

Project Report

Project Name: Pixels Review - Comprehensive Movie Review Platform

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1. Executive Summary

Pixels Review is a sophisticated web-based application designed to foster community engagement among movie enthusiasts. The platform allows users to post reviews, engage with content through comments, likes, and dislikes, and access premium features including setting up review alerts. This application caters to a diverse audience, from casual movie-goers to certified critics, providing an inclusive environment where opinions and discussions are valued.

2. System Overview

Objective: To provide a user-friendly, secure, and interactive environment for movie lovers to exchange opinions and engage in discussions about various films.

Key Features:

- Comprehensive user registration, including email verification and password management.
- Enhanced movie discovery through searches by name, genre, rating, and release date.
- Advanced review functionalities allowing for nuanced feedback and social interaction.
- Premium membership features include personalized review alerts and exclusive content.
- Role-based access control for users, administrators, and verified critics.

Technology Stack:

Backend: Java with Spring Boot for RESTful API development.

Database: PostgreSQL for robust data management.

Security: Spring Security for authentication and authorization, along with BCrypt for password hashing.

Email Integration: SMTP for user notifications and alerts.

3. Detailed Features and Functionalities

User Management:

Authentication and Security: Robust authentication system using Spring Security, providing features like secure login, registration, password reset, and email-based account verification.

Profile Management: Users can update their personal information, manage their subscription plans, and view their review history.

Movie and Review Management:

Interactive Movie Listings: Users can browse movies, view detailed information on each movie, and access aggregated ratings and reviews.

Dynamic Review System: Users can post reviews with detailed ratings, including aspects like general satisfaction, content quality, and age-appropriateness. Reviews can be liked or disliked by other users, fostering community engagement.

Premium Services:

Flexible Subscription Plans: Various subscription plans are available, offering features such as premium badges, access to premium-only content, and customizable review alerts.

Review Alerts: Users can set up alerts for new reviews on specific movies or from specific critics, receiving notifications via email.

Critic Features:

Critic Verification: A dedicated process for users to apply for critic status by providing valid credentials, which are verified by the system to grant enhanced privileges.

Once verified, critics receive enhanced visibility and additional functionalities like specialized review postings and premium subscriptions.

4. System Architecture and Design

MVC Architecture: The application is structured according to the Model-View-Controller architecture, ensuring clean separation of concerns and scalability.

Database Design: Utilizes a relational database model with tables for users, movies, reviews, and subscriptions, ensuring efficient data retrieval and storage.

Security Measures: Comprehensive security measures include HTTPS for secure data transmission, hashed passwords stored in the database, and role-based access controls to protect sensitive endpoints.

5. Challenges and Solutions

Data Security and Integrity: Implemented advanced security protocols to protect user data and prevent unauthorized access.

User Engagement: Developed interactive features like commenting and voting to enhance user engagement and retention.

Scalability and Performance: Designed with service-oriented architecture, allowing for scalability. The use of JPA (Java Persistence API) and optimized SQL queries ensures efficient database operations.

6. Future Enhancements

Real-Time Interaction Features: Implementation of WebSocket for real-time interactions on reviews and comments.

Expanded Premium Features: Introduction of more layered subscription options and customizations for user preferences.

Data Check: Reviewing posted comments and reviews for abusive language, hate speech, and inappropriate content.

Machine Learning Recommendations: Implementing AI to suggest movies to users based on their past interactions and preferences.

Globalization: Expanding language support and regional customization to cater to a global audience.

7. Conclusion

Pixels Review is designed to be a leader in the online movie review community by providing a secure, engaging, and user-friendly platform. Its robust feature set and forward-looking technology choices set it up for long-term success and popularity among movie enthusiasts.

References:

<https://www.baeldung.com/spring-email>

<https://spring.io/guides/topicals/spring-security-architecture>

<https://stackoverflow.com/questions/54653734/lombok-java-lang-stackoverflowerror-null-on-tostring-method>

<https://stackoverflow.com/questions/41480102/how-spring-security-filter-chain-works>