**MindCare**

**Group Members**

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**1. Project Idea**

**1.1. Problem**

In Myanmar, mental health challenges are growing among youths and middle-aged workers due to economic hardship, political instability, social pressure and limited access to professional mental health services. Stigma, lack of awareness and shortage of qualified psychologists make it difficult for people to seek timely help. Many individuals experience stress, anxiety and depression without realizing their risks or knowing where to turn for support.

**1.2. Project Goal**

The goal of our project is to develop an AI-powered chatbot that serves as a Mental Health Risk Indicator and Personalized Well-being Roadmap for users in Myanmar. The chatbot will use AI and Machine Learning (ML) to analyze user responses and detect early signs of mental distress.

**2. Relevance to Sustainable Development Goals (SDGs)**

* SDG 3: Good Health and Well-being by promoting mental health awareness and early detection of mental health risks in Myanmar.
* SDG 10: Reduced Inequalities by providing accessible and affordable digital mental health support for youths and workers across regions.

**3. Literature Examples**

1. WHO Mental Health Gap Action Programme (mhGAP) focuses on scaling up mental health services in low- and middle-income countries using digital tools and AI-assisted assessments, demonstrating how technology can bridge mental health service gaps.

2. Wysa is an AI-powered mental health chatbot that uses conversational AI and CBT (Cognitive Behavioral Therapy) techniques to support users’ emotional well-being. It serves as a model for creating personalized, stigma-free mental health support for Myanmar youths and workers.

**4. Data**

Our project will use both **primary data (collected through online surveys) and secondary data** from publicly available datasets such as WHO and Kaggle related to mental health and well-being:

* **Data Format:** CSV (survey results).
* **Data Size:** Estimated 5,000–10,000 records.
* **Preprocessing Steps:** Data cleaning (removing duplicates and missing values), language translation (Myanmar to English), and feature extraction for AI/ML analysis.

**5. Approach**

The MindCare chatbot will be developed as a multilingual, voice-enabled conversational system powered by a fine-tuned Large Language Model (LLM). The overall approach focuses on adapting the model to effectively understand and respond in both Burmese and English, with an emphasis on empathy, cultural relevance, and conversational safety in the context of mental health support.

**5.1. Model Selection**

An open-source instruction-tuned Unsloth LLM will be used as the base model due to its efficient training mechanisms and adaptability for low-resource languages. This model provides compatibility with lightweight fine-tuning techniques such as Low-Rank Adaptation (LoRA), which allows efficient customization without requiring full retraining of all model parameters.

**5.2. Fine-Tuning Strategy**

The fine-tuning process will focus on aligning the base model with mental health dialogue patterns, emotional tone, and culturally sensitive communication styles.

Technique: Parameter-efficient fine-tuning using LoRA or a similar adapter-based approach.

Objective: Enhance the model’s performance on counseling-style conversations in Burmese and English.

Frameworks: Implementation will be conducted using PyTorch and HuggingFace Transformers, with optimization via bitsandbytes or DeepSpeed to ensure efficient GPU memory utilization.