(Each sprint = 6 days)

**Burndown Chart:** In the context of this project, progress is tracked using story points, and work is completed across multiple sprints.

**Burndown Chart**



## 6. FUNCTIONAL AND PERFORMANCE TESTING

### 6.1 Performance Testing

#### **Testing Scope:**

Features and Functionalities to be Tested:

- User Registration and Login
- Movie Listing and Selection
- Seat Selection and Booking
- Email Confirmation of Booking
- Booking History and Management

User Stories or Requirements to be Tested:

- As a user, I should be able to register and log in securely.
- As a user, I should be able to view a list of currently available movies.
- As a user, I should be able to select seats and complete a booking.
- As a user, I should receive a confirmation after booking a ticket.
- As a user, I should be able to view and manage my previous bookings.

#### **Testing Environment:**

URL/Location:<http://localhost:5000>

Credentials (if required): [Username/Password]

#### **Test Cases:**

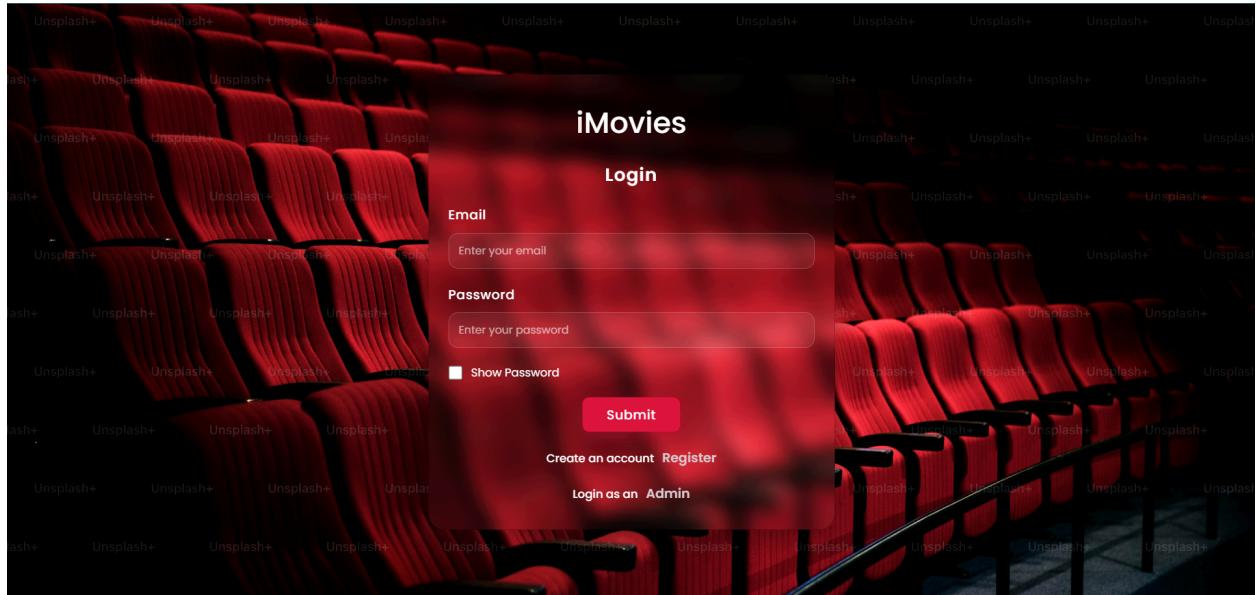
Test Case ID	Test Scenario	Test Steps	Expected Result	Actual Result	Pass/Fail
TC-001	User registration with valid data	Open site → Go to Sign Up → Enter valid details	User account created successfully	Account created	Pass
TC-002	Login with valid credentials	Open site → Login with test credentials	Login successful	Login successful	Pass
TC-003	Booking a movie ticket	Login → Select movie → Choose seats → Book	Booking confirmed with ticket shown	Confirmed	Pass
TC-004	Invalid login attempt	Open site → Enter incorrect credentials	Error message displayed	Error shown	Pass

#### **Bug Tracking:**

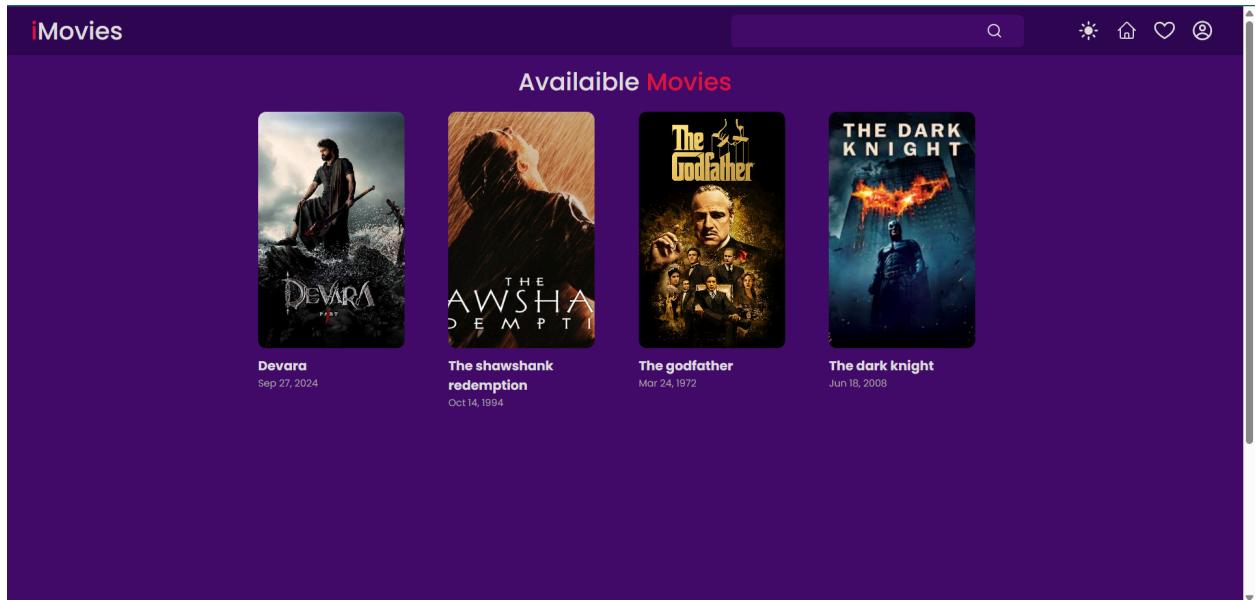
Bug ID	Bug Description	Steps to reproduce	Severity	Status	Additional feedback
BG-001	Email confirmation not sent after booking	1. Login → 2. Book movie → 3. No email received	Medium	Open	Might be SMTP configuration
BG-002	Seats not deselected when going back	1. Select seat → 2. Go back → 3. Seat still appears booked	Low	In Progress	UI update required

## 7. RESULTS

### 7.1 Output Screenshots

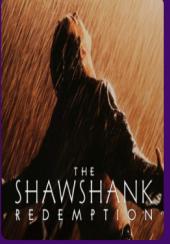


Login as a User



Available Movies List

**iMovies**



**The shawshank redemption  
(1994)**

Andy Dufresne, a successful banker, is arrested for the murders of his wife and her lover, and is sentenced to life imprisonment at the Shawshank prison. He becomes the most unconventional prisoner.

**Thriller Crime**

**Release Date:** Oct 14, 1994      **Runtime:** 142 Min

Write a review... Send

 Peone • a few seconds ago  
Amazing film

Book Tickets

### Movie Description and Review

**iMovies**

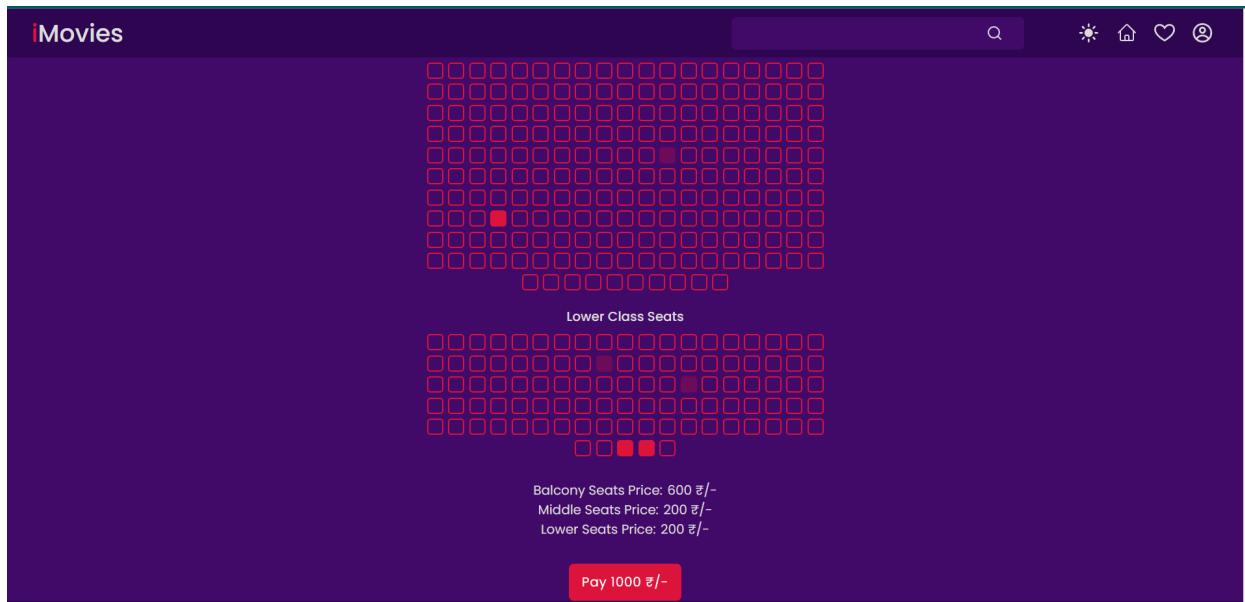
**Available Shows**



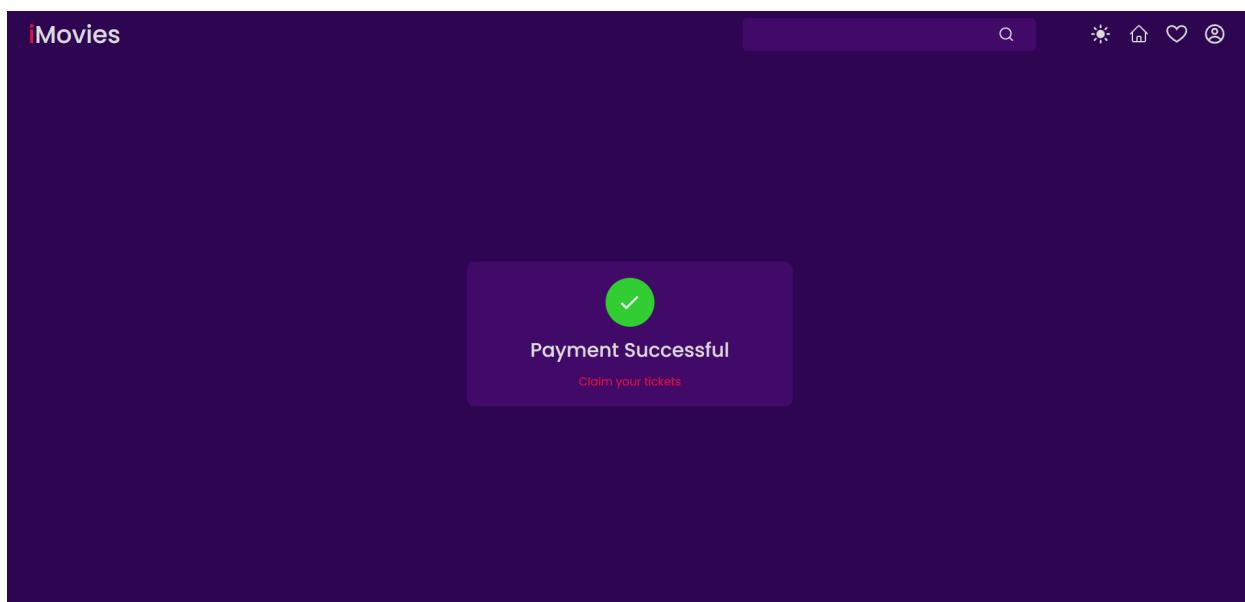
Theatre: Regal cinemas  
Showdate: Apr 23, 2025  
Showtime: 2:00 PM

Buy Tickets

### Available Shows and Details



Seat Selection and Payment Option



Payment Confirmation

Thanks for booking tickets



### Booking Confirmation and Ticket Details

### Saved Movies

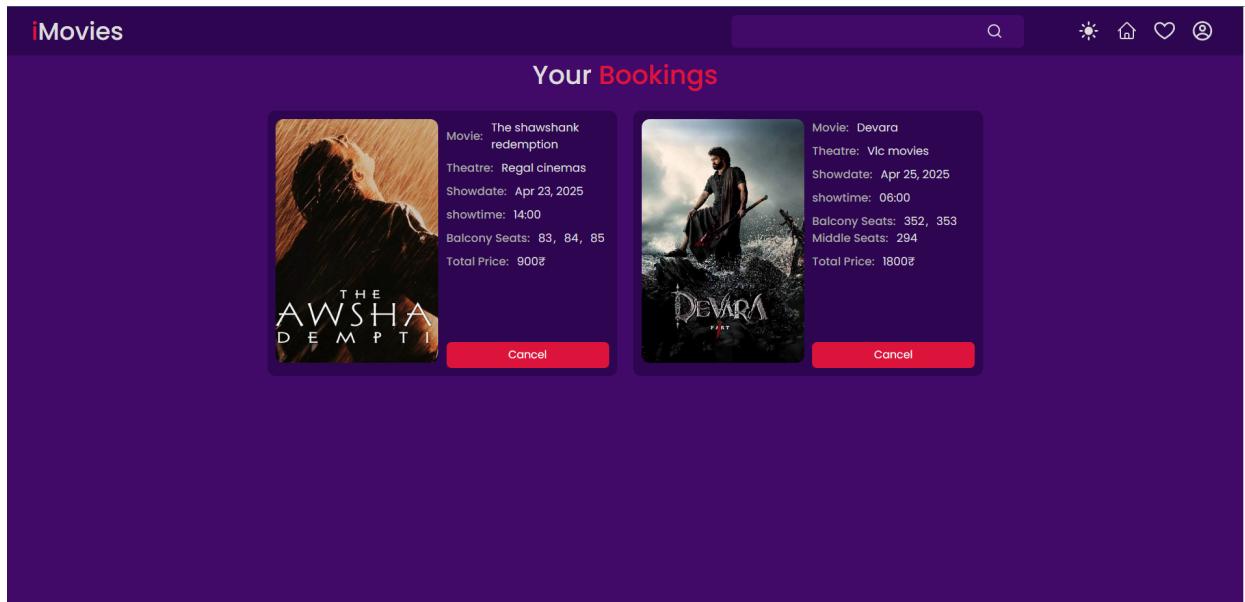


The shawshank  
redemption

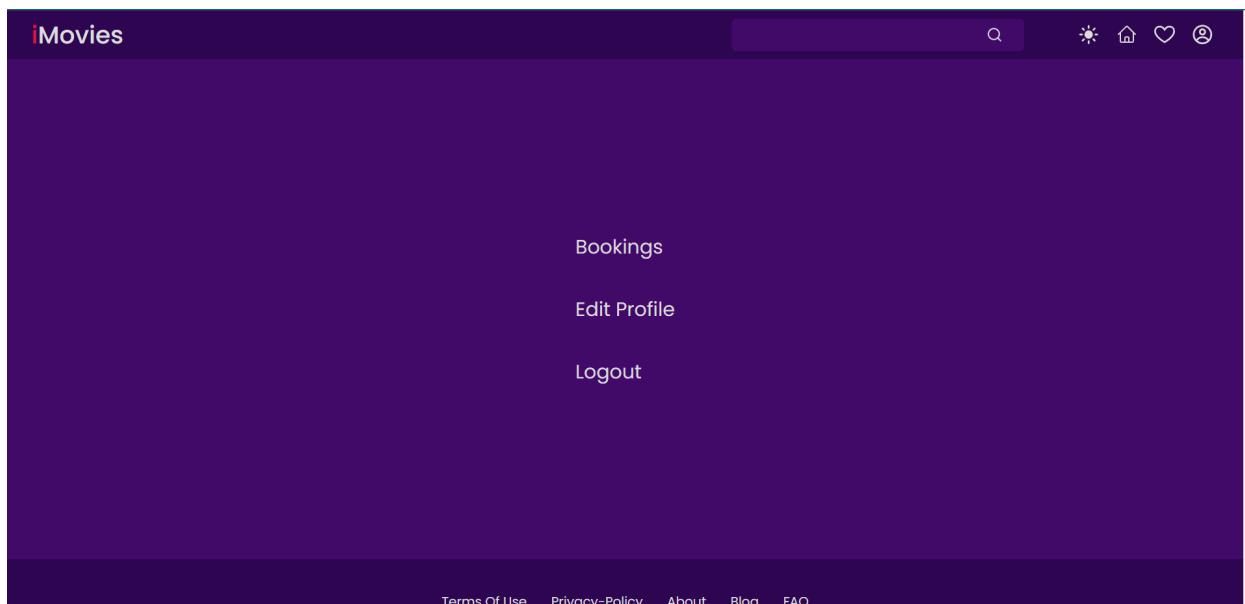


Devara  
Sep 27, 2024

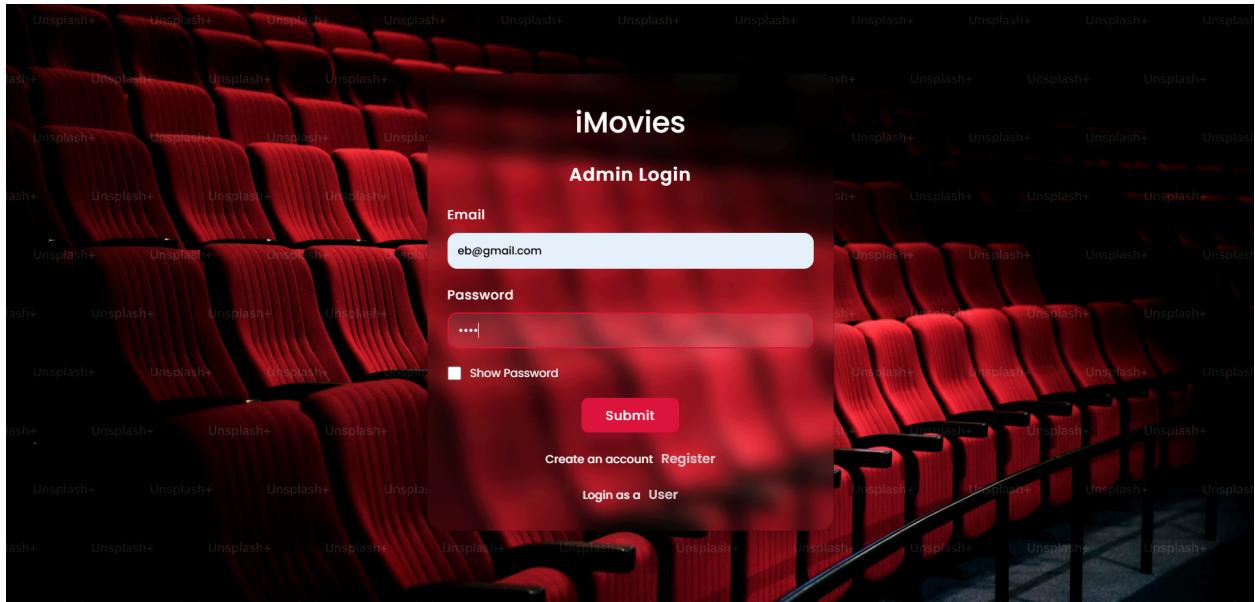
### Movies Saved in Favourites



Booking already made by the User



Account section



Login as an Admin

The image shows the 'Add Movie' screen for the iMovies application. The background is dark purple. At the top, there is a title bar with icons for brightness, home, back, forward, and search. The main area is titled 'Add Movie' and contains a large input field for the movie's thumbnail image. Below it are several input fields: 'Movie' (with placeholder 'Enter movie name'), 'Description' (placeholder 'Enter movie description'), 'Genres' (placeholder 'Enter movie genres separated by comma'), 'Release Date' (placeholder 'dd-mm-yyyy'), 'Runtime' (placeholder 'Enter runtime in minutes'), and 'Certification' (placeholder 'Enter movie certification'). A 'Submit' button is at the bottom right. At the bottom of the screen, there is a red bar labeled 'Available span' containing four movie thumbnails: 'The Godfather', 'The Dark Knight', 'The Shawshank Redemption', and 'The Godfather Part II'.

Add Movie and Movie Details

iMovies

### Add Theatre

Theatre Name:

Theatre Location:

Balcony Seat Price:  Balcony Seat Count:   
0 0

Middle Seat Price:  Middle Seat Count:   
0 0

Lower Seat Price:  Lower Seat Count:   
0 0

### Available Theatres

Theatre: Regal cinemas  
Location: Lucknow

Theatre: Amc theaters  
Location: Vadodara

Theatre: Vlc movies  
Location: Varanasi

Add new Theater details or edit previous theaters

iMovies

### Add Show

Theatres:

Movies:

Show Date:

Showtime:

Add Shows

## 8. ADVANTAGES & DISADVANTAGES

### Advantages:

<b>Advantage</b>	<b>Description</b>
<b>User Convenience</b>	Users can book tickets anytime, anywhere, eliminating the need to stand in queues.
<b>Real-Time Seat Selection</b>	The system shows live seat availability, reducing chances of double booking.
<b>Secure Transactions</b>	Integration with trusted payment gateways ensures safe and encrypted payments.
<b>Customizable Admin Dashboard</b>	Admins can manage movies, shows, and theaters efficiently with real-time updates.
<b>Personalized User Experience</b>	Recommendations based on user preferences improve engagement.
<b>Scalable Architecture</b>	Built using MERN stack, the system can easily scale for more users and features.
<b>Responsive Design</b>	Mobile-friendly interface ensures accessibility across devices.
<b>Fast and Dynamic UI</b>	React ensures a smooth and interactive user experience with minimal reloads.

### **Disadvantages:**

<b>Disadvantage</b>	<b>Description</b>
<b>Initial Development Complexity</b>	Requires a well-coordinated setup of frontend, backend, and database.
<b>Dependency on Internet</b>	Users must have a stable internet connection to access and complete bookings.
<b>Learning Curve</b>	Developers unfamiliar with the MERN stack may need time to adapt.
<b>Server Downtime Risk</b>	If the backend server crashes or the database is unreachable, the whole system becomes unusable.
<b>Payment Failures Handling</b>	Integrating and troubleshooting payment APIs can be challenging during peak traffic.
<b>Real-time Features Need Extra Tools</b>	WebSocket or polling mechanisms may be required for real-time seat updates, adding complexity.

## **9. CONCLUSION**

The **I-Movies Movie Ticket Booking System** successfully addresses the inefficiencies and challenges faced by both users and administrators in traditional ticket booking platforms. Built using the powerful **MERN stack (MongoDB, Express.js, React.js, Node.js)**, the system delivers a modern, responsive, and user-centric experience.

Through intuitive navigation, real-time seat updates, secure payments, and a dynamic admin dashboard, I-Movies enhances operational efficiency and customer satisfaction. The application not only simplifies the booking process for users but also empowers administrators with robust tools for managing shows, theaters, and bookings.

By leveraging scalable technologies and adopting a modular architecture, this system lays a strong foundation for future growth, including features like loyalty programs, movie reviews, and mobile app integration.

In summary, the project achieves its core goal—**to create a seamless, secure, and smart movie ticket booking platform that bridges the gap between cinema and audience in the digital age.**

## 10. FUTURE SCOPE

The **I-Movies Movie Ticket Booking System** has been designed with scalability and extensibility in mind. While the current implementation offers core features essential for online movie ticket booking, there are numerous opportunities to expand the platform's capabilities in the future. Some of the key areas of enhancement are as follows:

- **Mobile Application Development:** Develop native or cross-platform mobile apps (using React Native or Flutter) for iOS and Android to improve accessibility and user engagement.
- **AI-Based Recommendation Engine:** Implement machine learning algorithms to suggest movies based on user preferences, watch history, and ratings.
- **Loyalty Programs and Wallet Integration:** Introduce a points-based reward system for frequent users. Add support for digital wallets and loyalty cards to streamline repeat transactions.
- **Movie Reviews and Ratings:** Allow users to rate and review movies post-watch, helping others make informed decisions.
- **Real-Time Notifications:** Integrate push notifications and SMS/email alerts for booking confirmations, reminders, new releases, and offers.
- **Enhanced Security Features:** Implement two-factor authentication (2FA) and end-to-end encryption for better user data protection.
- **Dynamic Pricing and Promotions:** Enable theaters to apply dynamic pricing based on demand, holidays, or time slots. Provide targeted promotional offers and discounts to attract specific user segments.
- **Multi-Admin and Theater Chain Support:** Extend the admin panel to support multiple roles (e.g., super admin, regional admin). Facilitate centralized management for multiplex chains with multiple branches.
- **Multilingual and Regional Support:** Add support for multiple languages and local currency/payment gateways for regional expansion.
- **Analytics Dashboard:** Provide real-time analytics and insights for administrators to monitor sales, peak booking times, and user behavior.

## 11. APPENDIX

Dataset Link:

[https://drive.google.com/drive/folders/1Ifw1Khn6Tfro92JZ4ZwZz5O3CcVwCmsp?usp=drive\\_link](https://drive.google.com/drive/folders/1Ifw1Khn6Tfro92JZ4ZwZz5O3CcVwCmsp?usp=drive_link)

GitHub Link: <https://github.com/eish30/iMovies>

Project Demo Link:

<https://drive.google.com/file/d/1eltmtYi-42D06kYSyD4nfQZt32fjrnRD/view?usp=sharing>