*SOFTWARE PROJECT FINAL REPORT*

**CRITICSWORLD** 7th December 2023


**EEC 521 SOFTWARE ENGINEERING SECTION 50**


- Sindooja Bhagwan Gajam (2888228)
- Praveen Sai Kodali (2883944)
- Manoj Sai Yerramaneni (2885415)

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# 1. Introduction

In the ever-evolving world of entertainment, where every other day there is a new movie or song released. Some people being passionate about sharing their insights and opinions about the movies they watched or songs they have listened to, while on the other hand, some people like to read the reviews and then decide about watching the movie or listening to a song, there arises a need for a separate platform where these people can share and read one's insights. Welcome to CriticsWorld, a web application poised to transform the way we can engage and explore the world of movies and songs.

## 1.1. Purpose and Scope

This app aims to provide a seamless interface where users can post a detailed review of a movie and read in-depth reviews from other users to help them make informed decisions when choosing a movie. This document describes the basic requirements needed to create a comprehensive, user-friendly, and socially engaging movie review platform, emphasizing user interaction, content quality, and intuitive design. From authentication and review submission to advanced search features, this specification describes the requirements for building a robust movie review site.

This movie review web application is designed to enable users to post a review about the movie, rate the movie, edit the review posted, delete the review posted, and search the reviews for the movies.

## 1.2. Product Overview (including capabilities, scenarios for using the product, etc.)

1. **Key Capabilities:**

   **User-Generated Reviews:** Users can create, publish, and manage their movie reviews, contributing to a rich repository of diverse opinions.

   **Comprehensive Movie Database:** A vast collection of movies with detailed information, including titles, directors, cast, release years, and user-generated reviews.

2. **Scenarios for Using the Product**

   **Discovering New Movies:** Users explore the website to find information about movies or search for films.

**Writing and Publishing Reviews:** Enthusiasts share their thoughts and experiences about movies they've watched, providing detailed reviews and ratings.

## 2. Project Management Plan

### 2.1. Project Organization

We're a group of 3 people who developed this project. The group member details, and the work done by them is mentioned as follows:

| Name | CSU ID | Work Done |
|---|---|---|
| Sindooja Bhagwan Gajam | 2888228 | 1. Developing frontend components & pages.<br>2. Backend API Development |
| Praveen Sai Kodali | 2883944 | 1. Developing frontend components.<br>2. Testing the Application. |
| Manoj Sai Yerramaneni | 2885415 | 1. Database schema<br>2. Backend API Development |

### 2.2. Lifecycle Model Used

The Criticsworld is a movie review system that is not very complex. Its problems are well understood, changes involved in this system will be limited, there aren't any high risks involved in this system, it is simple and easy to execute. Thus, the Waterfall Process Model can be used to develop this system as it is suitable to use this process model for the above-specified characteristics of the system. Prototypes are not required hence the Prototype Model, Spiral Model, and RAD Model should not be used. Also, since this system doesn't involve any high risk or a difficult deadline, the Iterative Model should not be used either.

## 2.3. Risk Analysis

### Project Risks

1. **Data Security and Privacy Concerns:** Breach of user data or invasion of privacy, which may result in loss of trust and legal consequences.
2. **Traffic Scalability Challenges:** Inability to handle unexpected traffic spikes after major film premieres, resulting in website slowdowns or crashes.
3. **Negative User-Generated Content:** Inappropriate or dangerous user-generated content in reviews that can jeopardize the website's reputation.
4. **Search Engine Ranking and Visibility:** Poor search engine ranking, and decreased exposure in search results**.**
5. **Server Downtime and Reliability:** Unplanned server outages cause website downtime and user irritation.
6. **Scope Creep and Changing Requirements:** Uncontrolled changes in project scope and requirements throughout development cause delays.
7. **Inadequate Testing and Quality Assurance:** Failure to do extensive testing and quality assurance, resulting in the publication of a website with several flaws.

**Overview of Risk Mitigation, Monitoring, Management (RM3):** An overview of RM3 is provided here. The Complete RM3 is provided as a separate document or as a set of Risk Information Sheets.

**Risk Mitigation Strategies:** Robust risk mitigation strategies have been developed and implemented for each identified risk. These strategies align with best practices and are tailored to the project's specific needs.

**Risk Monitoring:** Throughout the project's lifecycle, the project team continuously monitors identified risks to assess any changes in likelihood or impact. Regular project status meetings

provide a platform to discuss emerging risks and adjustments to mitigation strategies.

## 2.4. Hardware and Software Resource Requirements

### Software Requirements:

1. **Operating Systems:**
   - Server operating systems: Windows Server for hosting.
2. **Database Management System (DBMS):**
   - A robust DBMS like MySQL for efficient data storage and retrieval.
3. **Programming Languages and Frameworks:**
   - Frontend: Reactjs, HTML, CSS, JavaScript
   - Backend: Server-side languages (Node.js) and frameworks (Express) for implementing server logic.

### Hardware Requirements:

- Intel Core i5 or equivalent AMD processors.
- RAM 8GB or more.

## 2.5. Deliverables and schedule

| | |
|---|---|
| **09/21/2023** | **Submit project plan. Give 2 mins presentation about the project.** |
| **09/23/2023** | Install all the required software for the project. |
| **09/26/2023** | Start initializing the database required for the project. |
| **10/05/2023** | Software requirement specification. |
| **10/19/2023** | Software design specification. Give 5 mins presentation. |
| **10/21/2023** | Start frontend development. |
| **10/24/2023** | Start backend development. |
| **10/30/2023** | Initial version of app should be ready |
| **11/02/2023** | Initial version of software. Give 10 mins demonstration. |
| **11/07/2023** | Complete the application development with all the requirements. |
| **11/09/2023** | Test plan |
| **11/30/2023** | Bug fixes |
| **12/07/2023** | Final software product. |

| | |
|---|---|
| **12/05/2023 - 12/07/2023** | Project presentation and demonstration. |

Table 2.1: Deliverables and schedule

# 3. Requirement Specifications

## 3.1. Stakeholders for the system

- **Users:**
  - Reviewers: Individuals using the website to write and share movie reviews.
  - Readers: People access the website to read reviews and gather information about movies.
- **Developers and Designers:**
  - Frontend Developers: Responsible for creating the website's user interface and experience.
  - Backend Developers: Handle server-side logic, database management, and integration of functionalities.
- **Administrators:**
  - Maintain and manage the website's backend, user management, and configurations.

## 3.2. Use cases

### 3.2.1. Graphic use case model

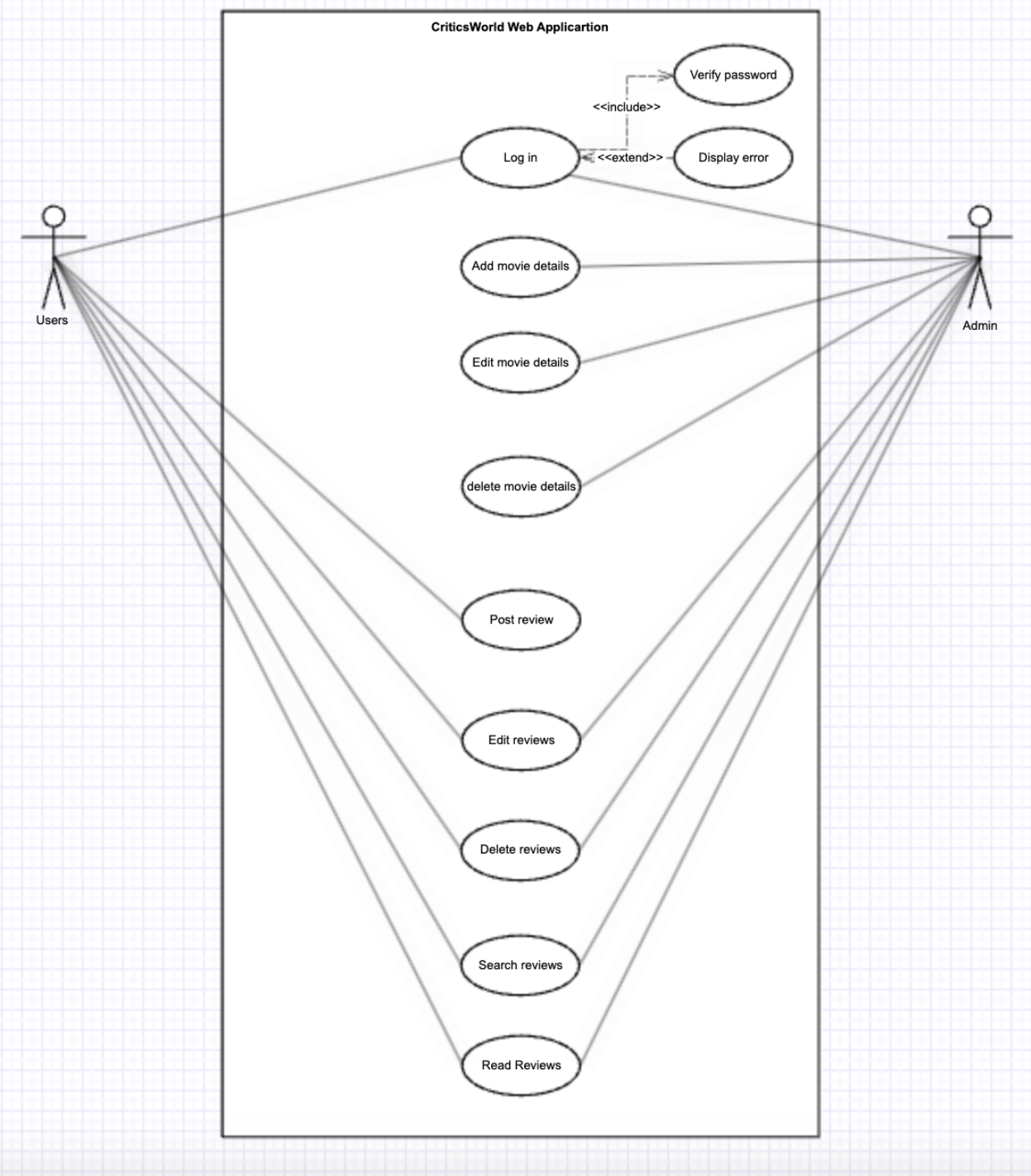



Fig3.1 Graphic use case model

### 3.2.2. Textual Description for each use case

#### I. Registration

- Description – The user needs to register if the user is a first-time user.
- Flow – The user enters first name, last name email, and password to be able to register to the app.

#### II. Login

- Description – The user needs to log in by email and password to be able to use the features of the app.
- Flow – The user enters their email, and password, systems will validate and authenticate the user, and the user lands on the dashboard page.

#### III. Browsing movies

- Description – Users can browse through the list of available movies.
- Flow – The dashboard has a list of a few recent releases; the user clicks on a movie to view detailed information.

#### IV. Reading reviews

- Description – Users can read reviews posted by other users.
- Flow – The user clicks on a movie; Details of the movie and reviews and ratings are displayed to the user; the user can read reviews posted by other users.

#### V. Posting a review

- Description – Users can post their reviews for a movie.
- Flow – The user searches for the movie they want to review; the user clicks on the movie and navigates to the review section; the user writes a review, rates the movie, & submits it; the system validates the review and adds it to the movie's review section.

#### VI. Edit a review

- Description – Users can edit the reviews posted by them.
- Flow – The user navigates to their profile or the specific movie's review section; the user selects the review they want to edit; the user makes the changes to the review and submits it; the system validates the review and updates it in the database.

### VII. Delete a review

- Description – Users can delete the reviews posted by them.
- Flow – User navigates to their profile or the specific movie's review section; User selects the review they want to delete; User confirms the deletion; System validates the request and removes the review from the database.

### VIII. Search

- Description – Users can search for a specific movie.
- Flow – The user enters a keyword or specific criteria in the search bar; the system performs search based on the user input; the system displays the search results.

## 3.3. Rationale for your use case model

1. User Registration: Allows users to create accounts, enabling them to contribute by writing reviews and engaging with the platform's community. Registration is fundamental to user engagement.
2. Write and Read Reviews: The core functionality where users can write their reviews for movies and read reviews contributed by others. This forms the primary purpose of the website.
3. Manage Reviews: Essential for maintaining content quality. Admins can moderate and manage user-submitted reviews to ensure compliance with guidelines and standards.

### 3.4. Non-functional requirements

#### I. Security

- User data, including passwords, are protected, and securely stored.
- The website is protected against security threats.

#### II. Performance

- The website should load quickly and respond to user actions accurately.

#### III. Scalability

- The website must be scalable to support a rising number of users and movie data.
- To manage peak loads, a scalability mechanism should be in place.

#### IV. Availability

- The website should be available 24/7 with minimal downtime, For maintenance.
- Backup and recovery procedures should ensure data availability**.**

#### V. Usability

- The user interface should be easy to use.
- The website must be easily accessible**.**

#### VI. Data Privacy

- The website must follow data privacy standards to secure user data and privacy.
- Users must be able to control their data and privacy settings.

# 4. Architecture

## 4.1. Architectural style used.

### Client-Server Architecture:

- Explanation: Divides the system into client-side and server-side components.
- Application: The client (browser) interacts with the server, which hosts the application logic and data.

## 4.2. Architectural model (includes components and their interactions)

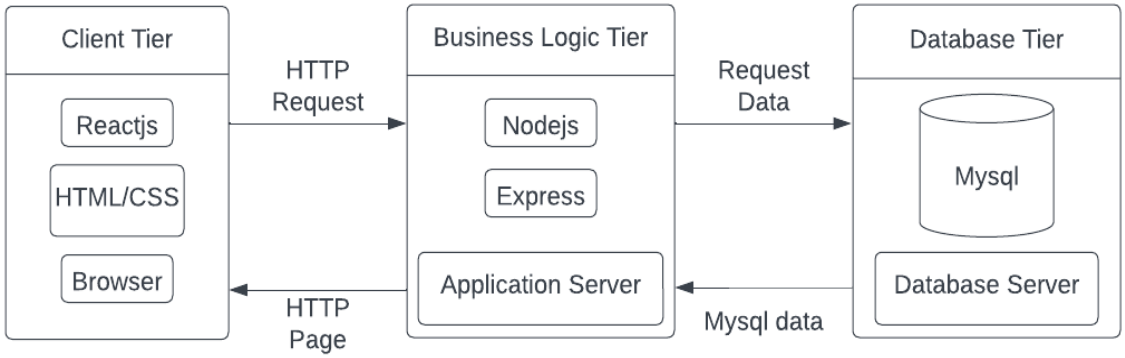



Fig 4.1 Architectural Model

This design shows how the request flows through the system. The request is made from the client tier to the business layer tier and in the business layer tier the request is formatted according to the database understanding and then the request is made to the database to get a response. Once the application server receives the response it is formatted as per the HTML and sent it back to the client tier.

### 4.2.1 Block Diagram

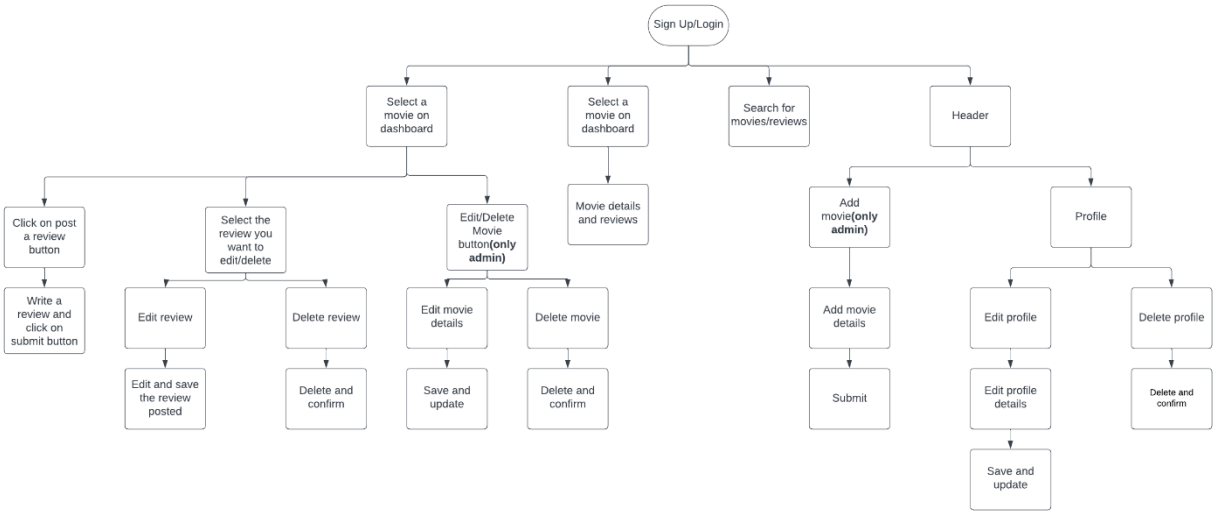



Fig 4.2 Block Diagram

The flowchart shows us how users can utilize the CriticsWorld web application once the project has been implemented. Users can sign up if they are new users by providing a username, email, and password and then logging in, or if the user is an existing user, the user can log into the web application after providing the username and password.

Once the user is authenticated and authorized, the user lands on the dashboard where the user can see a list of movies, a profile, a search input box, and a sign-out button. The user can select any movie and if they wish they can post a review about the movie and rate it or they can read the existing reviews on the movie posted by other users.

The user can update or delete the profile by clicking on the profile button on the header section and then by clicking on the edit or delete button.

Admin login will be able to edit or delete the movie by selecting the movie from the dashboard which will land on the movie details page from where the admin will have the ability to update or delete the movie.

The users also have the option to edit or delete the review posted by themselves by selecting the movie review they want to edit/delete. The users can also search for movies or reviews using keywords. On the other hand, the

admin will have the ability to add, edit or delete movies. The admin will be able to edit or delete the reviews posted by any user.

### 4.3. Technology, software, and hardware used.

**Frontend:**

- ReactJS - React.js, often referred to simply as React, is a JavaScript library for building user interfaces, particularly for single-page applications where UI updates are frequent. Developed and maintained by Facebook, react is widely used for its efficiency in creating interactive and dynamic user interfaces. We are using React version 18.2.0 for our project.

- HTML - HTML, or HyperText Markup Language, serves as the standardized markup language for crafting documents intended for presentation in web browsers. Its primary function is to articulate the structure and significance of web content. Frequently, HTML collaborates with complementary technologies like Cascading Style Sheets (CSS) for styling and scripting languages such as JavaScript to enhance interactivity.

- CSS - CSS, an acronym for Cascading Style Sheets, dictates the presentation of HTML elements on various mediums such as screen, paper, and other media. This powerful technology streamlines work by enabling the simultaneous control of layout across multiple web pages. Stylesheets external to HTML, housed in CSS files, further enhance organization and manageability.

**Backend:**

- NodeJS - Node.js is an open-source JavaScript runtime environment that is cross-platform, and capable of operating on Windows, Linux, Unix, macOS, and other platforms. Utilizing the V8 JavaScript engine, Node.js enables the execution of JavaScript code beyond the confines of a web browser. It empowers developers to employ JavaScript for creating

command-line tools and engaging in server-side scripting. We are using v20.10.0 for our project.

- Express - Express.js, often referred to simply as Express, stands as a back-end web application framework crafted for constructing RESTful APIs using Node.js. It is distributed freely as open-source software under the MIT License. Tailored for the development of web applications and APIs, Express has earned recognition as the de facto standard server framework for Node.js.

**Database:**

- MySQL - An open-source relational database management system (RDBMS). In the realm of relational databases, information is organized into one or more tables, establishing relationships between data sets. SQL serves as the language for programmers to construct, modify, and retrieve data from the relational database, while also managing user access. We are using the 8.0.35 version of MySQL for the Criticsworld database.

**IDE:**

- VSCode - Visual Studio Code, often abbreviated as VS Code, is a popular and free source code editor developed by Microsoft. It is widely used by JavaScript developers. We will be using VS code version 1.82.1 for our project.

## 5. Design

### 5.1. User Interface design

**Interface description**

**A. Sign up page**

1. **Header Section:**
    - Logo and site name

2. **Main Content:**

    - First name, Last name, email, & password text fields
    - Sign Up or Cancel action buttons.

3. **Action button:**

    - Clicking on sign up will create a user account with the app and store the data in the database.
    - Click on cancel will cancel the user account creation process.

**B. Login page**

1. **Header Section:**

    - Logo and site name

2. **Main content:**

    - Email and password text field
    - The password field will have a toggle eye icon button which will show or hide the password in the text field.
    - Login or Cancel action buttons.
    - Sign up button.

3. **Action Buttons:**

    - Click on the login button will authenticate the user and then give access to the application.
    - Click on cancel will cancel the login process.
    - Click on the signup button will redirect to the sign-up page.

**C. Dashboard page**

1. **Header Section:**

    - Logo and site name
    - Navigation menu
    - Search text field with search icon button

- Sign out button.

2. **Main Content:**

   - Displays the list of movies on the dashboard.

3. **Action Buttons**

   - The users can click on a movie to view the details of the movie.
   - The users can click on the search icon to search for the keywords entered in the text box.

**D. Detailed movie page and post review**

1. **Header Section:**

   - Logo and site name
   - Navigation menu
   - Search text field with search icon button
   - Sign out button.

2. **Main Content**

   - Displays movie name, genre, director, actor, release date, average rating, and all the reviews of the movie.
   - Write a review text field.

3. **Action Buttons**

   - On click of right a review textbox, will open a dialog box with write your views text field and rating stars.
   - The post button will add the review to the movie reviews.
   - Cancel will clear and close the dialog.

**E. Search result page**

1. **Header Section:**

   - Logo and site name
   - Navigation menu

- Search box with search icon button
- Sign out button.

2. **Main Content:**

   - Display the movies and reviews matching the search keywords.

3. **Action Buttons:**

   - Clickable results to redirect to the movie details page.

**F. Add movie**

This page will only be accessible to the admin and the functionality will be available in menu

1. **Header Section:**

   - Logo and site name
   - Navigation menu
   - Search box with search icon button
   - Sign out button

2. **Main Content:**

   - Title, actor, actress, director, release year input field

3. **Action Buttons:**

   - The save button will save the and add the movie to the movie database.
   - The back button will clear all the data and go back to the home page.

**G. Edit movie details**

This functionality is restricted to the admin and the functionality will be available on the movie details page.

1. **Header Section:**

- Logo and site name
- Navigation menu
- Search box with search icon button
- Sign out button

2. **Main Content:**

    - On the same movie details page only difference will be there will be edit and delete buttons.

3. **Action Buttons:**

    - With a click of the edit button, all the fields will be editable, and save and cancel buttons will be added to the end.
    - The save button will save the edited data.
    - The cancel button will cancel the changes and will go back to the previous state.

**H. Delete movie**

This functionality is restricted to admin and the functionality will be available on the movie details page.

1. **Header Section:**

    - Logo and site name
    - Navigation menu
    - Search box with search icon button
    - Sign out button

2. **Main Content:**

    - On the same movie details page only difference will be there will be a pen and delete icon button.

3. **Action Buttons:**

    - When the delete button is clicked, it will open a dialog box asking for confirmation with Yes, No buttons and the cancel icon button.

- Click Yes will delete the movie and on clicking No it will go back to the pervious state.
- On click of the cancel icon, it will cancel the deletion and go back to the pervious state.

## I. Profile

### 1. Header Section:

- Logo, Home, Profile, Signout button

### 2. Main Content:

- Edit and Delete button
- Profile details

### 3. Action Button

- When edit button is clicked the edit button is changed to cancel button, and on the click of submit button it will update the profile
- When delete button is clicked an alert pop up is displayed which ask user for the confirmation.

## J. Sign out button action

### 1. Header Section:

- Logo and site name

### 2. Main Content:

- Redirect to the login screen.

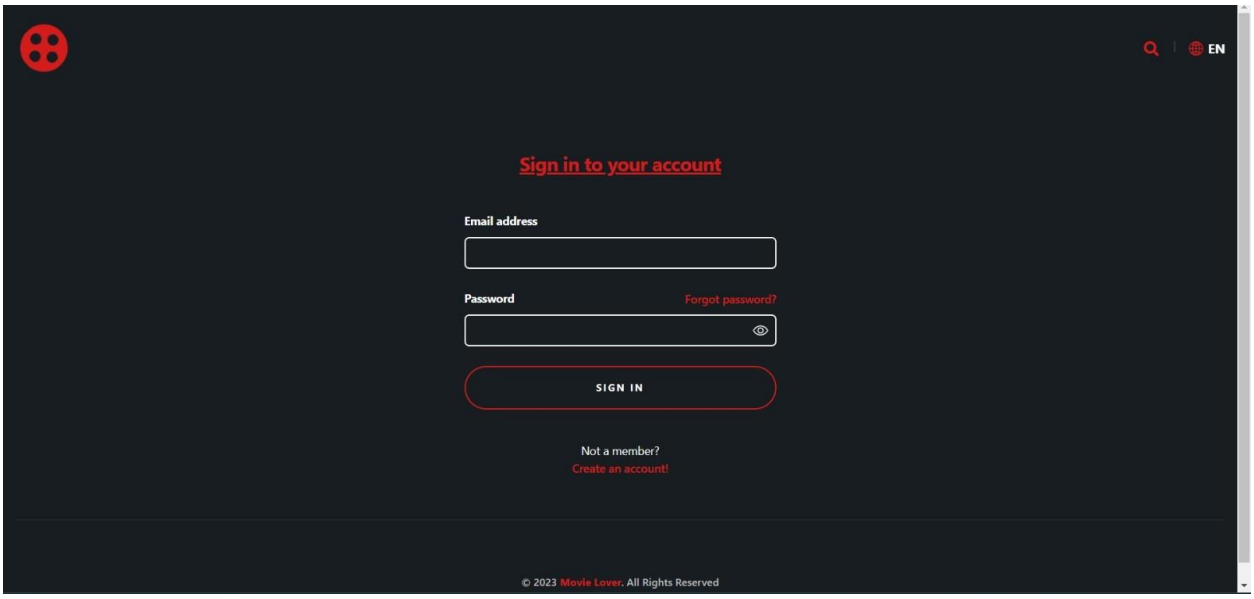
### 3. Action Button:

- End the session of the user and clear all the session storage.

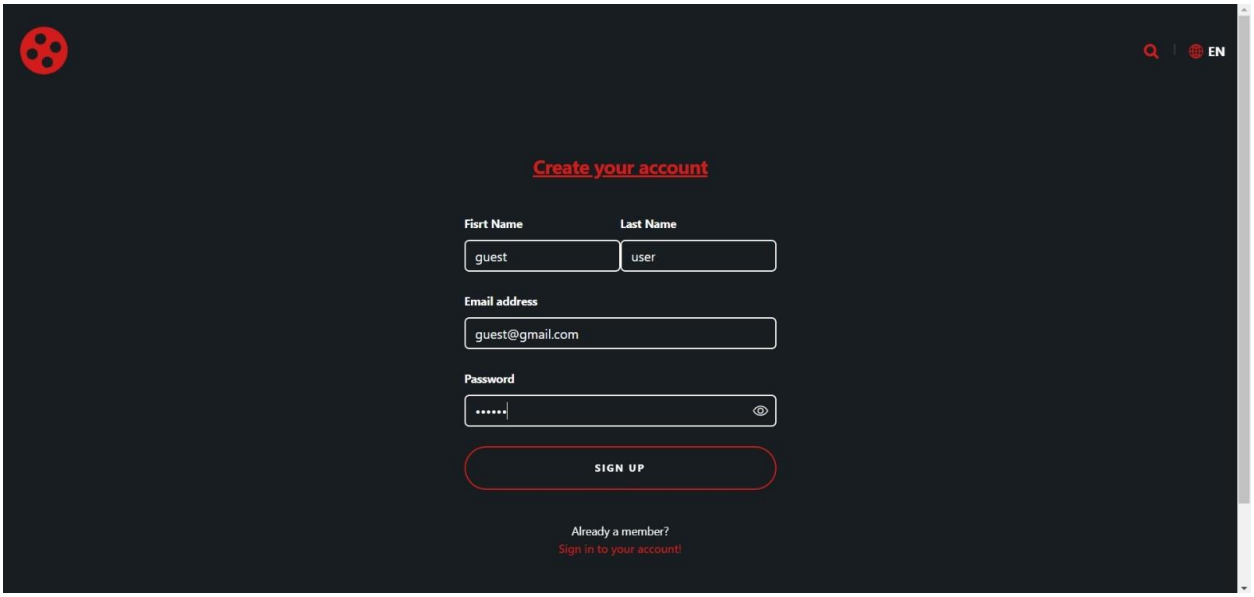
## 5.2. Components design

### 5.2.1 UI Designs

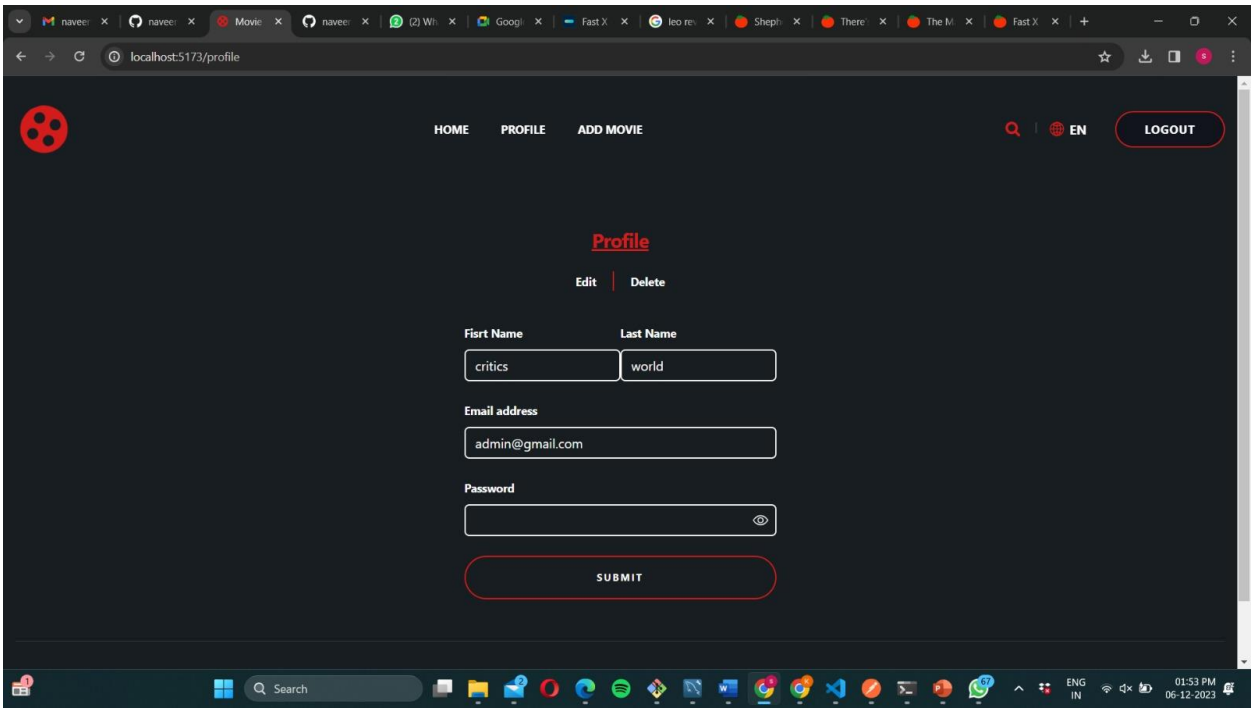
- Login screen



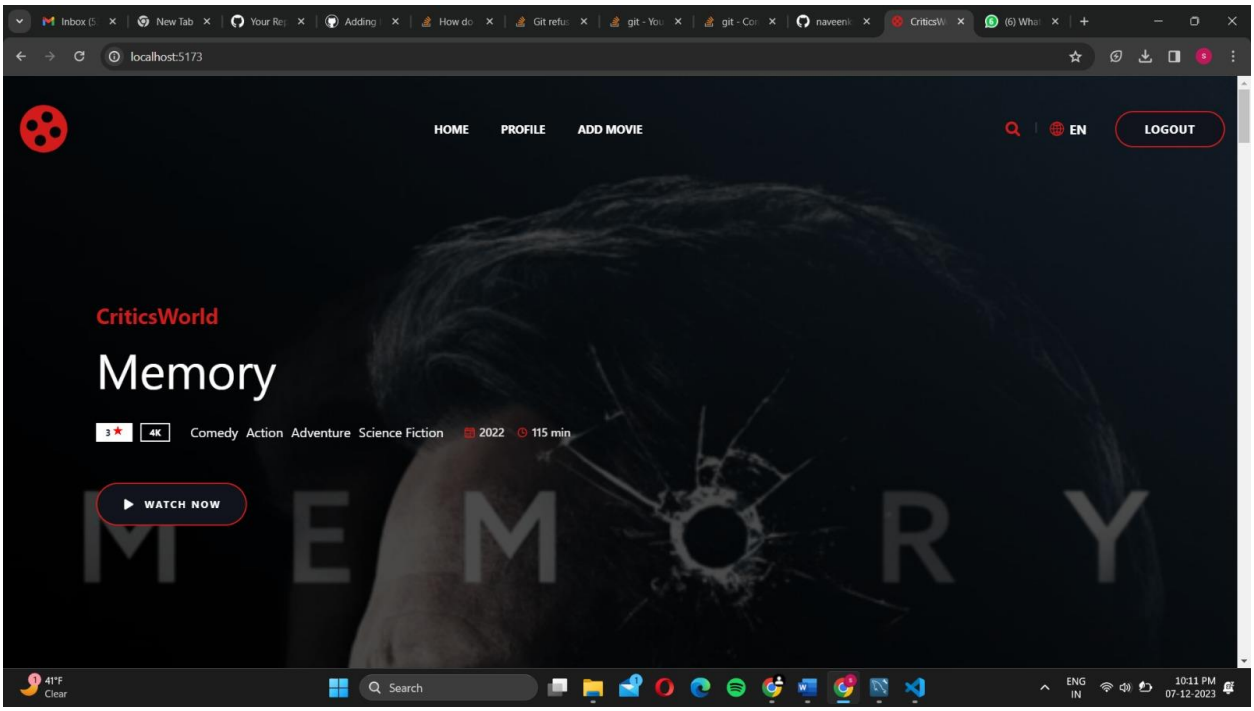

- Registration Screen



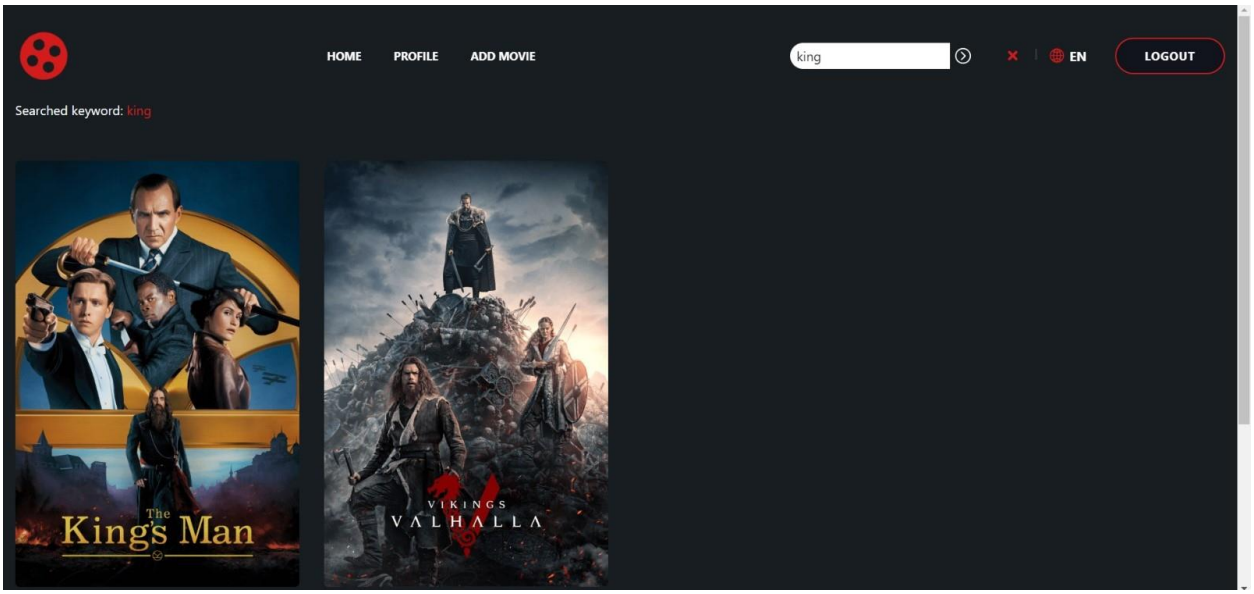
- Edit Profile



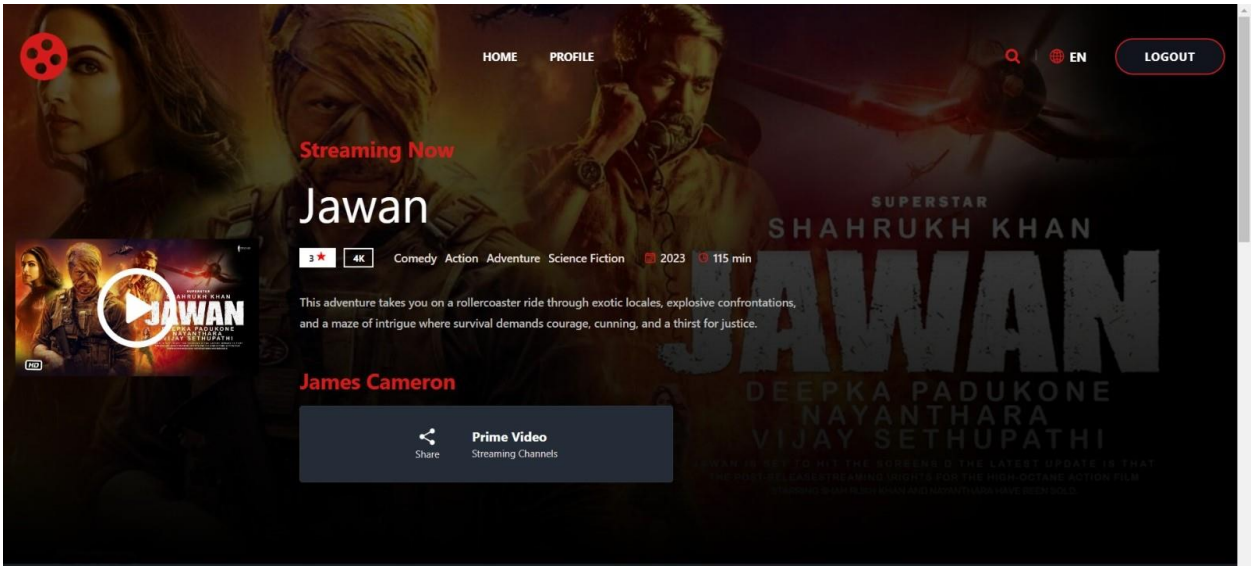

- DashBoard


localhost:5173
HOME
PROFILE
ADD MOVIE
EN
LOGOUT
CriticsWorld
Memory
3+
4K
Comedy Action Adventure Science Fiction
2022
115 min
WATCH NOW
MEMORY
Search

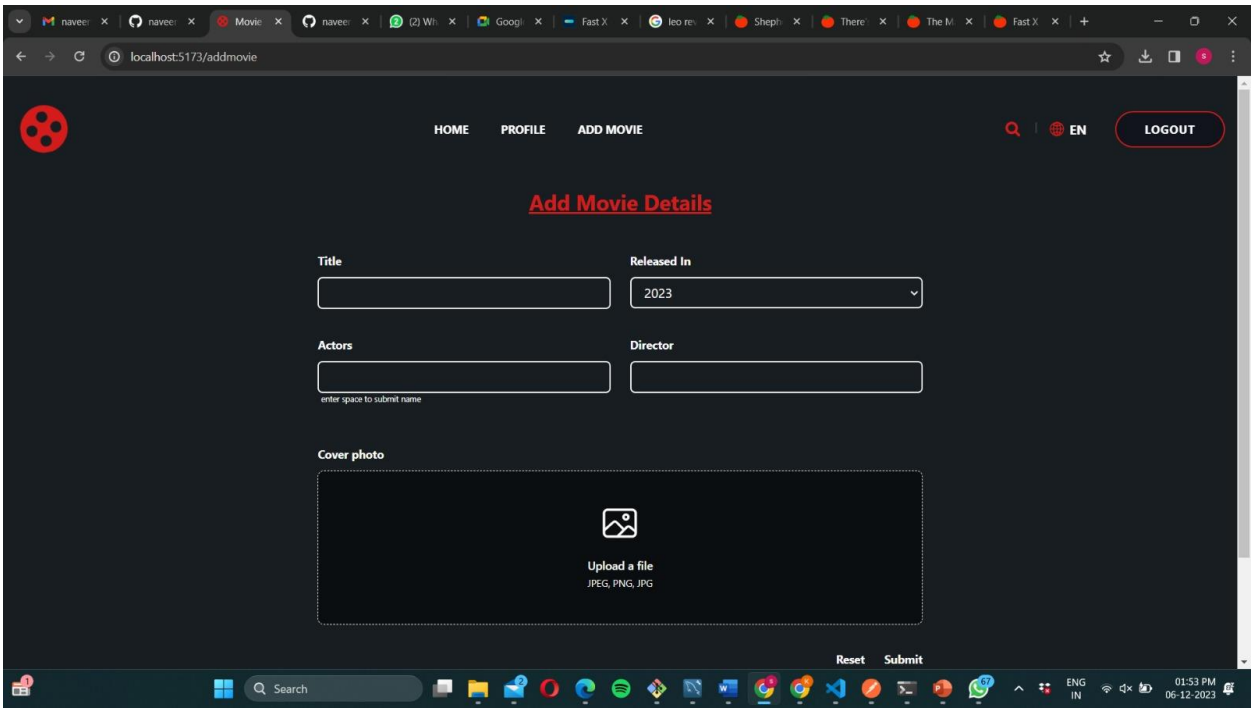
- Search Page


HOME
PROFILE
ADD MOVIE
king
EN
LOGOUT
Searched keyword: king
The King's Man
VIKINGS VALHALLA

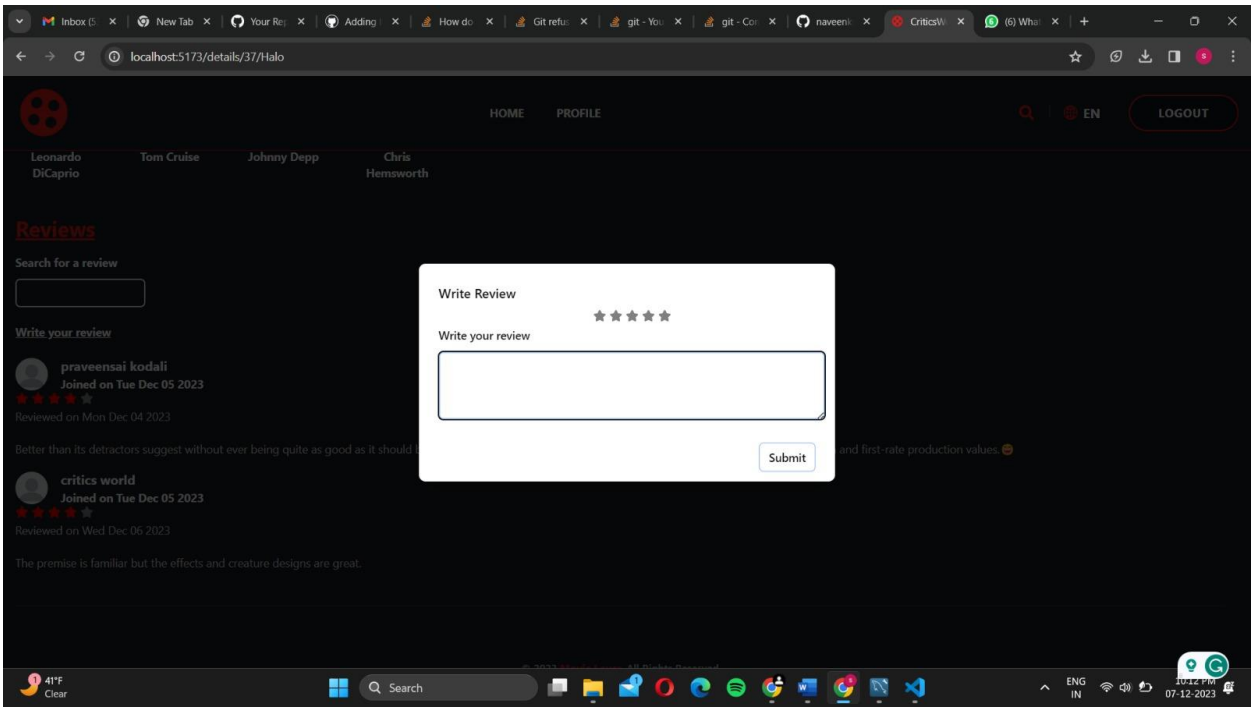
- Movie Detail Page



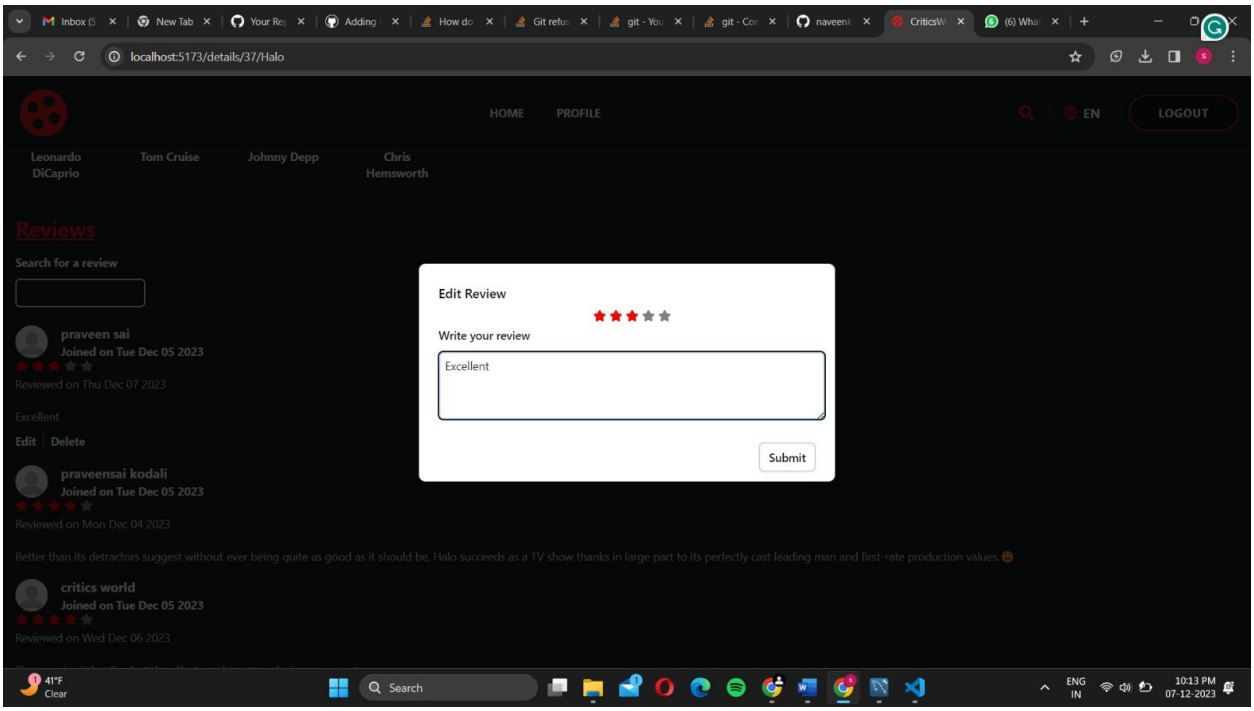

- Add Movie Page



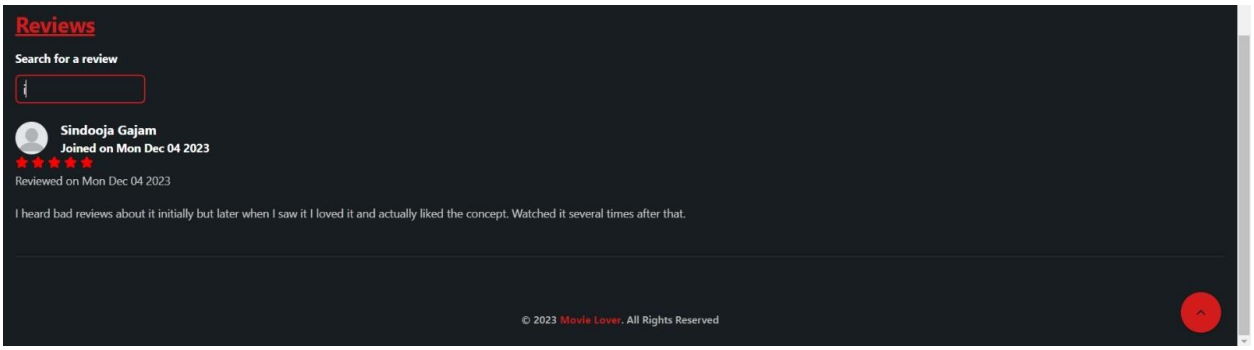

- Add Review


localhost:5173/details/37/Halo
HOME
PROFILE
EN
LOGOUT
Leonardo DiCaprio
Tom Cruise
Johnny Depp
Chris Hemsworth
Reviews
Search for a review
Write your review
praveensai kodali
Joined on Tue Dec 05 2023
Reviewed on Mon Dec 04 2023
critics world
Joined on Tue Dec 05 2023
Reviewed on Wed Dec 06 2023
The premise is familiar but the effects and creature designs are great.
Write Review
Write your review
Submit
41°F
Clear
Search
ENG
IN
07-12-2023

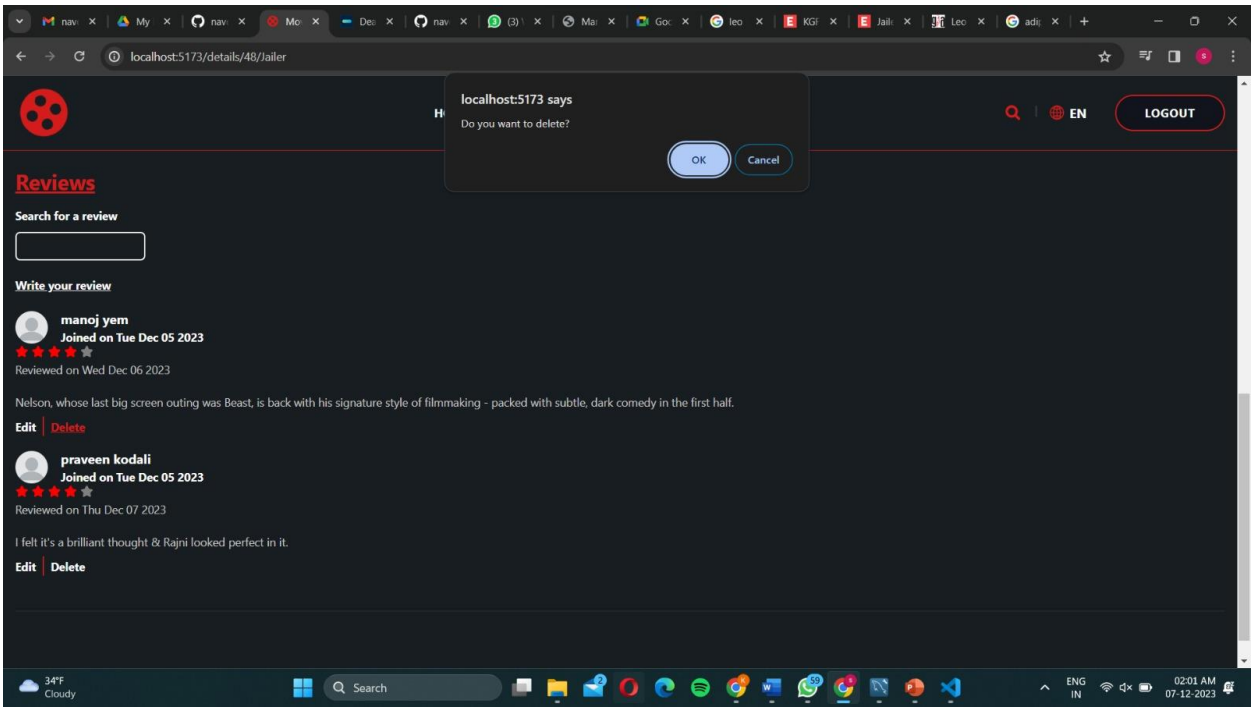
- Edit Review




- Search Review



- Delete Review




## 5.3. Database design

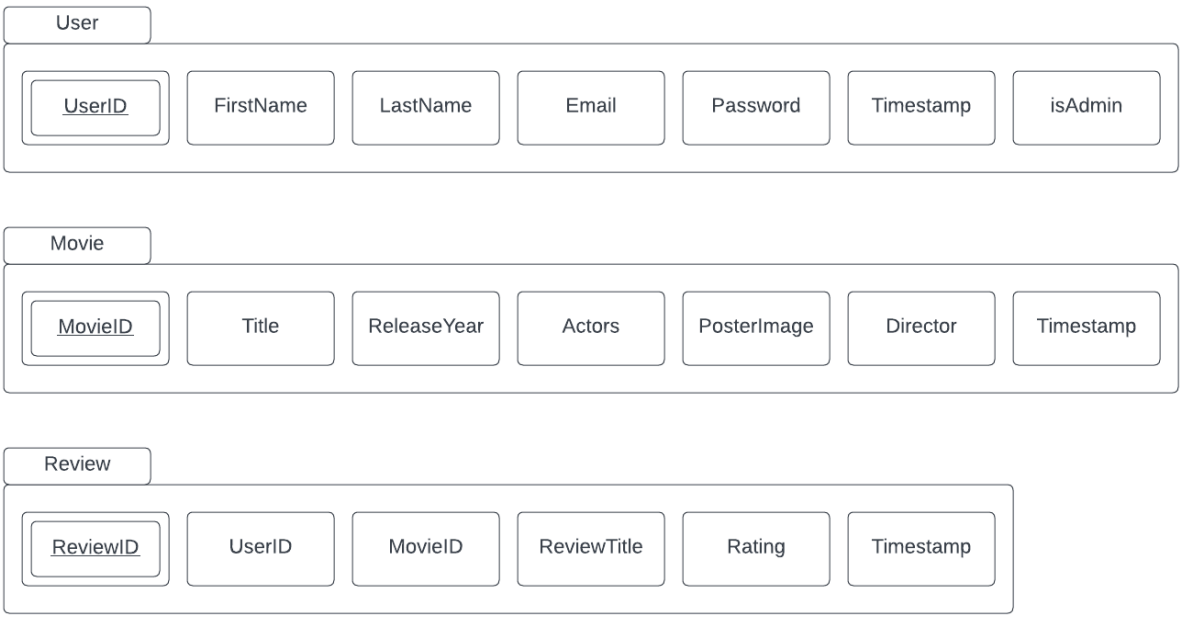



Fig 5.1 Database design

### 5.3.1 Tables

- User table – The user table holds the records related to registered users of the web application. This is the most crucial table used by the application. This table consists of user information such as the first name, last name, email id, and password.
- Movie table – The movie table holds the records related to the movies. This table consists of a title, actors, director, release year, and poster image of the movie.
- Review table – The review table holds the records of the reviews posted on the movies. This table consists of reviews and ratings.

## 6. Test Management

### 6.1. A complete list of system test cases

This section enumerates a complete list of test cases for the software.

| ID | **TC-01** |
|---|---|
| Test Input | 1. Enter valid username.<br>2. Enter incorrect password.<br>3. Click on Login button |
| Expected Output | User should not be able to login and app should show proper error message. |
| Description | Check by passing a correct username and invalid password |

| ID | **TC-02** |
|---|---|
| Test Input | 1. Enter valid username.<br>2. Enter valid password.<br>3. Click on the Login button. |
| Expected Output | User should be able to login |
| Description | Check by passing correct username and password |

| ID | **TC-03** |
|---|---|
| Test Input | 1. Enter invalid username.<br>2. Enter valid password.<br>3. Click on login button |
| Expected Output | User should not be able to login to the app, and it should show error |
| Description | Check by passing invalid username and valid password |

| ID | **TC-04** |
|---|---|
| Test Input | 1. Enter invalid username.<br>2. Enter invalid password.<br>3. Click on the login button |
| Expected Output | User should not be able to login to the app, and it should show error |
| Description | Check by passing invalid username and invalid password |

| ID | **TC-05** |
|---|---|
| Test Input | Once user logged in |
| Expected Output | List of movies should be visible to user once user is logged in |
| Description | Check whether user can see the list of movies on dashboard |

| ID | **TC-06** |
|---|---|
| Test Input | 1. Select a movie.<br>2. Click on write a review button.<br>3. Write a review with more than 250-character limit. |
| Expected Output | User should see an error message if review character length exceeds 250. |
| Description | Check by adding review with more than 250 characters |

| ID | **TC-07** |
|---|---|
| Test Input | 1. Select a movie.<br>2. Click on write a review button.<br>3. Write a review within/equal to 250-character limit.<br>4. Click on submit button |
| Expected Output | User should be able to submit the review and the review should be posted to the movie review list |
| Description | Check by adding review within/equal to the 250-character limit and click on submit button |

| ID | **TC-08** |
|---|---|
| Test Input | 1. Select a movie.<br>2. Scroll to movie reviews section |
| Expected Output | User should be able to read the review on the movie |
| Description | Check by selecting a movie and scrolling to movie reviews section |

| ID | **TC-09** |
|---|---|
| Test Input | 1. Select a movie.<br>2. Scroll to move review section.<br>3. If no review posted for the movie |
| Expected Output | Display message no review posted yet |
| Description | Check by selecting a movie and scrolling to the movie review section and check for the message |

| ID | **TC-10** |
|---|---|
| Test Input | 1. Select a movie.<br>2. Scroll to movie review section.<br>3. If review is posted by the same user |
| Expected Output | Show edit and delete icon button |

| | |
|---|---|
| Description | Check by selecting a movie and scrolling to the review section and check for the edit and delete button on the review if the review is posted by the same session user |

| | |
|---|---|
| ID | **TC-11** |
| Test Input | 1. Select a movie.<br>2. Scroll to movie review section.<br>3. Click on edit button button.<br>4. Edit the review.<br>5. Click on save |
| Expected Output | Review should be updated |
| Description | Selecting a movie, scrolling to the review section of the selected movie, click on the edit button, edit the review, click on save and check if the review is updated. |

Table 6.1: System Test Cases

## 6.2. Test results and assessments:

| **Test ID** | **Result** |
|---|---|
| TC-01 | Pass |
| TC-02 | Pass |
| TC-03 | Pass |
| TC-04 | Pass |
| TC-05 | Pass |
| TC-06 | Pass |
| TC-07 | Pass |
| TC-08 | Pass |
| TC-09 | Pass |
| TC-10 | Pass |
| TC-11 | Pass |

Table 6.2: Test Results

### 6.3. Defects reports

| Defect Number | Description | Status |
|---|---|---|
| Bug-01 | Write a review text field is not aligned properly in the dialog box | Fixed |
| Bug-02 | Write a review button not being disabled for user once the review is posted by the user for that movie | Fixed |
| Bug-03 | Write a review is not taking more than 100 words | Fixed |
| Bug-04 | Search Icon showing on Login screen | Not Fixed |

Table 6.3: Defects Report

## 7. Conclusions

### 7.1. Outcomes of the project

The outcomes of a web application named CriticsWorld, where users can post reviews about movies, rate them, edit their reviews, delete them, and search for reviews, can have various positive impacts if the goals are successfully achieved. Here are some potential outcomes:

1. User Engagement
   - Positive reviews: Users can share their thoughts and opinions about movies, contributing to a diverse range of reviews.
   - Rating: The ability to rate movies allows users to quickly assess the overall opinion of the community and make informed decisions about what to watch.
2. Content Quality
   - Edited reviews: The option to edit reviews enables users to refine their thoughts, correct errors, or add additional insights over time, ensuring that the content remains accurate and relevant.
3. User Satisfaction

- User-friendly interface: A well-designed and intuitive interface contributes to user satisfaction, making it easy for users to navigate, post reviews, and engage with the platform effortlessly.
- Feature accessibility: Providing easy access to features like editing, deleting, and searching for reviews ensures users can efficiently manage their content.

4. Search Functionality
   - User convenience: A robust search feature allows users to quickly find reviews for specific movies, enhancing the overall user experience.
   - Discoverability: Users can discover new movies based on the reviews, expanding their cinematics interests.

### 7.2. Future development

For the web application CriticsWorld, future enhancements could focus on improving user experience, expanding features, and keeping the platform engaging. Here are some potential enhancements:

1. Personalized recommendation: Implement algorithms to analyze user reviews and preferences, providing personalized movie recommendations based on their history.
2. User comments: Enable users to leave comments on each other's reviews, fostering a sense of community and encouraging interaction.
3. Integration with external database: Integrate with external databases to fetch additional details about movies, such as genre, crew, trivia, and links to trailers.
4. Mobile compatible: Develop a mobile application to make the platform accessible on mobile and tablets.
5. Notification system: Implement a notification system to alert users about new reviews, comments, or discussions related to their favorite genres or movies.