

WatchWise
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Department of Computer Engineering
B. Tech. Computer Science & Engineering
CSD334 MINI PROJECT
Software Requirements Specification

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1 Introduction

1.1 Purpose

The Mood-Based Movie Recommendation System is designed to provide personalized movie recommendations based on a user's mood. By analyzing user input as text, the system identifies the user's emotional state and suggests movies that align with their current mood. This system aims to enhance the user experience by offering a more engaging and emotionally relevant movie selection.

1.2 Scope

The system leverages machine learning algorithms and sentiment analysis techniques to classify moods and map them to appropriate movie genres. The system will:

- Analyze user input (text) to determine mood.
- Recommend movies that match the detected mood.
- Allow users to provide feedback to improve recommendations over time.
- Support multiple platforms (web and mobile applications).

1.3 Definitions, Acronyms, and Abbreviations

- **CBF**: Content-Based Filtering
- **CF**: Collaborative Filtering
- **ML**: Machine Learning
- **NLP**: Natural Language Processing

2 Functional Requirements

2.1 User Input and Mood Analysis

- The system shall accept user input via text, process it using sentiment analysis and machine learning models to detect the user's mood, and assign a confidence score to ensure accuracy.

2.2 Personalized Movie Recommendations

- Based on the detected mood, the system shall generate personalized movie recommendations using collaborative filtering, content-based filtering, or hybrid techniques while considering past interactions and preferences.

2.3 Manual Search and Advanced Filters

- Users shall have the option to manually search for movies by title, actor, director, genre, or keywords, with support for advanced filtering options such as release year, language, IMDb rating, and streaming platform availability.

2.4 User Ratings and Feedback Mechanism

- The system shall allow users to rate recommended movies, provide textual feedback, and modify their past ratings, which will be analyzed to refine future recommendations and enhance personalization.

2.5 Continuous Learning and Preference Updates

- The system shall store and update user preferences dynamically based on interactions, ratings, and feedback while ensuring data privacy, allowing it to adapt to changing user tastes for more accurate recommendations.

3 Non-Functional Requirements

3.1 Accuracy

- The sentiment analysis and mood detection algorithms shall maintain high accuracy in classifying user moods.
- The recommendation system shall minimize irrelevant movie suggestions.

3.2 Performance

- The system shall provide recommendations within 2 seconds of receiving user input.
- The system shall handle at least 10,000 concurrent users.

3.3 Privacy and Security

- User data shall be encrypted and stored securely.
- The system shall comply with data protection regulations (GDPR, CCPA, etc.).
- The system shall provide an option for users to delete their data.

3.4 User Experience

- The system shall have an intuitive and visually appealing user interface.
- The system shall provide a seamless experience across different devices.

4 Hardware Requirements

- Processor: Multi-core processor (Intel i5 or equivalent and above)
- RAM: Minimum 8GB
- Storage: Minimum 20GB free space

5 Software Requirements

- Operating System: Windows, macOS, Linux, Android, iOS
- Programming Languages: Python, JavaScript
- Frameworks: Flask, React.js
- Database: MongoDB
- API Services: OMDb API, Hugging Face API

6 Conclusion

The Mood-Based Movie Recommendation System aims to provide a personalized and enjoyable movie selection experience by aligning recommendations with a user's emotional state. By integrating advanced machine learning and sentiment analysis techniques, the system ensures that users receive suggestions that match their current mood, thereby improving user engagement and satisfaction.

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