

Executive Summary

- Multi-platform AI system for mental health support
- Provides **real-time conversational assistance**
- Supports **journaling, mood tracking, and coping strategies**
- Includes **crisis detection and emergency guidance**
- Built using **React, Node.js, MongoDB, and LLMs**
- Fully implemented and tested across multiple sprints

Background

- Mental health issues (stress, anxiety, depression) are increasing
- Access to professional help is:
 - Expensive
 - Time-consuming
 - Limited
- Many users need **instant support but don't seek help**
- Gap exists between:
 - Self-help tools
 - Professional therapy

Solution: **AI-powered first-aid support system**

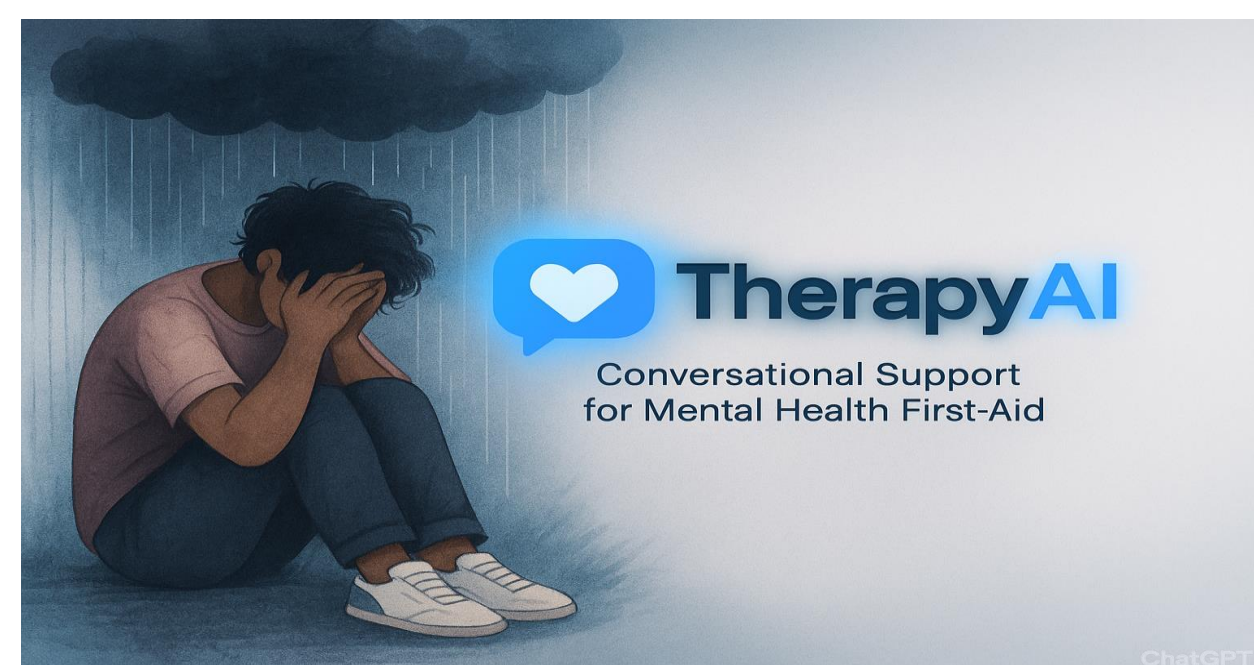


Figure 1. TherapyAI logo

Experimental Setup

- Frontend:** React (Web), React Native (Mobile)
- Backend:** Node.js + Express
- Database:** MongoDB
- AI Layer:** Python-based LLM

System Flow:

- User → Frontend
- Frontend → Backend API
- Backend → AI Model
- AI → Response → User
- Data stored in MongoDB

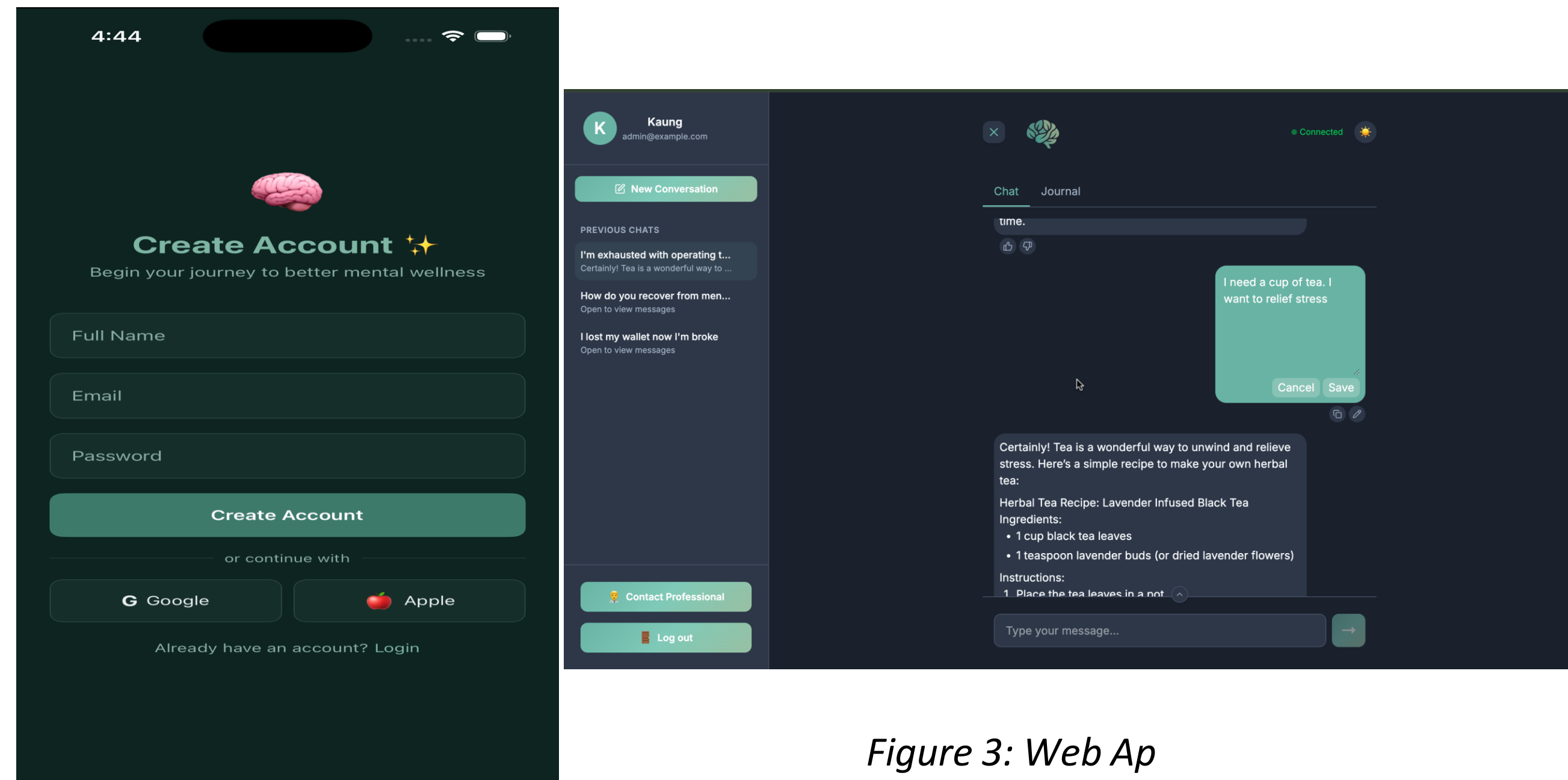


Figure 2: Mobile App

Figure 3: Web Ap

Experimental Test Plan

To ensure system reliability and correctness, multiple testing strategies were implemented:

- Unit Testing:** Verified individual frontend and backend components
- Integration Testing:** Ensured communication between frontend, backend, and AI model
- End-to-End Testing:** Simulated real-world user interactions
- AI Scenario Testing:** Evaluated responses for emotional support and crisis handling

System Design and Features

- Real-time conversational AI chatbot
- Context-aware conversations using chat history
- Journal and mood tracking system
- Crisis detection and escalation mechanisms
- Secure authentication (JWT-based)
- Dark mode and accessibility features
- Multi-platform support (Web, Mobile, Chatbot)

Experimental Results

- Successfully implemented real-time AI chat system.
- Stable integration between frontend, backend, and database
- Chat history and contextual memory functioning correctly
- Authentication and session handling implemented
- Crisis detection successfully triggers emergency resource suggestions
- Delivered a working multi-platform system (Web + Mobile + Chatbot)

Conclusions

- Successfully demonstrates the practical application of AI in mental health support
- Achieves real-time conversational interaction with users
- Provides safety-aware and responsible responses
- Supports multi-platform accessibility (web + mobile)
- Acts as a first line of mental health support
- Bridges the gap between immediate emotional needs and professional care
- Highlights the potential of AI-driven systems in healthcare innovation

References

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