Project Initialization and Planning Phase

Date	19 May 2025
Team Id	SWTID1750233055
Project Name	Mental Health Prediction
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) Report

The proposed solution aims to assist in early mental health detection using machine learning, thereby improving screening processes in clinical and personal environments. By leveraging the AdaBoost algorithm, the project offers accurate and real-time predictions. This solution addresses delays in diagnosis, encourages timely intervention, and supports mental wellness through accessible technology. The integration into a Flask application ensures usability, portability, and responsiveness, making it valuable for both healthcare professionals and individuals.

Project Overview	
Objective	The primary objective is to assist healthcare professionals in identifying individuals who may be at risk of mental health issues by applying machine learning techniques, enabling early detection and timely support.
Scope	The project analyzes mental health survey data to train a machine learning model (AdaBoost) that can predict mental health conditions. It is deployed via a Flask web application, providing a simple interface for clinical use or self-assessment.
Problem Statement	
Description	Many individuals suffering from mental health issues remain undiagnosed due to a lack of timely screening tools. Traditional methods are manual, time-consuming, and often inaccessible for many, especially in remote areas.
Impact	Solving this issue can help in early diagnosis, reduce the stigma through anonymous assessments, and guide patients to appropriate help. This contributes to improved mental well-being, early intervention, and societal awareness.
Proposed Solution	

Approach	Employing machine learning techniques, specifically the AdaBoost algorithm, to analyze mental health survey responses and predict individuals who may be at risk of mental health issues. The model is integrated into a user-friendly Flask web application to provide quick and private assessments.
Key Features	Implementation of AdaBoost-based mental health prediction model.

- **Real-time decision-making for quicker mental health risk assessments.**
- **Continuous learning to improve prediction accuracy as new data becomes available.**

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	T4 GPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy, matplotlib, seaborn
Development Environment	IDE	Jupyter Notebook, vs code
Data		
Data	Source, size, format	Survey Dataset (Mental Health in Tech) from Kaggle, ~1,200 rows, .csv format