

Psychological Assistance and Smart Therapy Recommendation Framework

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Abstract: *The Intelligent Psychological Assistance Framework applies NLP and machine learning to evaluate the user's emotional state based on their input, and then suggests coping strategies, therapy options and therapists that match what the user is experiencing. It also detects mood changes over time, generates wellbeing reports and has an admin panel to control the whole system*

Keywords: *Psychological Assistance*

I. INTRODUCTION

Increased modernisation in our lives is contributing to increased levels of stress, anxiety and emotional exhaustion among different people irrespective of age group. Many patients with mental distress do not access psychological services because of embarrassment, financial limitations or a lack of awareness of available resources. On the other hand, mental health professionals find it difficult to handle many cases and give sufficient time to each patient. Organisations have implemented digital tools to support individuals with psychological disorders, guiding them on the next steps to take. This will aid in offering initial assistance to those experiencing psychological disorders. Nonetheless, the traditional wellness applications rely on standardised questionnaires and generic self-help suggestions.

In this paper I propose Intelligent Psychological Assistance and Smart Therapy Recommendation Framework developed using Python, Flask, MySQL, NLP and ML. This framework takes the user submitted moods, journals and responses to conversations into account. It identifies patterns linked to stress, anxiety or depressive state of mind and advises on coping strategies for stressors and also types of therapy recommended to the user. Additionally, the system predicts an appropriate psychologist or type of therapy and monitors mood changes over time.

II. METHODOLOGY

The Intelligent Psychological Assistance and Smart Therapy Recommendation Framework is designed to help people to track their psychological state and find proper assistance by means of the intelligent text analysis. To this end, this framework will apply techniques from NLP and ML to analyse the user's input and provide a pertinent response. The whole workflow can be divided into the following phases: data collection, data preprocessing, feature extraction, calculating well-being score, recommending coping strategy, finding appropriate therapist, and creating a report.

A. Data Gathering

This framework uses two types of data – user's moods, journal and a knowledge base with different coping strategies and therapist's profiles. The therapist profiles have attributes like the specialisation field, treatment approach and qualifications of the specialists. They are stored in the database for later matching.

B. Data Preparation

User submitted journal text is pre-processed before analysis to improve quality of the input data. We have deleted unnecessary symbols, special characters, punctuation marks and extra spaces. Input is tokenised, normalised, and stop words are removed.



C. Keywords Extraction

NLP techniques such as sentiment polarity, recurring patterns and linguistic patterns that indicate the presence of stress, anxiety or depressions can be used to identify keywords related to emotions.

D. Calculation of Well-being Score and Emotion Assessment

Then the text is processed with different techniques before TF-IDF vectorisation, sentiment analysis and cosine similarity to quantify the emotionality of the text. The above methods are in turn used to compute the user's well-being score, and to help generate suitable coping strategies .

E. Recommendation and matching of therapist type

After reviewing the user's problems and assessments, the corresponding specialist and the appropriate form of therapy are recommended, e.g. cognitive-behavioural therapy or stress reduction therapy.

F. Rapport Making

The assessment ends with the creation of a wellness report with the well-being score, indicators of emotions, coping strategy, type of therapy and mood list.

III. MODELING AND ANALYSIS

The mood log, journal entries and therapist profiles are seen as the most important information sources for performing psychological assessment in the proposed system. Includes daily emotion ratings, comments and timestamps in the mood log. The journal entries are free descriptions of the user's thoughts and feelings. The therapist profile contains details about areas of specialisation, therapy approaches and qualifications to work on certain issues.

Sl. No	Material / Tools	Purpose / Usage
1	Windows / Linux / macOS	Operating system for application development and execution
2	Python	Core programming language used for implementing the application logic
3	Rule-Based AI	Provides rule-driven recommendations and decision-making
4	Flask	Web framework used for backend development and REST APIs
5	SQLite	Database used to store user information, assessments, and reports
6	HTML	Structures the web pages of the application
7	CSS	Enhances the visual appearance and styling of the user interface

IV. SNAPSHOTS

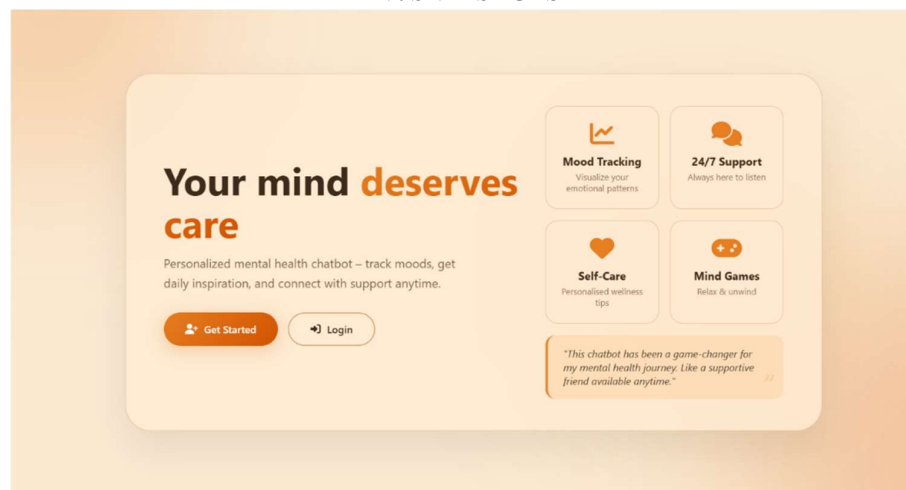


Fig 10.1 UserPage



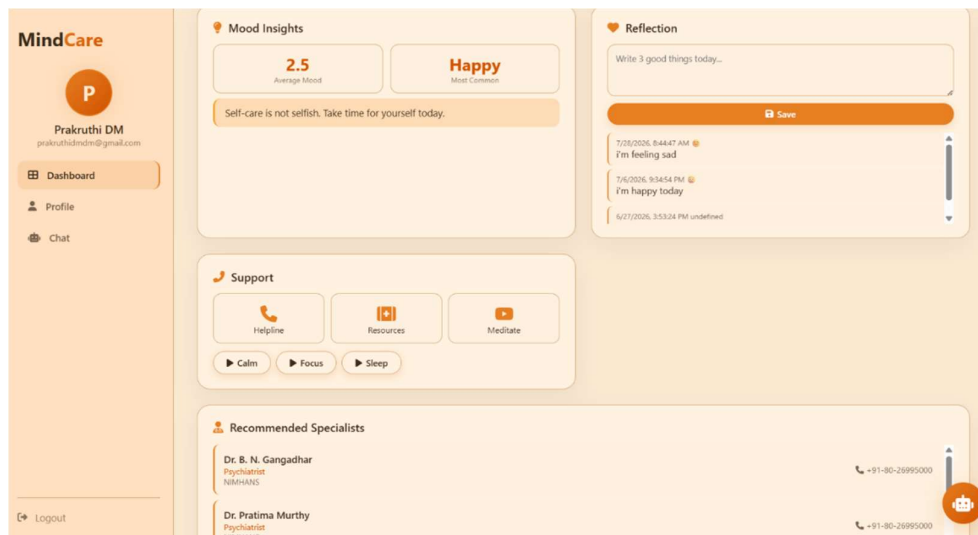


Fig 10.4 user dashboard

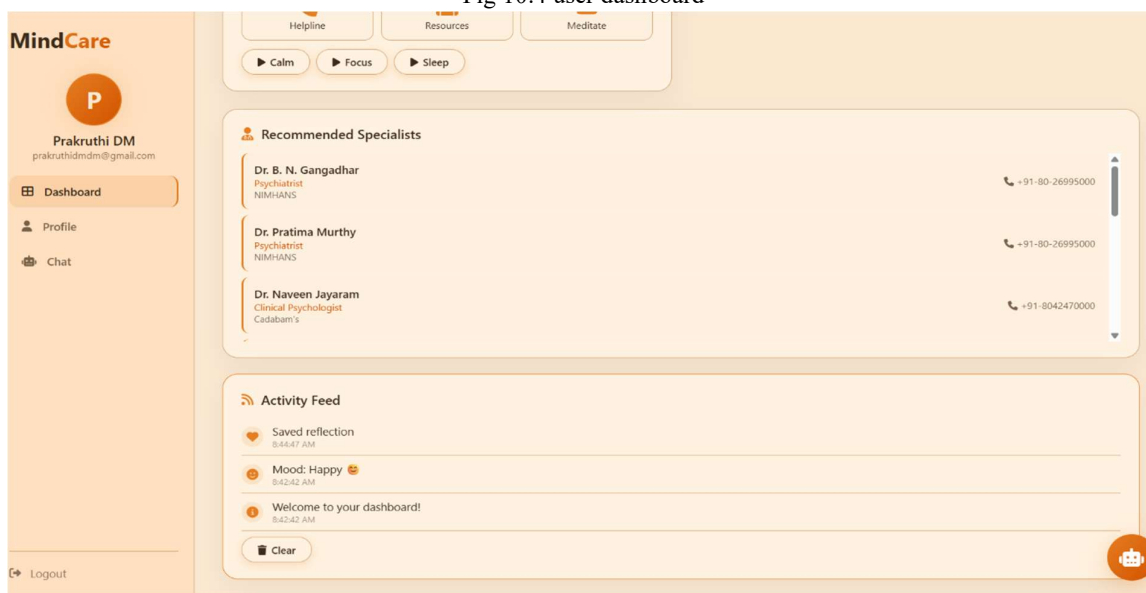


Fig 10.5 Detail page



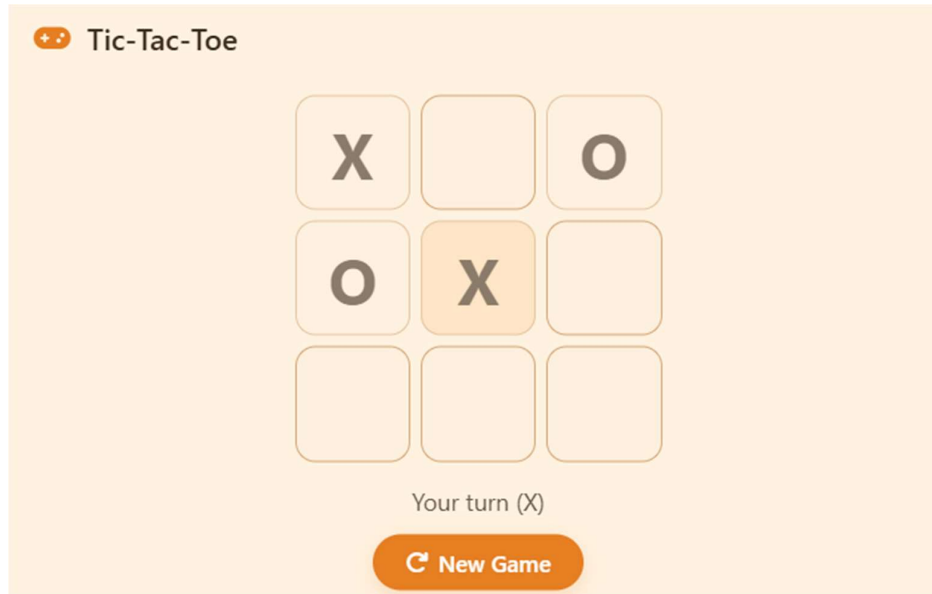


Fig 10.6 gaming

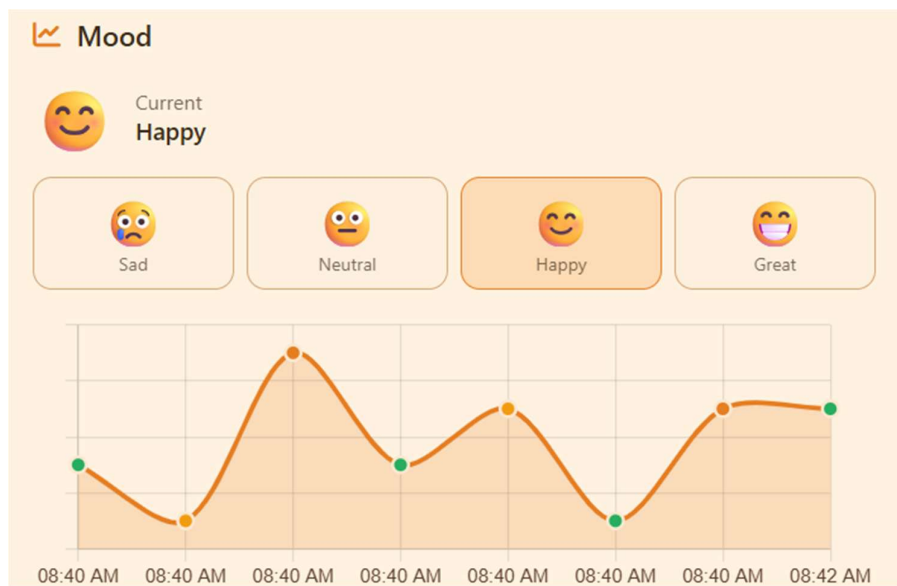


Fig 10.8 Mood Tracking



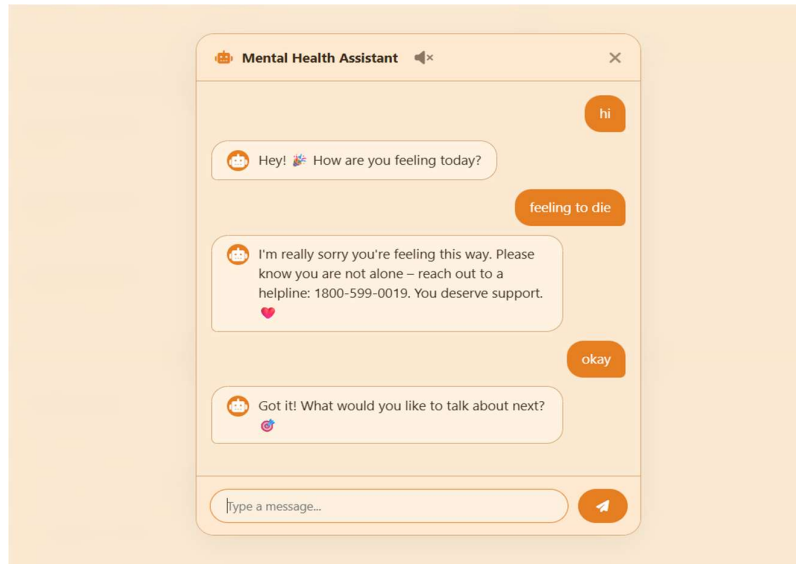


Fig 10.9 chatbot

V. RESULTS AND DISCUSSION

The proposed model is developed by using Python language with the help of Flask framework and MySQL database to maintain the data of the user like moods logs, journal entries, therapists profile, and wellness reports.

A. Assessing Emotional Health and Well-being

Whenever a user logs any mood log or journal entry from the web application, the program preprocesses the text entered by removing unwanted symbols, extra spaces and commonly used words that do not impact the analysis. Moreover, sentiment polarity and emotional aspects are identified using TF-IDF Vectorisation and sentiment classification techniques.

B. Development of Web Application

The web application is developed using HTML5, CSS3, Bootstrap, JavaScript, Python, Flask and MySQL to offer ease and comfort to the users. The user can register and login to the web application, add mood logs and journal entries, view their well being assessment analysis and download the wellness reports.

C. Recommendation of Therapy and Matching of Therapist

The system analyses the user's emotions and suggests the suitable therapy method about his concerns and offers a matching therapist specialisation.

VI. CONCLUSION

The Intelligent Psychological Assistance and Smart Therapy Recommendation Framework is designed to support self-assessment and offer appropriate assistance for people seeking psychological help. The framework, using NLP and ML algorithms, can analyse logs, journal entries, compute well-being scores, detect emotional cues and suggest coping strategies which help the user to gauge his or her current emotional state and determine when professional help is required. The project was successfully implemented on the basis of such languages and technologies as Python, Flask, MySQL, HTML, CSS, Bootstrap, JavaScript and NLP techniques and is able to help to monitor emotions of the person and facilitate the process of overcoming the gap between realising the fact that the person is emotionally distressed and getting proper professional help.



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