Adaptive Mental Fitness App

Problem Statement

Mental health challenges such as depression, anxiety, and stress are increasingly common among students and working professionals. Many individuals delay seeking help due to stigma, lack of awareness, or limited access to professional resources. Existing self-assessment tools are often static and fail to adapt to individual needs, limiting their effectiveness in early detection and continuous monitoring.

Objectives

The primary objectives of this project are:

- To develop an adaptive web-based application for mental health self-assessment.
- To integrate evidence-based screening methods for depression, anxiety, and stress.
- To provide personalized feedback and recommendations to promote mental fitness.
- To enable users to track their mental health trends over time through visual analytics.

Proposed Methodology/Approach

The proposed system is a Python-based web application built using Streamlit for user interaction, Pandas for data handling, and Scikit-learn for implementing basic predictive modeling. The app incorporates validated screening frameworks—PHQ-9 (depression), GAD-7 (anxiety), and PSS-4 (stress)—ensuring reliability in assessment. Unlike traditional static questionnaires, the system adopts an adaptive questioning mechanism, modifying follow-up questions based on prior responses. Personalized recommendations, including mindfulness practices, stress-relief strategies, and helpline resources, are generated based on user scores. Additionally, local storage enables weekly progress tracking and visualization of mental health trends.

Expected Outcome

The project is expected to deliver an interactive, adaptive, and user-friendly mental fitness app that promotes mental health awareness. While not a diagnostic tool, it aims to empower users with timely self-assessment, actionable insights, and motivation to seek professional support when necessary.

Base Research Paper Reference

Research Paper 1: https://www.nature.com/articles/s41598-025-91086-w.pdf

Research Paper 2:

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0320955