INTEL AI HACKATHON

Team Name: MindSync

Problem Statement: Multimodel Mental Health Assessment

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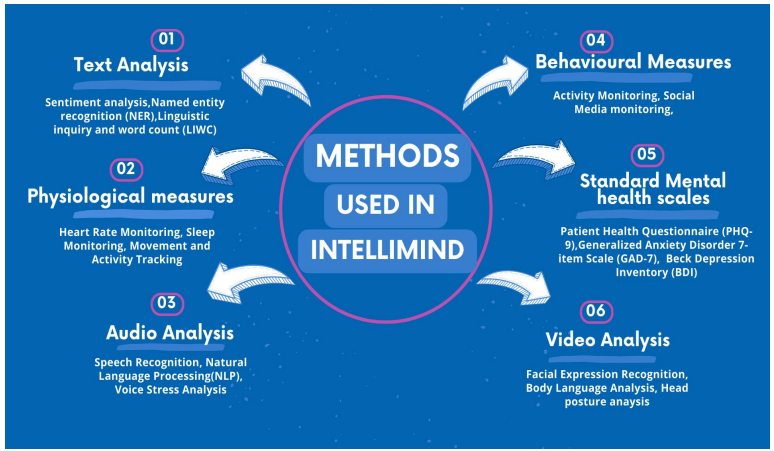
Problem:

Traditional mental health assessments have drawbacks such as **long wait** times for appointments, reliance on **subjective self-reporting**, and **limited access** to qualified professionals. These limitations can result in **delays** in diagnosis and treatment, potentially leading to **poorer mental health outcomes**.



Solution:

IntelliMind seeks to revolutionize mental health management by offering a **comprehensive and user-friendly** app that bridges the gap between individuals and professional help.

- **Self-assessments:** Gain insights through text-based questionnaires.
- **Video analysis:** Capture facial expressions and body language for deeper understanding.
- **Audio analysis:** Speech patterns and emotional cues enrich the assessment.

The app serves as a valuable **companion tool**, encouraging users to proactively manage their mental well-being while simplifying access to professional support when needed.

METHODS and TOOLS

Audio Analysis

- **Audio Recording:** Intel® Integrated Performance Primitives (Intel® IPP)
- **Noise Reduction:** Intel® oneAPI Deep Neural Network Library (oneDNN)
- **Feature Extraction:** Intel® Math Kernel Library (Intel® MKL)
- **Emotion Recognition:** Intel® oneAPI Deep Neural Networks Library
- **Speech Analysis:** Intel® Distribution of OpenVINO™ Toolkit

Video Analysis

- **Data Acquisition:** Intel Data Analytics Acceleration Library (DAAL)
- **Preprocessing:** Intel® oneAPI Threading Building Blocks (oneTBB)
- **Facial Expression Recognition:** Intel oneAPI HPC Toolkit
- **Behavioral Analysis:** Intel VTune Profiler
- **Emotion Aggregation:** Intel oneAPI Rendering Toolkit

Text Analysis

- **Data Preprocessing:** Intel® Distribution for Scikit-learn
- **Sentiment Analysis:** Intel® oneAPI Collective Communications Library
- **Risk Assessment:** The Intel® Fortran Compiler
- **Language Understanding:** Intel VTune Profiler
- **Topic Modeling:** Intel® oneAPI Deep Neural Networks Library