Adaptive Mental Fitness App

Team Members:-

RAYAPUREDDI RISHI SRICHARAN- 2420030638

VIVEK AKHIL REDDY KUKKALA- 2420030656

INTURI RAJESH CHOWDARY- 2420030684

Abstract

Depression is a growing global mental health concern, often going undetected due to stigma and a lack of early screening. This project aims to develop a simple, Python-based machine learning web application capable of predicting the likelihood of depression based on self-reported questionnaire responses. The app uses the PHQ-9 depression screening framework, which maps directly to DSM-IV diagnostic criteria, ensuring evidence-based data collection. The dataset, sourced from publicly available mental health surveys, undergoes preprocessing to handle missing values, normalize scales, and encode categorical responses. A Decision Tree Classifier is trained and evaluated for prediction, chosen for its interpretability and beginner-friendly implementation. The application is built using Streamlit, enabling a user-friendly web interface for real-time prediction. Users answer nine short questions, and the model classifies them as “Likely Depressed” or “Not Likely Depressed,” accompanied by a disclaimer that this tool is intended solely for educational and awareness purposes, not for medical diagnosis. This project demonstrates how basic machine learning concepts can be applied to a socially relevant problem using minimal technical resources, making it accessible to beginner AI/ML students.