Mood Based Content Recommender: A Full-Stack Web Application Using FastAPI and Frequency-Based Mood Analysis

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Abstract - **Mood plays a significant role in influencing an individual's thoughts, productivity, and overall well-being. This paper presents a Mood Based Content Recommender, a full-stack web application designed to provide personalized content suggestions based on the user's mood. The system allows users to log their emotional state, which is securely stored using a FastAPI-based backend with database integration. A frequency-based mood analysis algorithm predicts the user's emotional trend by analyzing recent mood history. Based on the detected mood, the system recommends curated content including songs, motivational quotes, short stories, and movies aimed at improving emotional balance. Additionally, a safe mode detection mechanism identifies repeated negative moods and provides supportive intervention. The application follows a modular three-tier architecture integrating React with TypeScript for the frontend and FastAPI with SQLAlchemy for backend services. The proposed system demonstrates how rule-based analysis combined with structured API architecture can effectively create an emotionally responsive content recommendation platform suitable for users of all age groups.**

Keywords: Mood Recommendation, FastAPI, React Web Application, Frequency-Based Prediction, Emotional Wellness, Content Recommendation System, Rule-Based System, Mental Health Support.

I. INTRODUCTION

In today's digital era, emotional well-being is an essential aspect of overall health. Many online platforms provide generalized content without considering the emotional state of users. Delivering emotionally relevant content enhances engagement and psychological comfort. This paper presents a Mood Based Content Recommender developed using FastAPI and React. The system logs user moods, predicts emotional trends using frequency-based analysis, and recommends songs, quotes, short stories, and movies accordingly. A safe mode mechanism detects repeated negative moods and provides supportive intervention.

1.1 Problem Statement

Most existing platforms do not consider the user's emotional state while recommending content. The absence of mood-aware personalization reduces emotional comfort and engagement. There is a need for a structured digital system that provides personalized emotional support and content recommendations based on mood patterns.

1.2 Objectives of the System

The objectives include implementing secure user authentication, mood logging, mood history tracking, frequency-based mood prediction, personalized content recommendation, and safe mode detection for repeated negative moods.

II. PROPOSED SYSTEM AND METHODOLOGY

The system follows a three-tier modular architecture consisting of frontend, backend, and database layers. The frontend is developed using React and TypeScript. The backend is implemented using FastAPI with modular routers for authentication, mood management, reports, and reminders. SQLAlchemy is used for database operations. The system analyzes the last three mood entries to determine the dominant mood using frequency-based logic and recommends appropriate content. Safe mode is triggered when 'Sad' or 'Overwhelmed' moods appear two or more times.
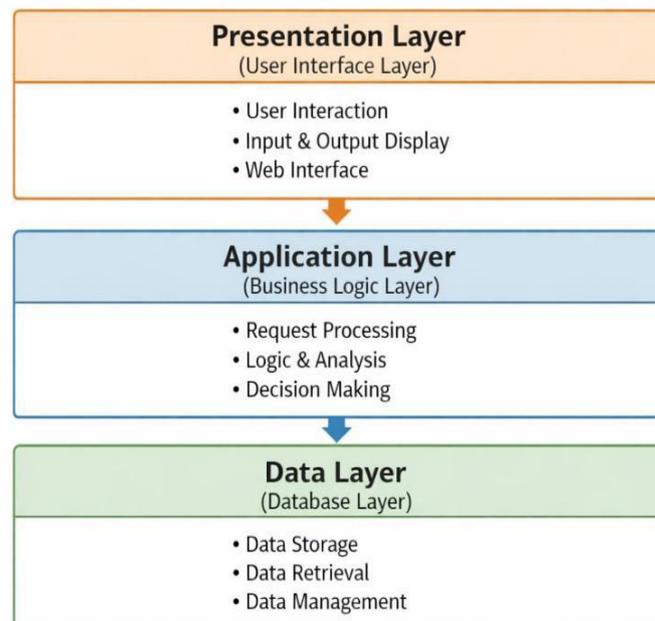
III. RESULTS AND DISCUSSIONS

The prototype successfully validates user authentication, mood logging, mood history retrieval, prediction logic, and safe mode detection. The system dynamically recommends songs, motivational quotes, short stories, and movies based on predicted mood. Functional testing confirms accurate mood frequency detection and supportive intervention logic.

IV. CONCLUSION

The Mood Based Content Recommender demonstrates the effective integration of FastAPI and React in building an emotionally responsive platform. The rule-based frequency analysis provides lightweight and efficient mood prediction. Future enhancements may include adaptive personalization techniques and advanced emotional analytics.

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