IN PARTNERSHIP WITH PLYMOUTH UNIVERSITY

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Student Reference Number: **10898561**

Module Code: **PUSL3190**	Module Name: **Computing Project**
Coursework Title: **Abstract**	
Deadline Date: **05/05/2025**	Member of staff responsible for coursework: **Mr. Gayan Perera**
Programme: **BSc. (Hons) Software Engineering**	

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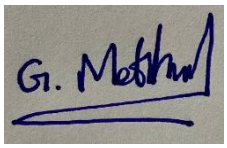
Group work: please list all names of all participants formally associated with this work and state whether the work was undertaken alone or as part of a team. Please note you may be required to identify individual responsibility for component parts.

We confirm that we have read and understood the Plymouth University regulations relating to Assessment Offences and that we are aware of the possible penalties for any breach of these regulations. We confirm that this is the independent work of the group.

Signed on behalf of the group:

Individual assignment: ***I confirm that I have read and understood the Plymouth University regulations relating to Assessment Offences and that I am aware of the possible penalties for any breach of these regulations. I confirm that this is my own independent work.***

Signed: 

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Overall mark _____% **Assessors Initials _____** **Date_____**

PUSL3190 – Computing Project

Abstract

MoodSync – Mental Health Monitoring System

Supervisor: Mr. Gayan Perera

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Plymouth Index Number: 10898561

Degree Program: BSc. (Hons) Software Engineering

Abstract

Mental health problems affect millions of people in the world, with barriers like stigma and lack of resources especially in Sri Lanka. This project develops a comprehensive mental health monitoring system that uses machine learning for sentiment analysis in user content to detect problems early and provide timely support. The system uses FARM Stack (FastAPI, React.js and MongoDB) with Natural Language Processing (NLP) techniques like Term Frequency-Inverse Document Frequency (TF-IDF) vectorization and Synthetic Minority Over-Sampling Technique (SMOTE) to handle imbalances in the data. Key innovations include multi-source data collection from user inputs/social media, Machine Learning (ML)-driven sentiment analysis with emotional state classification, anonymous professional support connections to users addressing cultural stigma, a well tiered real-time alert system for crisis prevention, and culturally tuned content that is specific to Sri Lankan users. This software integrates visualizing tools to track mental health trends and connects users and mental health professionals while maintaining anonymity. Testing showed technical performance metrics (accuracy, precision, recall) and user experience through a pilot study with participants and also with gathered information from a professional mental health doctor. This project solution addresses critical gaps in mental health support by combining modern advanced machine learning techniques with practical support networks. The cultural fit-in with Sri Lankan users showcases a modern approach to match mental health technology. This system can access mental health resources, reduce stigma through anonymous supporting channels and prevent self-threatening mental health illnesses through early recognition and intervention.

Keywords - Mental Health Informatics, Machine Learning, Sentiment Analysis, Crisis Intervention, Sri Lankan Healthcare.