SMARTBRIDGE EXTERNSHIP

Modern Application Development

Java Spring Boot

Project Document

Movie Ticket Booking System

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1 INTRODUCTION

1.1 Overview

The development of our ticket booking website using HTML, CSS, and JavaScript for the frontend, while the backend is powered by the Spring Boot framework. To enhance the functionality and interaction with the database, we utilized JPA (Java Persistence API) and Thymeleaf templating engine. Our database management system of choice is MySQL. The core functionality of our website revolves around providing users with a seamless ticket booking experience. We have designed and implemented several key pages to facilitate this process. They are home page, theatre selection page, seat selection page and ticket page.

1.2 Purpose

The purpose of the Cinema Ticket Booking System project is to create a user-friendly and efficient platform for booking movie tickets online. The initiative intends to improve user experience by streamlining the ticket ordering process, offering convenient and secure payment choices, and providing real-time information on movie showtimes and seat availability. The project offers improved accessibility, centralised control for theatres, and data insights for business analysis through the digitization of the ticket purchasing process, eventually benefiting both users and theatre operators.

2 LITERATURE SURVEY

Paper name	Year	Existing problems	Proposed solution
AMTS: Advanced Movie Ticketing System (Shaik, A., Kishor, R. C. K., Koduri, S. S., & Anisha, P. R.)	2014	• Inefficient ticket allocation and seat selection process. • Lack of real-time updates on ticket availability. • Limited payment options. • Poor user interface and navigation.	• Improve the ticket allocation and seat selection process for better efficiency and user experience. • Implement real-time updates on ticket availability to prevent double bookings. • Expand the range of payment options to accommodate various user preferences.

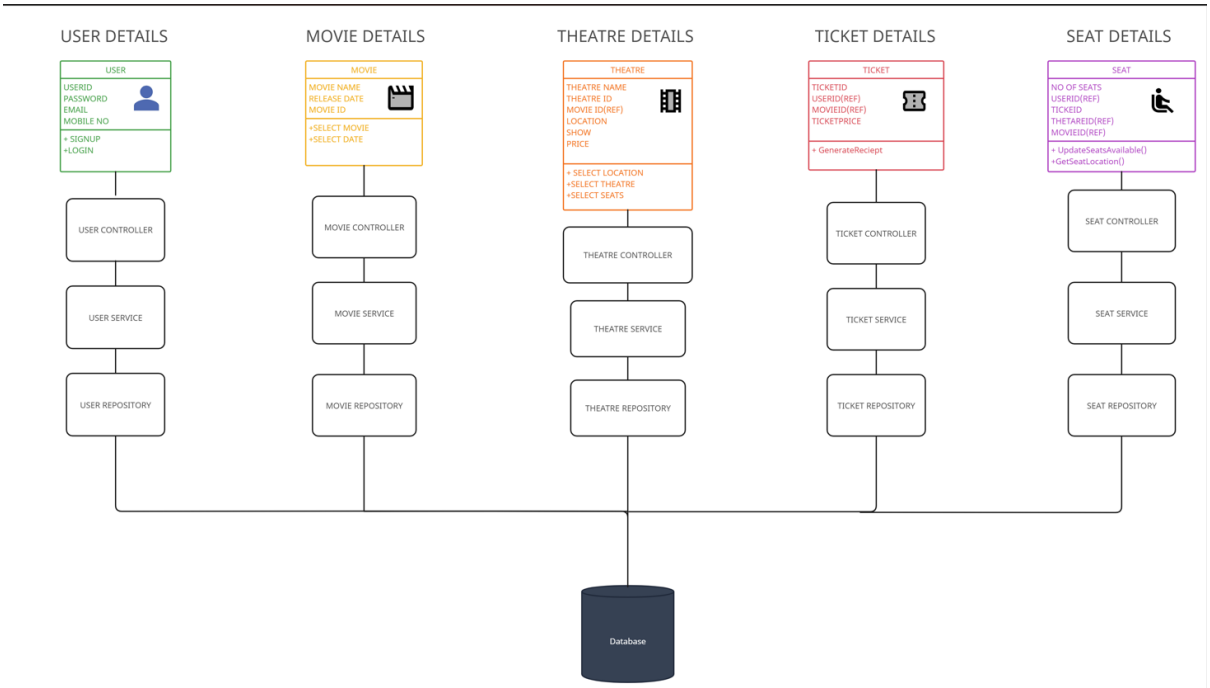
Software Implementation of Movie Ticket Booking System (Pasyeka, M., & Malitchuk, A.)	2020	• Slow response times during peak booking periods. • Inadequate security measures to protect user information. • Limited integration with other platforms and services. • Insufficient customer support and assistance.	• Optimize system performance to handle increased traffic during peak booking periods. • Strengthen security measures to safeguard user information and prevent unauthorized access. • Enhance integration capabilities to allow seamless connections with other platforms and services. • Improve customer support and provide better assistance to users when needed.
A Comparative Study in Online Movie Ticket Booking System (Roy, A., Shahdeo, V., & Kaluri, R.)	2019	• Inconsistent ticket pricing across different platforms. • Complex booking process with multiple steps and information requirements. • Lack of personalized recommendations and offers. • Limited accessibility for users with disabilities.	• Establish standardized ticket pricing across various platforms to ensure consistency and fairness. • Simplify the booking process by reducing the number of steps and information required from users. • Implement personalized recommendations and offers based on user preferences and previous bookings. • Improve accessibility features to cater to users with disabilities and provide an inclusive experience.
Design and implementation of cinema online booking system (Hang, B.)	2011	• Limited scalability to accommodate a growing user base. • Inefficient management of cancellation and refund processes. • Inadequate coordination with cinemas for accurate showtime and schedule updates. • Lack of social media integration for promotional purposes.	• Enhance the system's scalability to handle an increasing number of users and transactions. • Streamline the cancellation and refund processes to ensure timely and hassle-free operations. • Improve coordination with cinemas to obtain accurate and up-to-date showtime and schedule information. • Integrate social media platforms for effective promotional activities and

			enhanced customer engagement.
A Cinema-Online Movie Ticket Booking System (Singh, A. N., Hegde, A., Abhilash, R., Kumar, A., & Priyadarshini, R.)	2023	• Limited availability of multi-language support. • Lack of user reviews and ratings for movies and cinemas. • Inefficient handling of booking modifications and seat upgrades. • Absence of loyalty programs or rewards for frequent users.	• Implement multi-language support to cater to a diverse user base and improve accessibility. • Include user reviews and ratings for movies and cinemas to assist users in making informed decisions. • Enhance the system's capability to handle booking modifications and provide options for seat upgrades. • Introduce loyalty programs or rewards to incentivize and retain frequent users
Online Cinema Ticket Booking System (Rajouria, R., Yadav, V., Mishra, R., Mishra, R., & Jain, S.)	2015	• Inaccurate or outdated movie and cinema information. • Limited availability of alternative payment methods. • Insufficient integration with third-party services for additional features. • Inadequate user feedback and support mechanisms.	• Ensure the accuracy and timeliness of movie and cinema information to avoid user dissatisfaction. • Expand the range of payment methods to accommodate different user preferences and increase convenience. • Enhance integration with third-party services to offer additional features like dining reservations or transportation arrangements. • Establish effective user feedback and support mechanisms to address user concerns and provide assistance when needed.

3 THEORITICAL ANALYSIS

3.1 Block diagram

Diagrammatic overview of the project.



3.2 Hardware / Software designing

Hardware requirements :

Computer: A desktop or laptop computer capable of running modern web browsers and development tools.

Processor: A multi-core processor operating at a frequency of at least 2.0 GHz.

RAM: To ensure smooth performance, at least 4 GB of RAM (8 GB or more is recommended) is required.

Software requirements

Web Browser: For testing and executing the web application, use the most recent versions of major web browsers like Google Chrome, Mozilla Firefox, Safari, or Microsoft Edge.

Text Editor or Integrated Development Environment (IDE): A code editor or IDE to write and manage the project code. Vs code

Web Server: Apache Tomcat

Database: MySQL is used to store and manage information about movie theatres, movies, showtimes, available seats, and user information.

Frontend Technologies: HTML, CSS, and JavaScript for creating the user interface and interactivity.

4 EXPERIMENTAL INVESTIGATIONS

To assure the effectiveness and efficiency of the solution, many experimental investigations were carried out throughout the creation of the Cinema Ticket Booking System. Here are four significant experimental studies carried out throughout the project:

Usability Testing:

Usability testing was carried out to assess the website's user-friendliness and intuitiveness. The duties assigned to the participants included looking for movies, picking seats and making reservations. They were observed and noted for their interactions, comments, and general contentment. This research assisted in identifying any usability problems, interface complexity concerns, or areas that may be improved to improve the user experience.

Performance Testing:

Performance testing was done to evaluate the system's stability and responsiveness under various loads and conditions. In order to evaluate the system's response time, resource usage, and scalability, various test cases were simulated, including concurrent user access, heavy traffic, and peak booking periods. The objectives of this analysis were to locate and resolve any performance bottlenecks, enhance database queries, and guarantee stable system functioning under heavy load.

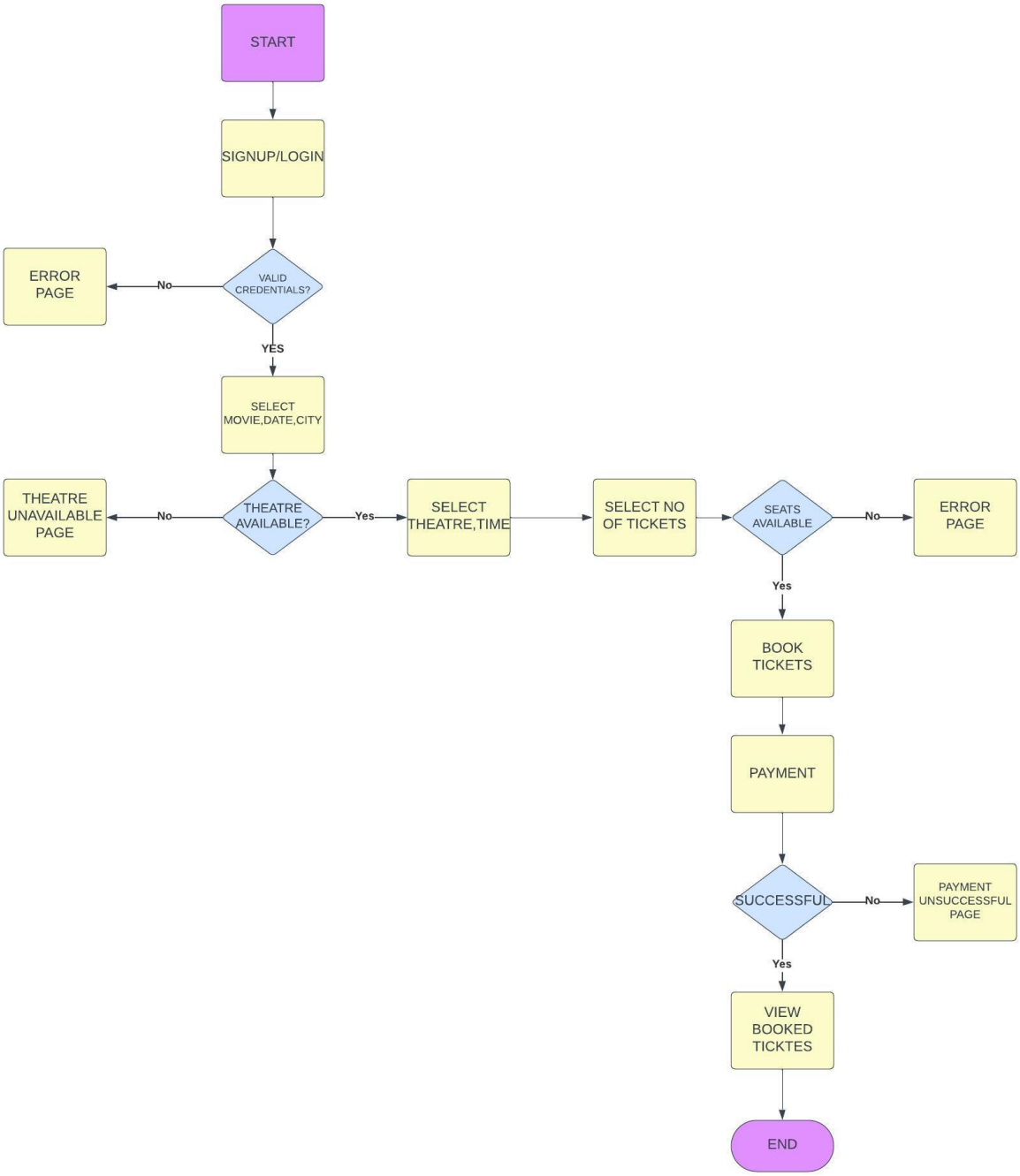
Security Testing:

Security testing was done to evaluate how resilient the system is to potential security risks, flaws, and data breaches. In order to find any security flaws or vulnerabilities in the program, it entailed doing penetration testing, vulnerability scanning, and code reviews. In order to protect user information and guarantee secure transactions, this study aided in the implementation of suitable security measures, such as input validation. But Springboot solves most of the security concerns because it has default protection against security issues

Compatibility Testing:

Testing for compatibility was done to make sure the website worked with various web browsers and operating systems. To ensure consistent and optimised performance across platforms, the website has been tested on several browser versions (Chrome, Firefox, and Edge). The goal of this inquiry was to find and fix any rendering problems, layout inconsistencies, or functional inconsistencies that might exist across various environments.

5 FLOWCHART



6 RESULT

The project uses Spring Boot as the backend framework and HTML, CSS, and JavaScript as the frontend framework. Thymeleaf is used for dynamic templating, and JPA is used for effective database administration. MySQL has been used as the database system. The project's final results and outputs are listed below along with screenshots

Output:

Home page:

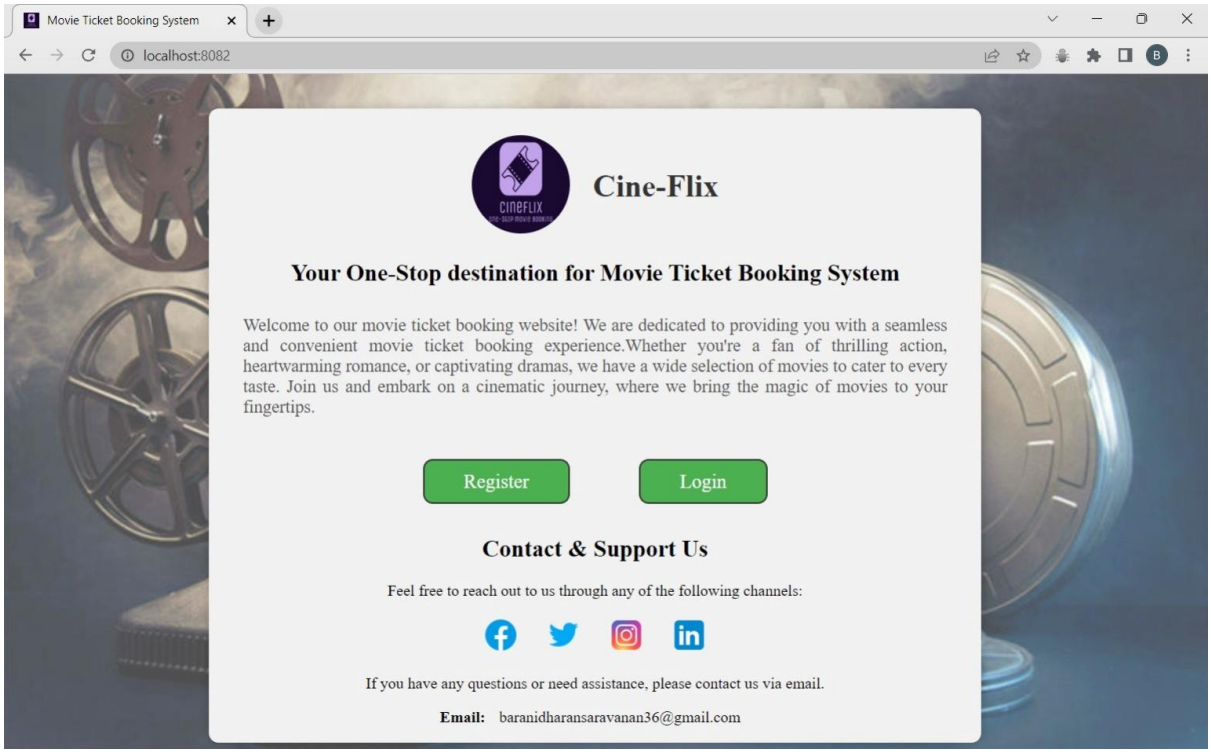
Users can book tickets by entering their location, preferred movie, and preferred date.

Theatre selection page: Displays available theatres, showtimes, and shows based on the user's selections on the

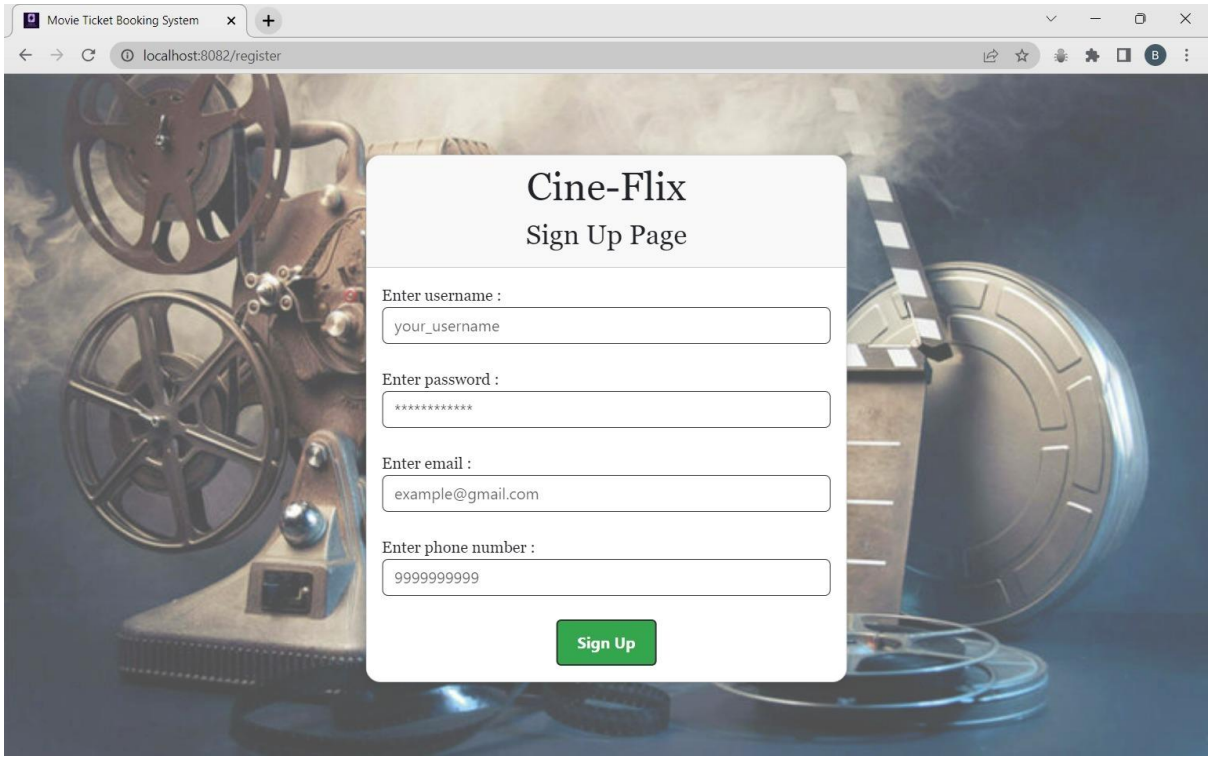
Seat selection page: Users can select seats from a normal seating layout displayed on the screen

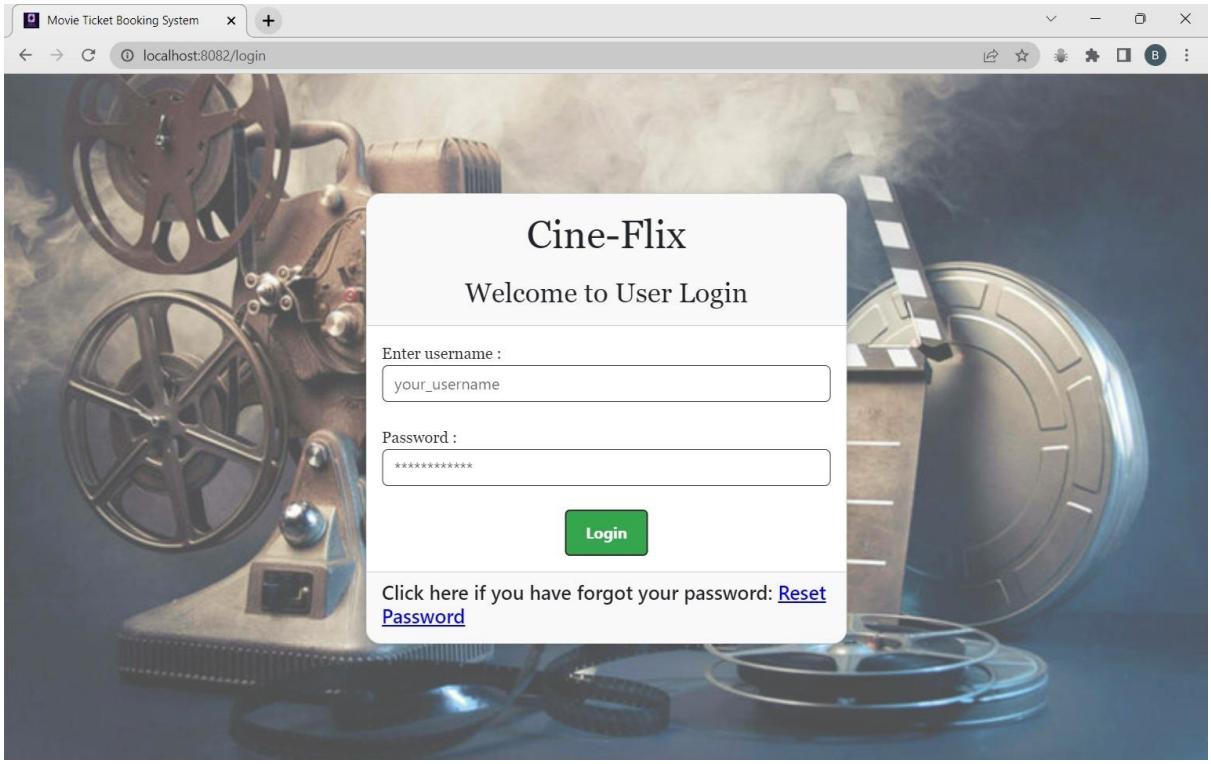
Ticket page: Before finalising the reservation, the ticket page gives a summary of the price and the location of the chosen seats.

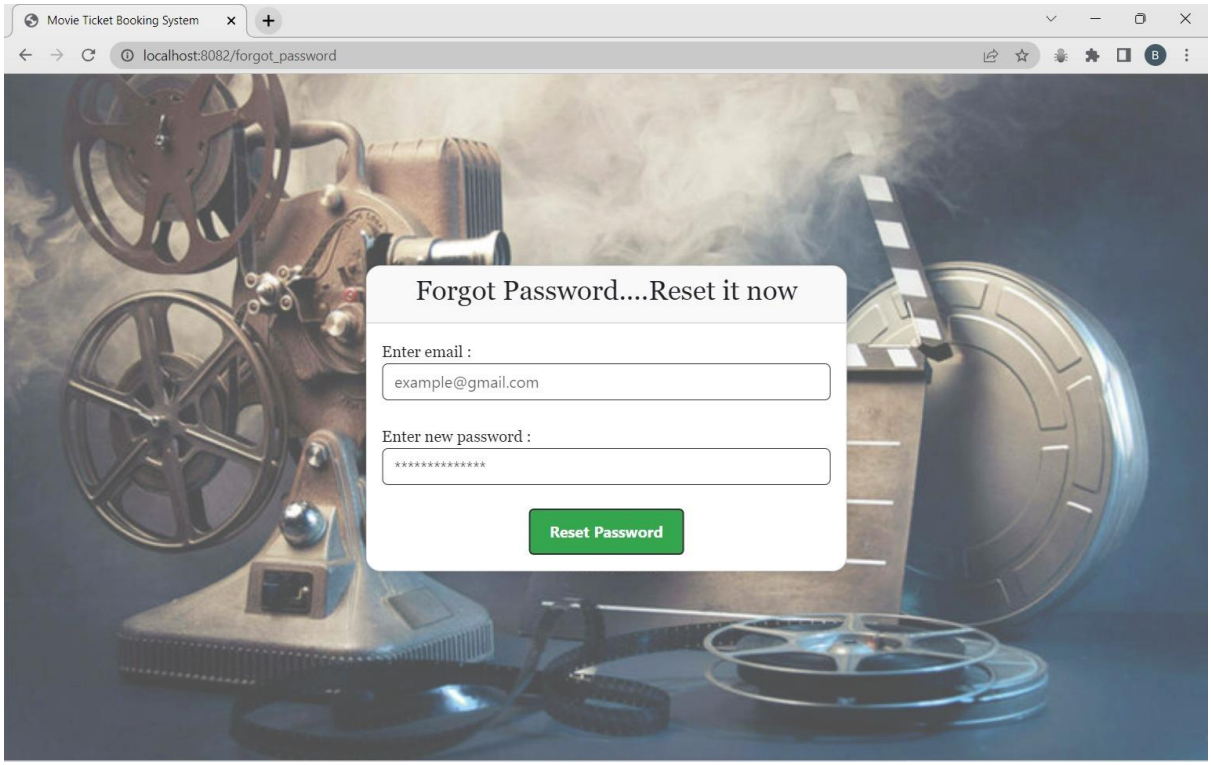
Screenshots:



Sign up & Login






Movie Ticket Booking System
localhost:8082/forgot_password
Forgot Password....Reset it now
Enter email :
example@gmail.com
Enter new password :
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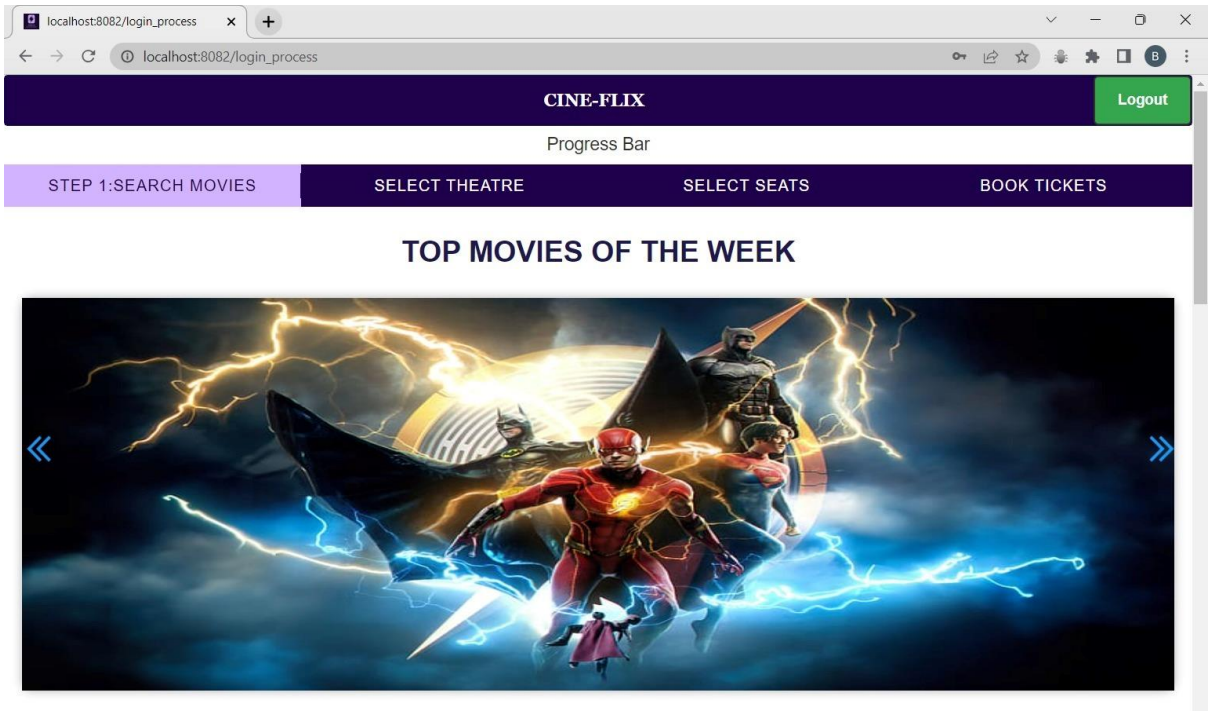
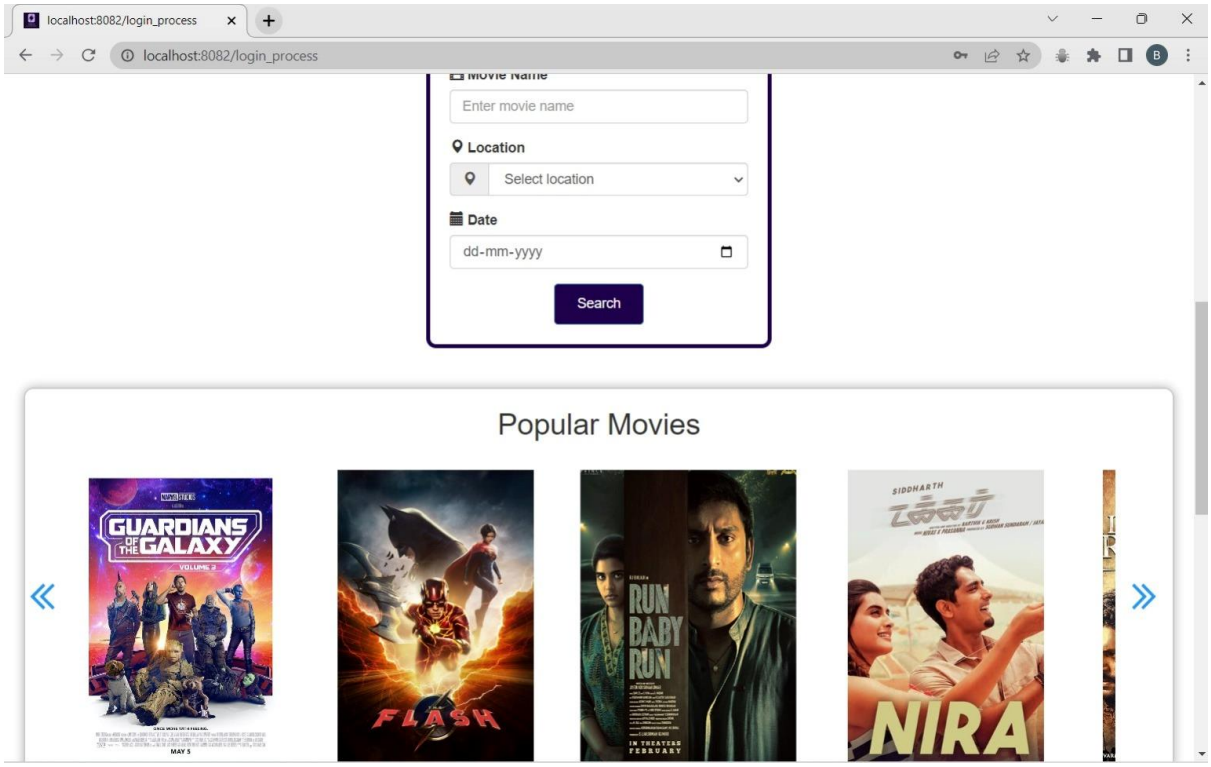
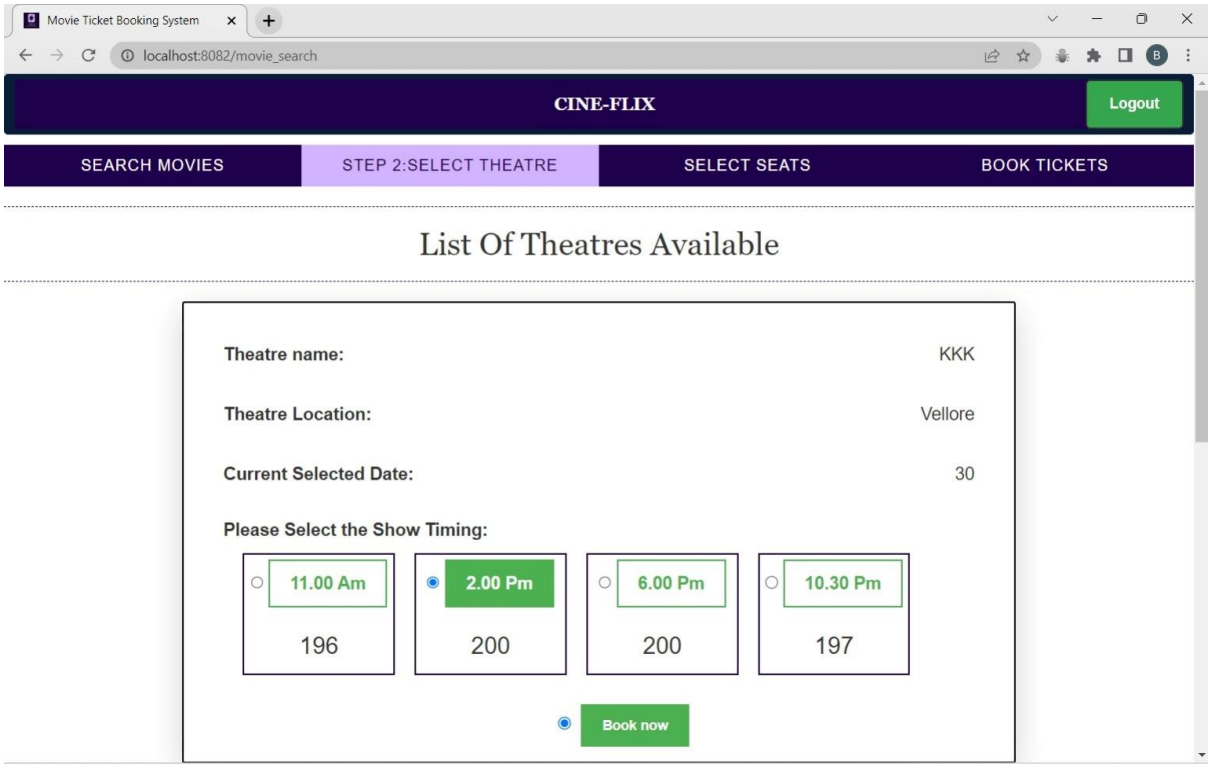
Reset Password

Home page

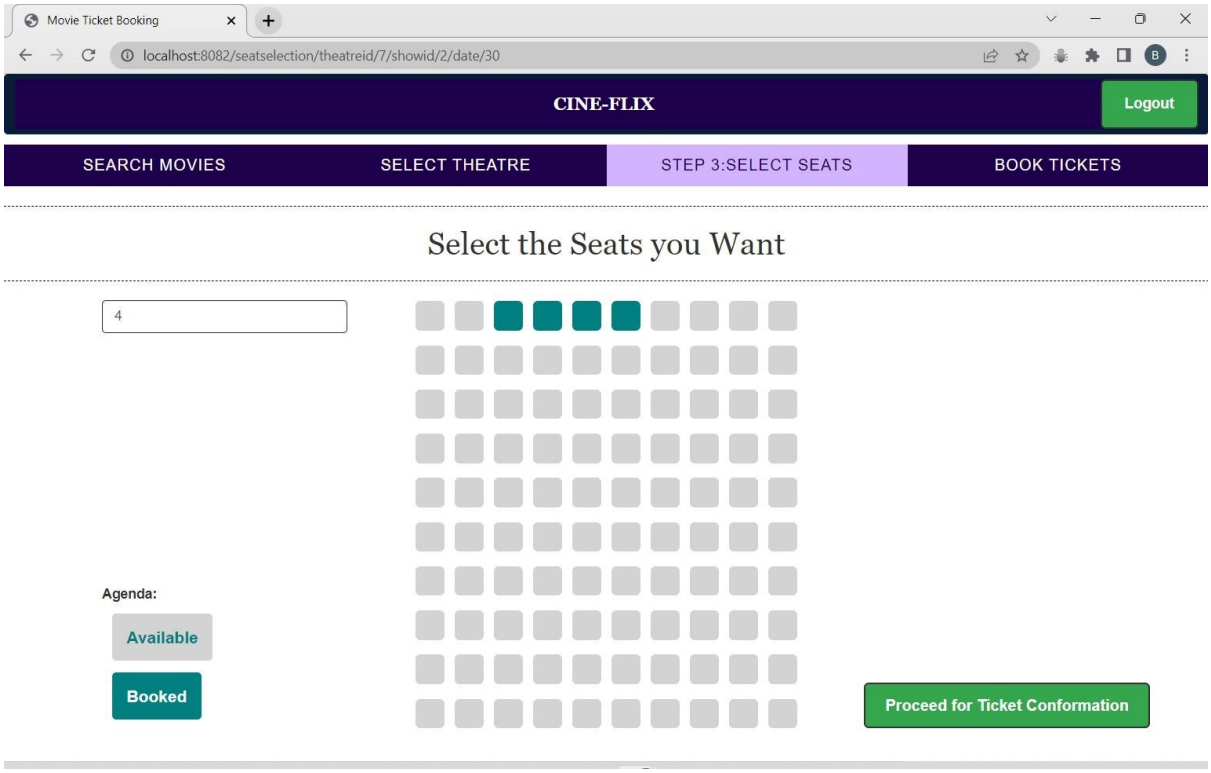

localhost:8082/login_process
localhost:8082/login_process
CINE-FLIX
Logout
Progress Bar
STEP 1:SEARCH MOVIES
SELECT THEATRE
SELECT SEATS
BOOK TICKETS
TOP MOVIES OF THE WEEK



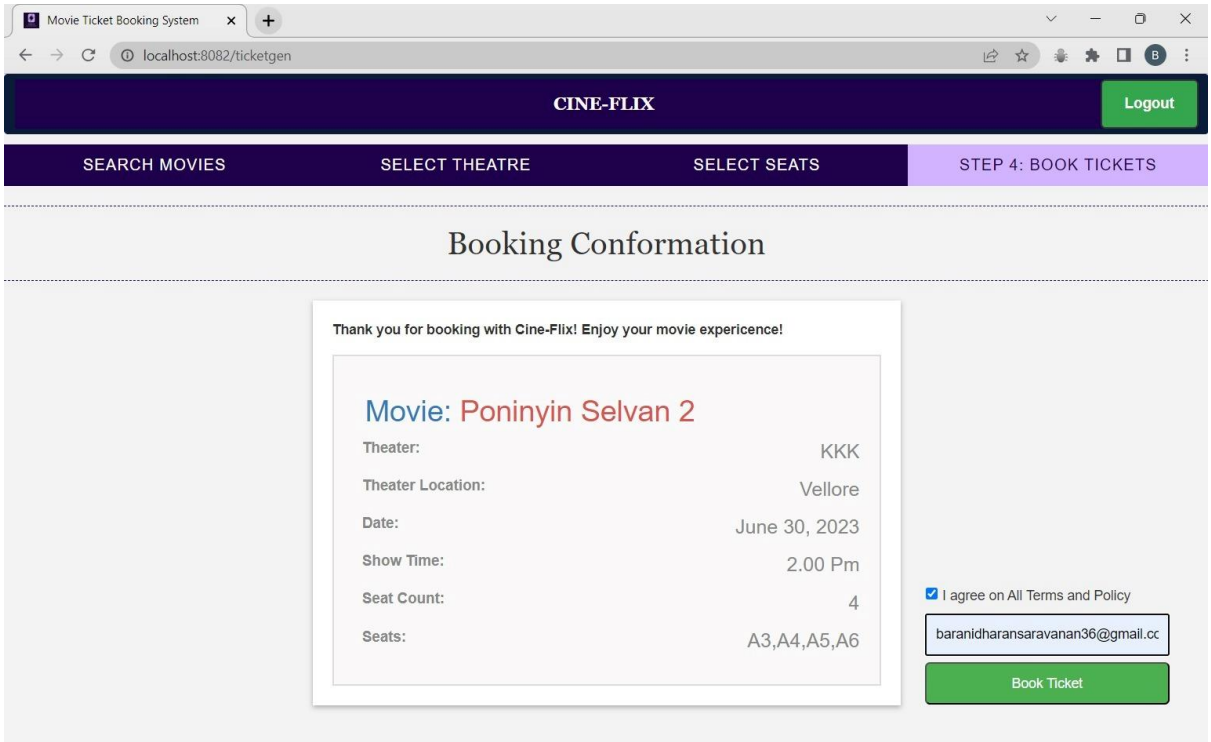
Theatre selection page

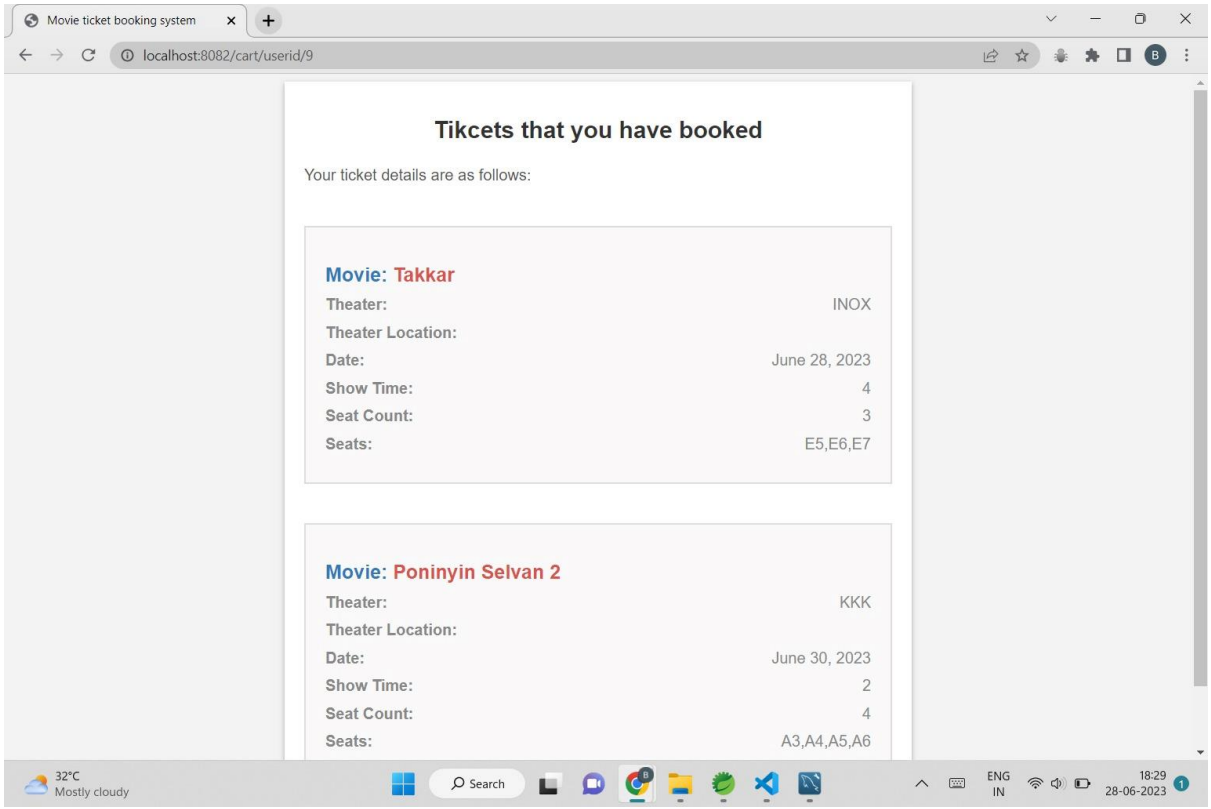


Seat selection page



Ticket Page





7 ADVANTAGES

User-Friendly Interface: The website has a simple, user-friendly interface that makes it simple for visitors to search for information and make reservations.

Easier Booking Process: Streamlined movie search, showtime selection, seat selection, and payment procedures are all available to users with ease.

User Experience: Users have the opportunity to select their favourite seats on the seat selection page, which improves their movie-going experience.

Real-Time Availability: The system offers up-to-date details on available performances, seating options, and costs, assuring precise and prompt reservations.

Database administration: The effective storing, retrieval, and management of theatre, movie, and user data is made possible by JPA and MySQL.

Scalability: Future improvements and easy scaling are made possible by the modular architecture and usage of technologies that are common in the industry.

DISADVANTAGES

Competition: The project works in a market that is competitive with other platforms for purchasing tickets, demanding special features and marketing techniques.

Assistance for customers: Addressing consumer questions, grievances, and refunds may call for specialised personnel and effective routes of help.

System Requirements: The website's efficient operation depends on dependable internet connectivity and compatibility with particular web browsers. So bugs, errors and security vulnerabilities may arise.

8 APPLICATIONS

Movie Theatres: By using the solution, movie theatres can make it easier for customers to purchase tickets online and improve their overall experience.

Event Management firms: Event management firms can use the system to make the process of ordering tickets for different entertainment events more efficient. This feature can be delivered with some minor modifications.

Large multiplex chains: They can use this system to provide a centralised platform for booking tickets at several locations.

Independent Cinemas: Independent cinemas and theatre owners can make use of the website to provide their customers the ability to purchase tickets online.

Concerts & Live Performances: The system can be later customised to meet the ticketing requirements for live performances, music festivals, and concerts.

9 CONCLUSION

The Cinema Ticket Booking System project's goal of developing an effective and user-friendly online platform for booking movie tickets has been accomplished. Users can now easily search for movies, choose showtimes, pick seats, and purchase tickets thanks to the project's integration of HTML, CSS, JavaScript, Spring Boot, JPA, and MySQL. Our project delivered a reliable and user-friendly solution that simplifies the movie ticket booking process and enhances the overall movie-going experience for users. It stands as a valuable tool for theater operators to efficiently manage ticket bookings and they can also avoid long queues at the theaters for ticket booking

10 FUTURE SCOPE

Regarding the future scope, the Cinema Ticket Booking System project has a tonne of room for improvement and growth. The implementation of user feedback and ratings, social media platform integration for seamless sharing and promotions, the introduction of personalised recommendations based on user preferences and previous bookings, and the incorporation of sophisticated data analytics to gain deeper insights into customer behaviour patterns and preferences are some important areas for future development. Additionally, looking into joint ventures with other entertainment businesses like dining establishments, travel agencies, and hotels might produce user-friendly movie experience packages. The platform's user base and reach could be increased by adding support for foreign languages and movie theatres. The project can establish itself as a leading platform in the movie ticket booking business by consistently enhancing and adjusting to changing consumer needs and technical improvements.

11. Bibliography

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[4] Shaik, A., Kishor, R. C. K., Koduri, S. S., & Anisha, P. R. (2014, October). AMTS: Advanced Movie Ticketing System. In Proceedings of the 2014 International Conference on Information and Communication Technology for Competitive Strategies (pp. 1-4).

[5] Pasyeka, M., & Malitchuk, A. (2020, October). Software Implementation of Movie Ticket Booking System. In 2020 IEEE International Conference on Problems of Infocommunications. Science and Technology (PIC S&T) (pp. 53-56). IEEE.

[6] Hang, B. (2011, July). Design and implementation of cinema online booking system. In 2011 International Symposium on Computer Science and Society (pp. 196-199). IEEE.