Movie Ticket Booking System

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Introduction

The Online Movie Ticket Booking System is a web-based platform designed to simplify the process of purchasing movie tickets online. In today's fast-paced world, people seek convenience and efficiency in their daily tasks, and the entertainment industry is no exception. This system provides users with the ability to browse through available movies, access detailed information about each movie, view showtimes, select seats, and securely purchase tickets without the hassle of visiting a physical theater or box office. The Online Movie Ticket Booking System aims to provide a seamless and user-friendly experience for movie enthusiasts, allowing them to browse, book, and enjoy movies with utmost convenience. This project addresses the demands of modern moviegoers by offering a technologically advanced solution that enhances their entertainment experience and simplifies the process of purchasing tickets for the latest cinematic releases.

Background and Product Context

Movie theaters have been a popular form of entertainment for decades. People enjoy watching movies on the big screen, and theaters provide a social environment where friends and families can gather to enjoy a film together. However, the traditional process of buying movie tickets involved physically going to the theater and purchasing tickets at the box office. This often led to long queues, limited seating availability, and inconvenience for customers. With the rise of technology and the internet, there emerged a need to streamline the process of booking movie tickets. This gave birth to online movie ticket booking systems, which aimed to make the ticket booking process more convenient, efficient, and user-friendly.

A movie ticket booking system is an application that allows customers to browse available movies, showtimes, and theater locations, and then book tickets for their preferred showtimes. The product context involves several key components:

1. User Interface: The system typically has a user-friendly interface that displays a list of currently playing movies, along with details such as movie synopsis, trailers, showtimes, and theater locations. Users can select their preferred movie and showtime.
2. Seat Selection: In addition to choosing the movie and showtime, users can often select specific seats in the theater. This feature is especially important for larger groups or those who have specific seating preferences.

3. Payment Processing: The system integrates with online payment gateways, allowing users to pay for their tickets securely using various payment methods, such as credit/debit cards, digital wallets, or other online payment systems.
4. Account Management: Many systems offer user accounts that allow customers to save their preferences, track booking history, and receive notifications about upcoming movies and special offers.
5. Booking Confirmation: After completing the booking and payment process, users receive a booking confirmation through email or SMS, which serves as their electronic ticket.
6. Integration with Theaters: The system needs to integrate with the databases of different theaters, showing accurate showtimes, movie availability, and seating information in real-time.
7. Mobile Apps: To cater to the growing use of mobile devices, most movie ticket booking systems have mobile applications that offer the same functionality as the web platform.
8. Customer Support: A robust customer support system is crucial to handle issues related to booking, payment, cancellations, and any other queries customers might have.
9. Feedback and Ratings: Some systems allow users to provide feedback and rate their movie experiences, helping other users make informed decisions.

User Story

Use Case 1:

TITLE: User's Registration
ACTOR: User
PURPOSE: To Register by the users.
DESCRIPTION: The user who can access the website will be able to register into the system. The user must provide the User Name, Email, Password. EXCEPTION:
I) Email does not match
Error: Please provide a valid email
II) Passwords must not be too short.
Error: Password should have both letter and digit.

Use Case 2:

TITLE: Email Verification Using PHPMailer

ACTOR: User

PURPOSE: To verify the registered account

DESCRIPTION: After completing Registration, users get a verification link in their given email address. Clicking the verification link the user is ready to login their account. If a user does not verify the account by clicking the verification link he/she can not login their registered account.

Use Case 3:

TITLE: User Login process
ACTOR: User
PURPOSE: To Login to the system by the user
PREREQUISITE: Search for a movie ticket booking website
DESCRIPTION: After completing verification the registered user will be able to log in using the Email and Password, and the Non-registered user who will not be able to log in will click the Register Now button first. The log in process will be verified by an email system.
EXCEPTION:
I) Email does not exist
Error: This email is not registered yet. Please Register first.
II) Password does not match.
Error: Please provide a valid password.
III) Any field is not filled up.
Error: All the fields must be filled up

Use Case 4:

TITLE: Forget Password by user
ACTOR: User
PURPOSE: To reset the password by user
PREREQUISITE: User Login process
DESCRIPTION: If the user has forgotten password. He can reset password for getting his account back. he can click in the ” Forget password” option. Then a email having reset password link will be sent to user. Using the link, user can change password and can get access to the account again.

Use Case 5:

TITLE: Logout by user
ACTOR: User
PURPOSE: To logout by user
DESCRIPTION: If the user wants to logout he can click on the logout option given at the top of the bar.Thus after clicking “Logout” the entire session will be diminished for the user.

Use Case 6:

TITLE: Booking and Remove Tickets by user
ACTOR: User
PURPOSE: To booking or Remove Tickets by user
PREREQUISITE: Categorize movie search
DESCRIPTION: After searching for movies the user can select the desired movie and can find the buy tickets option. Clicking on the buy tickets option, the user can find the short details of the movie, ticket price and also the user can remove tickets from the chart. Then a page for payment will appear on the screen.

Use Case 7:

TITLE: Payment Gateway (Stripe)
ACTOR: User
PURPOSE: Complete the payment
PREREQUISITE: Book Tickets by user
DESCRIPTION: For Payments, a new screen will appear where Payment Gateway (stripe) will be visible. Payment can be accepted for all cards. The user enters the card details and completes the payment.

Use Case 8:

TITLE: Movie Search
ACTOR: User
PURPOSE: Searching Movie Through Search Bar
DESCRIPTION: User can only search movies after logging in to the system. At the top of navigation bar user can find the search bar. There user can simply enter the desired movie in the search bar and click enter. The movie details section will appear on the screen.

Use Case 9:

TITLE: Categorize Movie Search
ACTOR: User
PURPOSE: Categorize Movie Search or Filter Search
DESCRIPTION: Users can access our web application after only a verified login process. There will be a section page in our system named “Movie Filter Search”. There will be a movie genres list and by clicking onto one of the lists, the movie list will appear. For example: If any user clicks on the action genre button, the action movie list will show on the screen.

Use Case 10:

TITLE: Live search suggestions for movies
ACTOR: User

PURPOSE: To allow users to search movies in real-time for more quickly and easily
DESCRIPTION: At the top of the navigation bar the user can find the search bar. If the user types any character of the movie name it suggests with a list of movie names that contain the character is typing. For example if any user types 'A' in the search bar, live search will suggest a list of movie names that have 'A' in their name.

Use Case 11:

TITLE: Movie Details Page
ACTOR: User
PURPOSE: Details of Movie Page Section such as Cast, Runtime etc.
DESCRIPTION: Whenever the user searches movies or clicks on any movie names, it will redirect to the movie details page from the backend service. Every movie will have a unique id from the database. So, by clicking on the movie name it will match the exact id and redirect to the details page and view all information based on the unique id. The details page section will have information like runtime, casting, directors, trailer, poster, genre etc.

Use Case 12:

TITLE: Admin Login
ACTOR: Admin
PURPOSE: Login to the admin
DESCRIPTION: The admin is already registered to the web application, the admin will be able to login into the software.

Use Case 13:

TITLE: Admin CRUD Operations
ACTOR: Admin
PURPOSE: To manage the movie list by performing Create, Read, Update, and Delete operations DESCRIPTION: The admin has the responsibility to manage the movie list in the software. They can perform various CRUD (Create, Read, Update, Delete) operations on the movie list to ensure that users have access to an accurate and up-to-date movie collection.

Use Case 14:

TITLE: Admin Checking Report Status
ACTOR: Admin
PURPOSE: To view the current status of generated reports

DESCRIPTION: The admin wants to check the status of various reports that are generated by the software. These reports might include sales reports, user activity reports, and other analytical data. The admin needs to ensure that the reports are being generated accurately and on time, and they want to be informed about any potential issues or delays in report generation.

Use Case 15:

TITLE: Upcoming Movie Section Page
ACTOR: User
PURPOSE: To See the Upcoming Movie Lists for Advance Booking
DESCRIPTION: A detailed page of upcoming movie list will be added on our web application. Whenever an user clicks on that particular link, the upcoming movie list will appear based on the real time date method of javascript. Here user can also see the pre booking button.

Use Case 16:

TITLE: Install on Mobile (PWA)
ACTOR: User & Admin
PURPOSE: Using and Install as A Responsive Mobile Application
DESCRIPTION: Both user and admin can install our website as a mobile application on their phones, tablets etc. Our web application will be based on Progressive and Responsive Web App. So that our application will run into any device for its responsiveness.

Use Case 17:

TITLE: Web Push Notification
ACTOR: User
PURPOSE: Send web push notifications
DESCRIPTION: Web push notifications are custom messages with links that will be sent as notifications to the user's browser. If users allow it, they receive push notifications from the website.

Use Case 18:

TITLE: Movie Review
ACTOR: User & Admin
PURPOSE: Give Review for Movie

DESCRIPTION: In the bottom of the home page user found a Submit review option for a movie. After submitting a review it will be waiting for admin verification. Verifying the review admin can remove or publish the review in the home page review section.

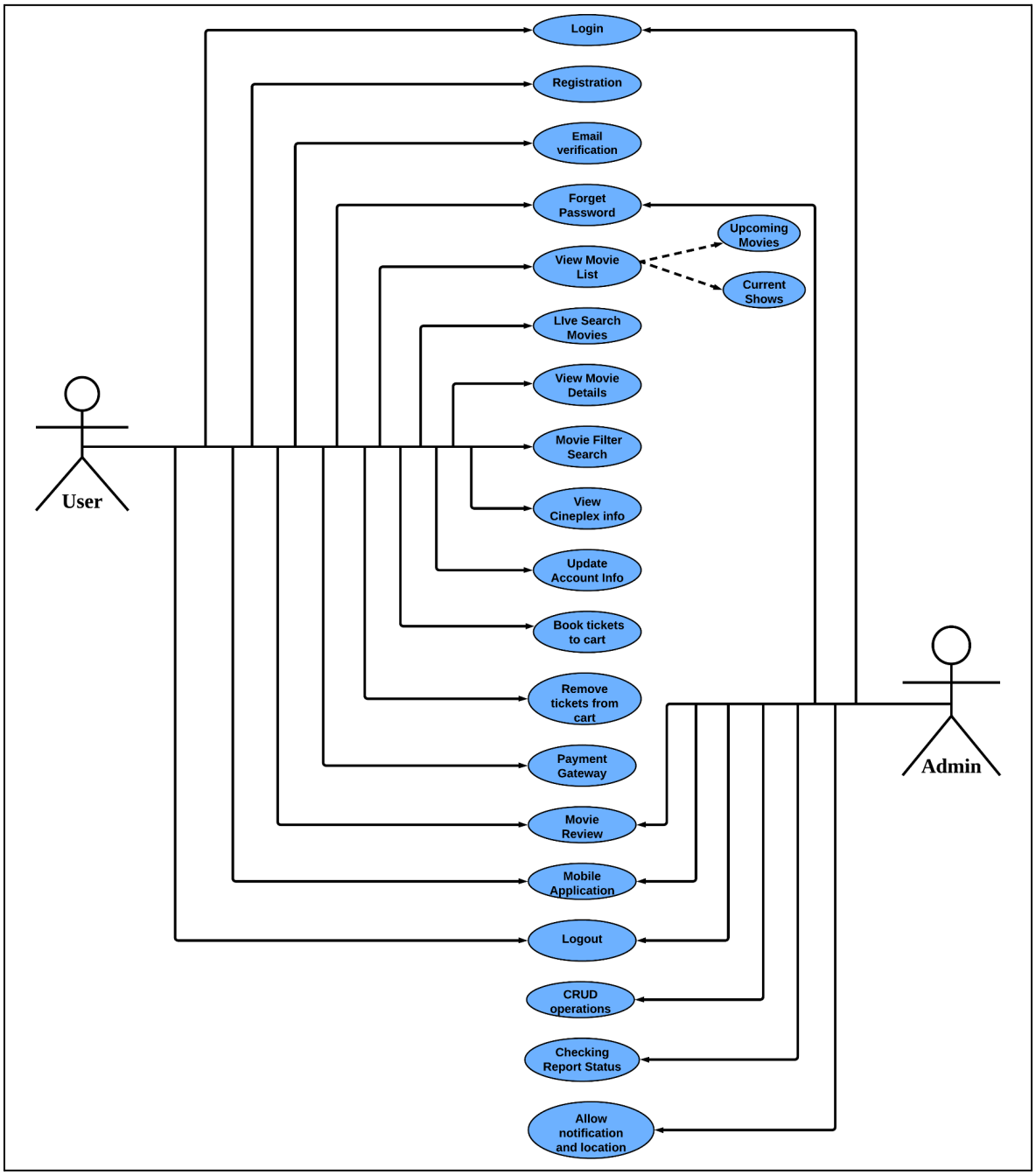


Figure: Use Case Diagram

Solution Description

Architecture

Currently we are using MySQL Database for the data, consisting of all the information such as Movie details, Cineplex details, orders, payments, review details. We used PHP for the Back-End, and implemented Front-End using HTML, Bootstrap, CSS, JavaScript, JQuery, Ajax. For API integration, we used Stripe Payment API for Payment Gateway purposes.

Front-end plan

User and Admin Features:

1. Home page
2. Login & registration page
3. Admin working page
4. Search movies result page
5. Movie details page
6. Upcoming movies page
7. Current shows page
8. Book movies page
9. Cineplex info page
10. Payment slip details page
11. Update Account Info page

Back end development

Account Creating and Password Recovery:

1. Signup and login form and verification by email.
2. Forgot Password
3. MySQL Database

Profile Management:

1. User profile
2. Admin profile

Live Search:

1. Movie search by suggestions

Access:

1. Notification Access

Progressive Web App:

1. Service Worker

Payment Gateway(stripe)

1. Applicable for all payment cards

Logout Session

Development Phase

Phase 1: Interface Design and Front-End Development (Week 1-2):

Week 1-2:
Create wireframes and mockups for the website's main pages (home, movie listings, booking, user profile, etc.).

1. Decide on the overall color scheme, typography, and visual elements.
2. Start implementing the front-end using HTML, CSS, Bootstrap and JavaScript:
    - Set up the project structure with appropriate folders.
    - Develop the home page with dynamic content placeholders.
    - Create a responsive design to ensure the website works well on different devices and screen sizes.
    -

Phase 2: Back-End Development and Database Integration (Week 3-5):

Week 3:
Set up the server environment:

- Choose a web server and set it up.

- Install PHP and configure the environment.
- Develop the database schema for storing movies, users, bookings, and other relevant features.

Week 4:
Start back-end development using PHP:

- Create the necessary PHP scripts for user authentication and registration.
- Develop API endpoints for retrieving movie information and user data.
- Implement basic validation and error handling.

Week 5:
Complete back-end development and database integration:

- Build data for booking tickets and updating user profiles.
- Integrate the front-end with the back-end using AJAX or Fetch API for dynamic content loading.
- Test the interaction between the front-end and back-end systems.

Phase 3: Hosting, API Calls, and Integration (Week 6-8):

Week 6:
Choose a hosting provider and set up the environment for deployment (e.g., shared hosting, cloud hosting).

- Configure the domain name and set up SSL certificates for secure connections.

Week 7:

- Implement external APIs for features like payment gateways and movie data
- Integrate the booking process with a payment gateway for secure and smooth transactions.
- Conduct thorough testing of the website's functionality and security.

Week 8:

- Optimize the website for performance:
    - Minify and compress CSS, JavaScript, and images.
    - Implement caching mechanisms to reduce load times.
- Conduct load testing to ensure the website can handle multiple users simultaneously.

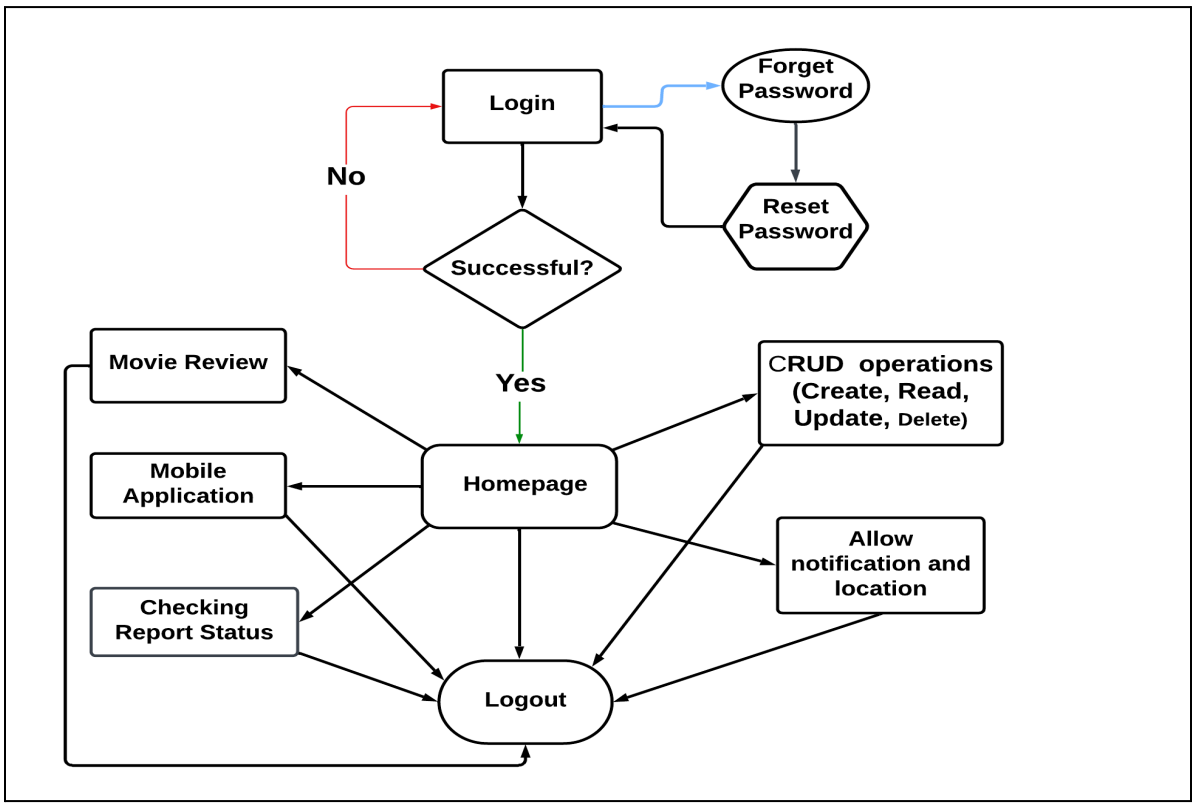
Phase 4: Final Demonstration and Deployment (Week 9-10):

Week 9-10:

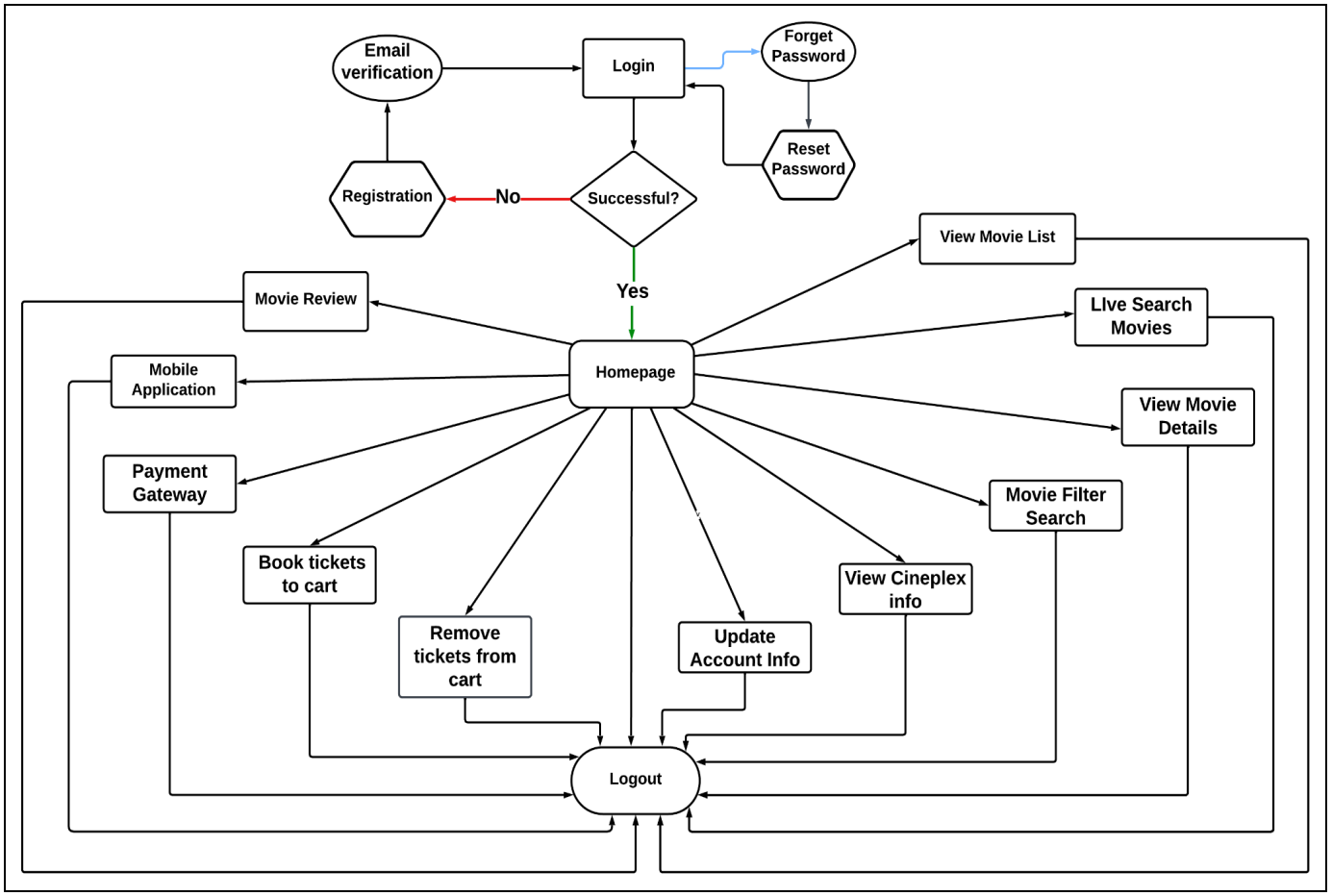
- Prepare the website for deployment:
- Identify and fix any bugs, performance issues, or security vulnerabilities.

Technological Feature:

System flowchart for Admin:



System flowchart for User:



Performance Analysis

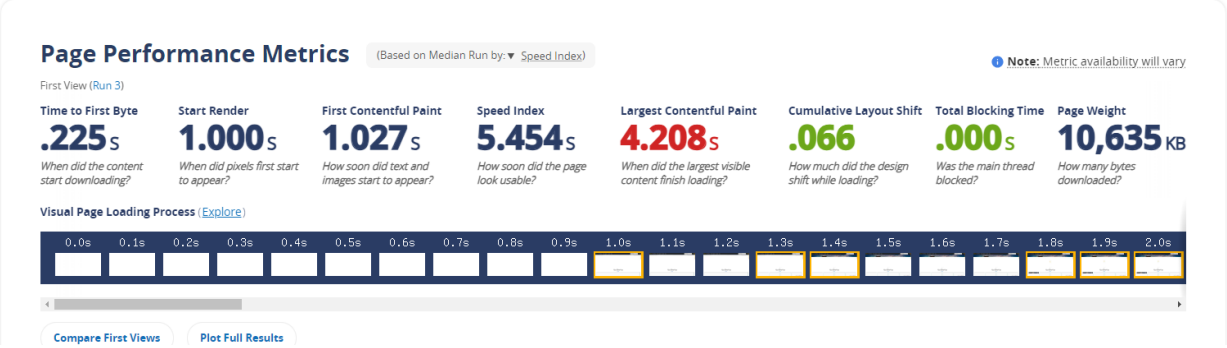
FID: First Input Delay (FID) is the metric that calculates the time it takes for the browser to respond to the first client request. To provide a good user experience, pages should have a FID of 100 milliseconds or less. **We are unable to get FID for our webpage.**

CLS: CLS (Cumulative Layout Shift) measures how much the layout shifts unexpectedly when users are viewing a webpage. To provide a good user experience, pages should maintain a CLS of 0.1. or less. **Our local host CLS is 0.28 which is more than 0.1**

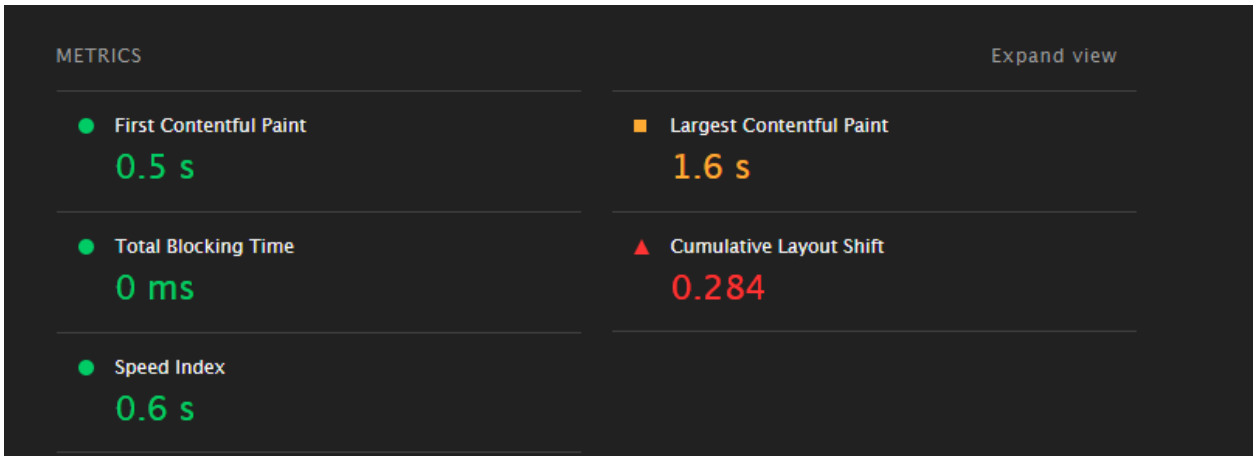
LCP: Largest Contentful Paint (LCP) represents how quickly the main content of a web page is loaded. To provide a good user experience, LCP should occur within 2.5 seconds of when the page first starts loading. **Our Local host LCP is 1.6 seconds which is less than 2.5 seconds.**

FCP: The First Contentful Paint (FCP) metric measures the time from when the page starts loading to when any part of the page's content is rendered on the screen. To provide a good user experience, sites should strive to have a First Contentful Paint of 1.8 seconds or less. **Our local host FCP is 0.5 seconds which is less than 1.8 seconds.**

The following picture is from our hosting link used by webpagetest.org

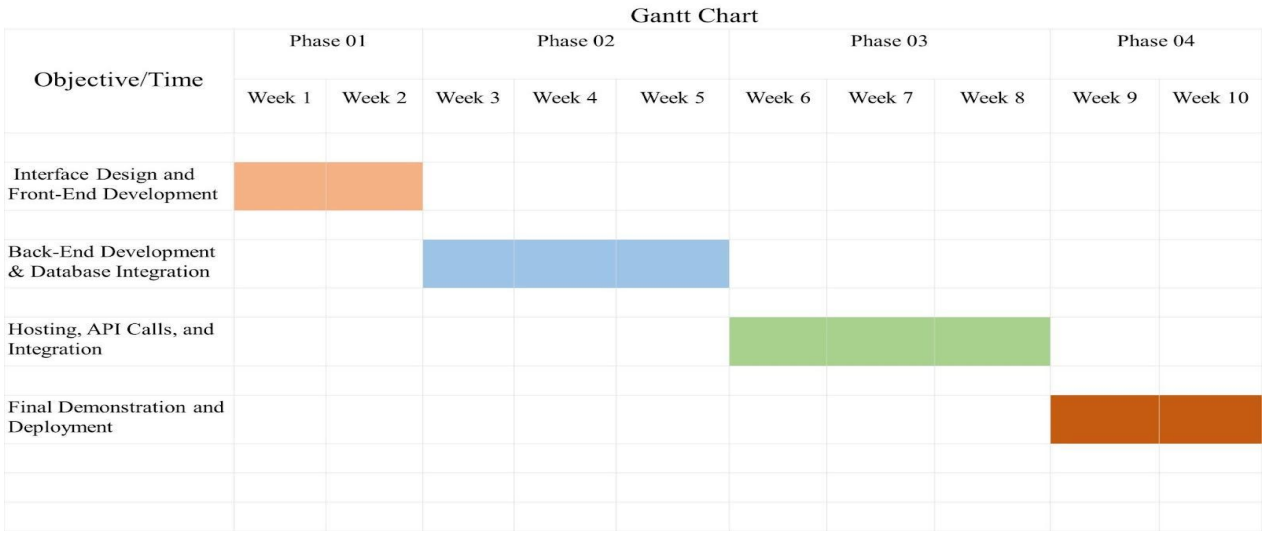


The Following pictures are from chrome devtools using localhost server:



Project Schedule

Whole project will take a total of 10 weeks from the day of start.



Project Github Link

Movie Ticket Booking System

Project Hosting Link

https://movieticketbookingsystem1.000webhostapp.com/

Appendix

Admin Email & Password

- Email: admin@xyz.com
- Password: 1

User Email & Password (Hosting Site)

- Email: md.baker@northsouth.edu
- Password: 1

Stripe Card Details

Stripe Cards Payment Information

- CVV - any 3 digit number
- Expiry date - any month and year from the current month and year
- Visa(debit) Card 4000056655665556
- Mastercard 5555555555554444
- Mastercard (debit) 5200828282828210
- American Express 378282246310005
- Discover 6011111111111117