University of Cebu - Main Campus

College of Computer Studies

AlagaMind: An NLP-Enabled Multilingual Solution for Accessible Mental Health Services in the Philippines

A Proposal

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ABSTRACT

Lets face the reality-mental health care is inaccessible, especially in the areas where professional services are few, and stigma keeps people from trying to obtain assistance. Very often, individuals get conflicted trying to manage their well-being because of the costs, unavailability, or even accessibility of support in their case. This study introduces AlagaMind-a web-based application utilizing natural language processing (NLP) for conversational support, mood tracking, and guided self-care activity. By evaluating user input, the system can become contextually aware, identify variations in emotions through pattern recognition, and recommend different coping strategies per the user's needs. The entire work draws heavily from the foundations of computer science in terms of NLP, wep app development, and human-computer interaction-to design and test a system that exhibits high intelligence while providing usability through and through. Also, to measure conformity in the case of accuracy, accessibility, and general experience, a threefold method of usability testing, expert feedback, and user evaluations will be adopted. AlagaMind is, thus, a realization of how technology facilitates users' interface between mental health resources, developing an approach that is truly engaged, scalable, and responsive to everyday needs.

CHAPTER l: INTRODUCTION

This chapter introduces and frames the study, presenting the topic's context, rationale, and justification. It also outlines the research problem, objectives, significance, scope, limitations, and definitions of terms.

Rationale of the Study

Mental health ranks among the top public health problems. The World Health Organization (2022) counts one in eight people worldwide as living with a mental disorder. Scarce clinicians, long travel and stigma block most of them from care (WHO - Mental Health). The gap widens in low- and middle-income countries, where more than seventy percent receive no treatment (Patel et al., 2018). Face-to-face counselling, group sessions plus self-help apps each serve a purpose, yet they rarely adjust to the user's moment-to-moment needs. Fixed websites and apps list facts but do not talk back. Systems that run on natural language processing read what a person types, detect intent and return an answer that fits the situation (Miner et al., 2020). Those programs can hold a conversation, show empathy but also hand out coping steps matched to the user.

Recent studies show that chatbots and conversational agents help improve emotional well being. Fitzpatrick et al. (2017) report that a conversational agent which delivered cognitive behavioral therapy techniques lowered depression symptoms in young adults (Fitzpatrick et al., 2017). Inkster et al. (2018) report that mental health chatbots improved mood (Inkster et al., 2018). The results indicate that NLP-driven support systems work alongside traditional therapy. Human-centered AI (HCAI) focuses on intelligent systems that place human needs, trust and control first. Ben Shneiderman (2020) proposes frameworks that keep AI reliable, safe plus supportive of human decisions instead of replacing them (Shneiderman, 2020). Those principles matter most in sensitive areas such as mental health, where system design must center on ethics, transparency and user empowerment (Shneiderman, 2020).

AlagaMind emerges as a web application designed to bridge the gap for individuals who might not always have immediate access to mental health professionals. The platform leverages advanced natural language processing to engage users in conversations that go beyond surface-level interactions. Its core functionalities include mood tracking, identification of emotional patterns, and the provision of practical self-care recommendations. Unlike conventional chatbots, AlagaMind seeks to understand the user's unique context, tailoring its guidance to their specific needs and circumstances. The application prioritizes user-friendly design and trustworthiness, ensuring that navigation remains intuitive and recommendations are both accessible and credible. This initiative aligns with a broader shift in digital health, where technology is viewed not as a replacement for human care, but as a means to expand the availability, scalability, and responsiveness of mental health resources. By integrating computer science with principles of psychological well-being, AlagaMind aspires to offer tangible benefits—whether by supporting stress management, facilitating regular emotional check-ins, or providing a safe and judgment-free space for self-expression. Furthermore, the project aims to contribute to the academic discourse by demonstrating that AI-driven systems can be developed with a focus on empathy, usability, and ethical considerations.

Project Context

Mental health challenges continue to rise globally, yet access to proper care remains limited, particularly in developing regions such as Cebu City. Many individuals struggle in silence due to high consultation costs, stigma surrounding mental health, and the scarcity of available professionals. This gap often leaves people without timely support, increasing their risk of prolonged emotional distress and reduced quality of life.

Technology has become a bridge for many underserved needs, and mental health is no exception. With the growing use of web devices, digital platforms now provide an opportunity to make mental health support more accessible, affordable, and engaging. AlagaMind is developed within this context—as a web application designed to provide conversational support, mood tracking, and guided self-care activities through Natural Language Processing (NLP). By analyzing user input, the app can recognize emotional

patterns and provide coping strategies tailored to individual needs. From a computer science perspective, AlagaMind combines principles of web application development, NLP, and human-computer interaction to deliver a system that is both intelligent and user-friendly. It is not intended to replace professional care but to serve as an accessible first step for those who may otherwise avoid or delay seeking help. This project recognizes the critical role technology can play in bridging gaps in mental health care. By offering a supportive and scalable digital tool, AlagaMind aims to empower individuals to manage their well-being proactively, reduce stigma, and open new pathways for integrating technology into healthcare solutions.

Purpose and Description

The purpose of AlagaMind is to provide an accessible, affordable, and supportive digital platform for individuals struggling with mental health challenges, particularly those who face barriers to traditional care such as high costs, social stigma, and limited availability of professionals. By leveraging Natural Language Processing (NLP), the system aims to create a safe and engaging space where users can express their thoughts, track their moods, and receive guided self-care recommendations.

AlagaMind is designed as a web application that integrates three core features: conversational support, mood tracking, and guided activities. Through conversational interaction, the system can recognize emotional cues, analyze user input, and recommend appropriate coping strategies tailored to individual needs. Mood tracking enables users to monitor their emotional well-being over time, helping them identify patterns and triggers. Guided activities—such as breathing exercises, journaling prompts, and mindfulness techniques—provide practical tools to encourage healthier coping mechanisms.

Grounded in computer science, AlagaMind combines NLP, web app development, and human-computer interaction to ensure both usability and intelligence. The project does not aim to replace professional psychological care but rather to serve as an accessible first step in supporting mental well-being. Ultimately, its purpose is to empower individuals to

take proactive control of their mental health, reduce stigma, and bridge the gap between professional care and everyday needs.

Objectives

The main objective of this study is to develop and evaluate AlagaMind, a web application that utilizes Natural Language Processing (NLP) to provide conversational support, mood tracking, and guided self-care activities for users experiencing mental health challenges. The findings of this study will serve as a basis for improving the integration of technology in mental health support systems.

Specifically, this study seeks to:

1. Profile the participants with respect to:
   1.1. age;
   1.2. gender;
   1.3. educational background; and
   1.4. prior experience with digital mental health tools.

2. Design and implement a web application that integrates NLP for conversational support, mood tracking, and guided self-care activities.

3. Evaluate the usability and effectiveness of AlagaMind in terms of:
   3.1. accuracy of NLP responses;
   3.2. accessibility and user-friendliness;
   3.3. engagement in mood tracking and guided activities; and
   3.4. overall user satisfaction.
4. Determine the relationship between participants' demographic factors and their usage or acceptance of the system.

5. Propose guidelines and recommendations for enhancing the use of NLP-powered web applications as complementary tools for mental health support.

Scope and Limitations

This study focuses on the development and evaluation of AlagaMind, a web application designed to provide conversational support, mood tracking, and guided self-care activities using Natural Language Processing (NLP). Grounded in web application development, NLP, and human-computer interaction (HCI), the project aims to show how technology can help address common barriers to mental health support, such as cost, stigma, and accessibility. The scope of the research includes creating a prototype application with three core features: conversational support powered by NLP, mood tracking to monitor emotional states, and guided self-care activities to encourage healthy coping mechanisms. The system will be evaluated in terms of usability, accuracy, and overall user experience through usability testing, expert feedback, and participant surveys. The participants will consist of students and young adults, alongside mental health professionals and IT specialists who can provide professional and technical insights.

However, the study also has several limitations. The application is not intended to replace licensed mental health professionals but rather to serve as a supportive tool for managing stress, mood, and general well-being. It will not cover advanced therapeutic interventions or crisis management features such as suicide prevention or emergency psychiatric care. The participant pool will be limited to students and young adults in Cebu City, which may restrict the generalizability of findings to other regions or cultural contexts. In addition, the time and resource constraints of the researchers may limit the number of participants, potentially affecting the representativeness of the data and the robustness of the evaluation. The application will focus on basic NLP capabilities, such as mood detection and supportive responses, without advanced diagnostic functionalities. Its effectiveness will depend on the accuracy and consistency of participants' self-reported moods and interactions, while factors such as digital literacy and willingness to engage

with technology-based mental health tools may also influence adoption. Finally, while the system is designed to promote well-being, it cannot replace professional judgment or therapeutic interventions, and user outcomes may vary depending on how individuals interpret and apply the system's guidance.

Definition of Terms

Artificial Intelligence (AI). The simulation of human intelligence by machines. In this study, AI enables the system to provide smart responses and support.

Machine Learning (ML). A branch of AI that learns from data to improve performance. Here, ML analyzes user inputs and mood trends for personalized recommendations.

Natural Language Processing (NLP). A field of AI that helps computers understand human language. In this project, NLP powers the app's conversational support.

Mood Tracking. The process of recording emotions over time. The app uses this to monitor users' moods and suggest coping strategies.

Conversational Agent (Chatbot). A program that simulates conversation. In this study, it serves as a supportive digital companion.

Digital Literacy. The ability to use digital tools effectively. It affects how users engage with the app.

Well-being Support System. A technology platform promoting mental health. Here, it refers to the app combining NLP, mood tracking, and self-care support.

Participants. Individuals involved in the study. In this case, students and young adults in Cebu City who will test and evaluate the app.