MedAssist: An Assistive Mental Health Platform

Repo

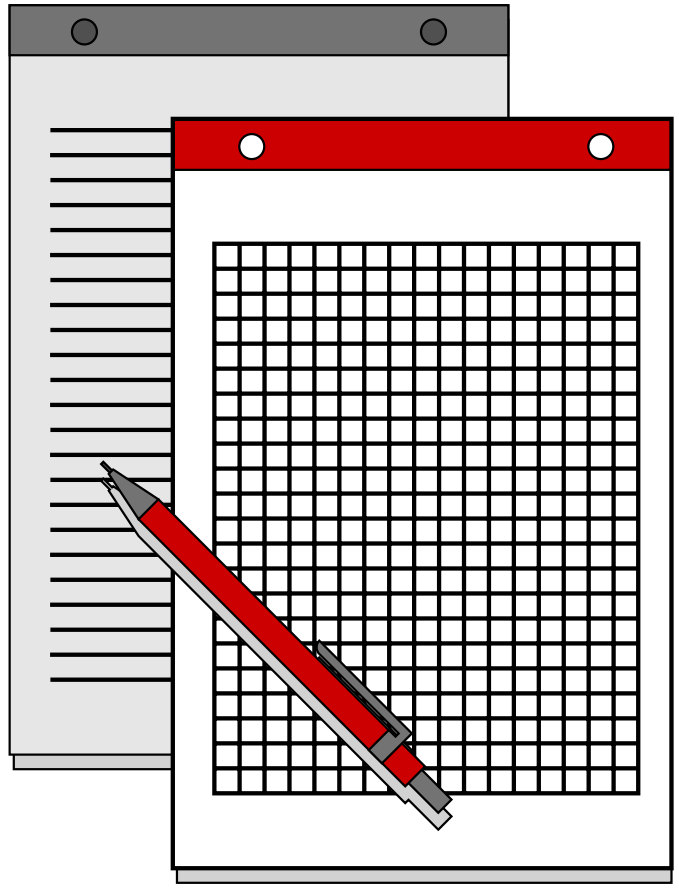
Purpose and Goal Statements

Purpose:

Offer accessible and caring mental-health conversations when professional help may not be available or affordable.

Goal Statements:

- Integrate LLM with RAG to give accurate and relevant responses
- Enable users to track mental health trends and receive recommendations
- Keep user data private and secure while storing helpful summaries for later review
- Offer professional alternatives depending on user needs



Group Information

Team Members:

- Daniel Lindsey
  lindsede@mail.uc.edu
- Toan Ly
  lytq@mail.uc.edu

Advisor:

- Dr. Dennis Wu
  dwu@riveraintech.com

Presentation Overview

Project Introduction

- Abstract
- User Stories
- Design Diagram
- Constraints

Current Progress

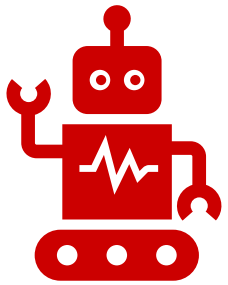
- Task Breakdown
- Front-end Overview

Future Outlook

- Expected Accomplishments
- Perspective Expo Demo

Project Abstract

MedAssist is an assistive mental health platform powered by a large language model (LLM) with retrieval-augmented generation (RAG). It offers a free, accessible, and unbiased alternative to mental health care. The system connects an LLM to trusted DSM-5 knowledge to give accurate, context-aware responses. Through an interactive chat interface, users are able to express their thoughts, monitor mood patterns, and track personal growth over time. Alternative resources are also provided for users requiring more professional medically-focused assistance.



DSM-5: Diagnostic and Statistical Manual of Mental Disorders, 5th Edition

User Stories

As a college student feeling stressed about finances or academics, I want to chat anonymously for quick, empathetic support.

As someone who cannot afford therapy, I want free access to reliable mental-health guidance.

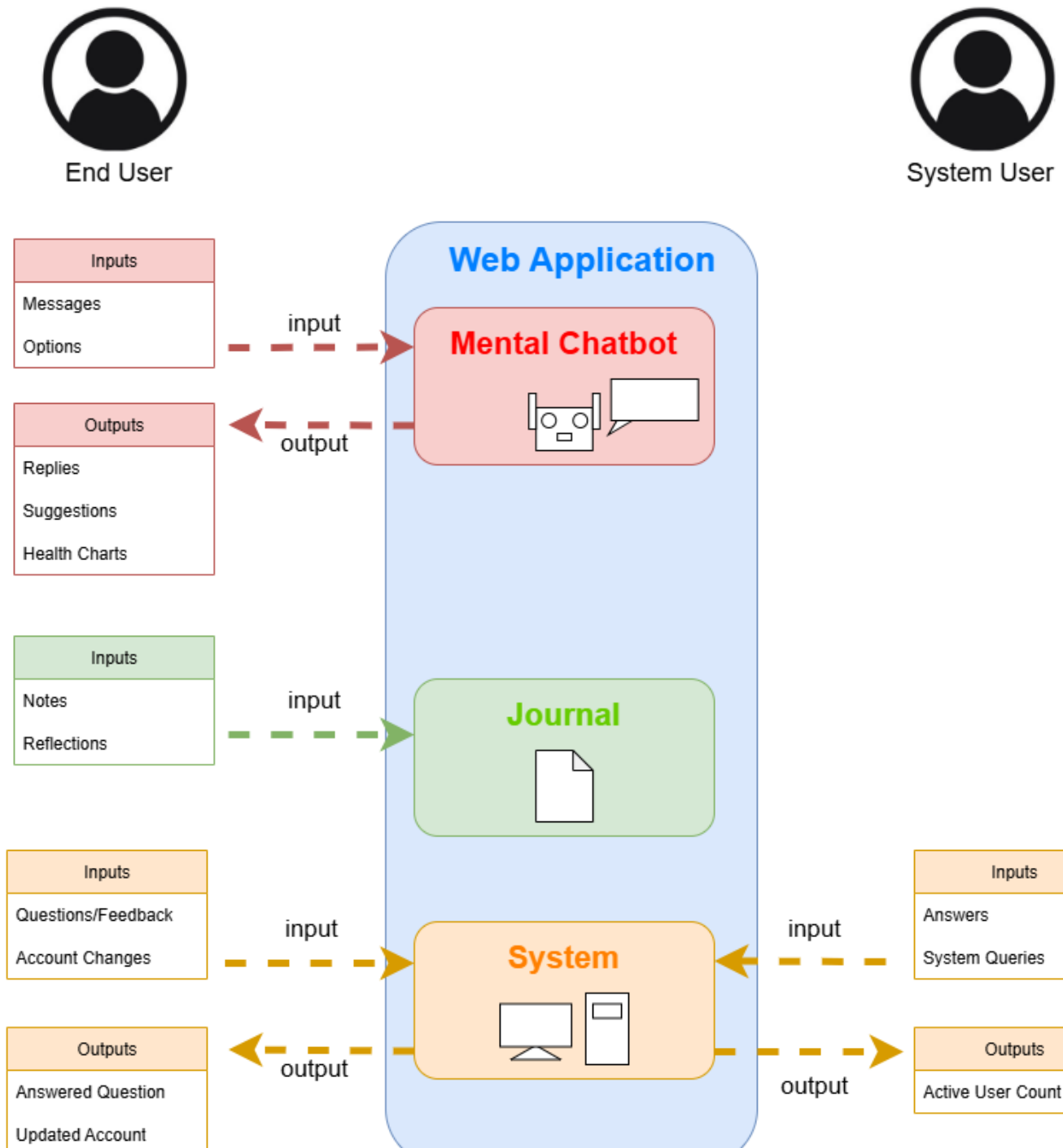
As a first-time user, I want a clear privacy notice, so I feel safe and comfortable sharing.

As an end user, I want to log my mood and view summaries to track my progress over time.

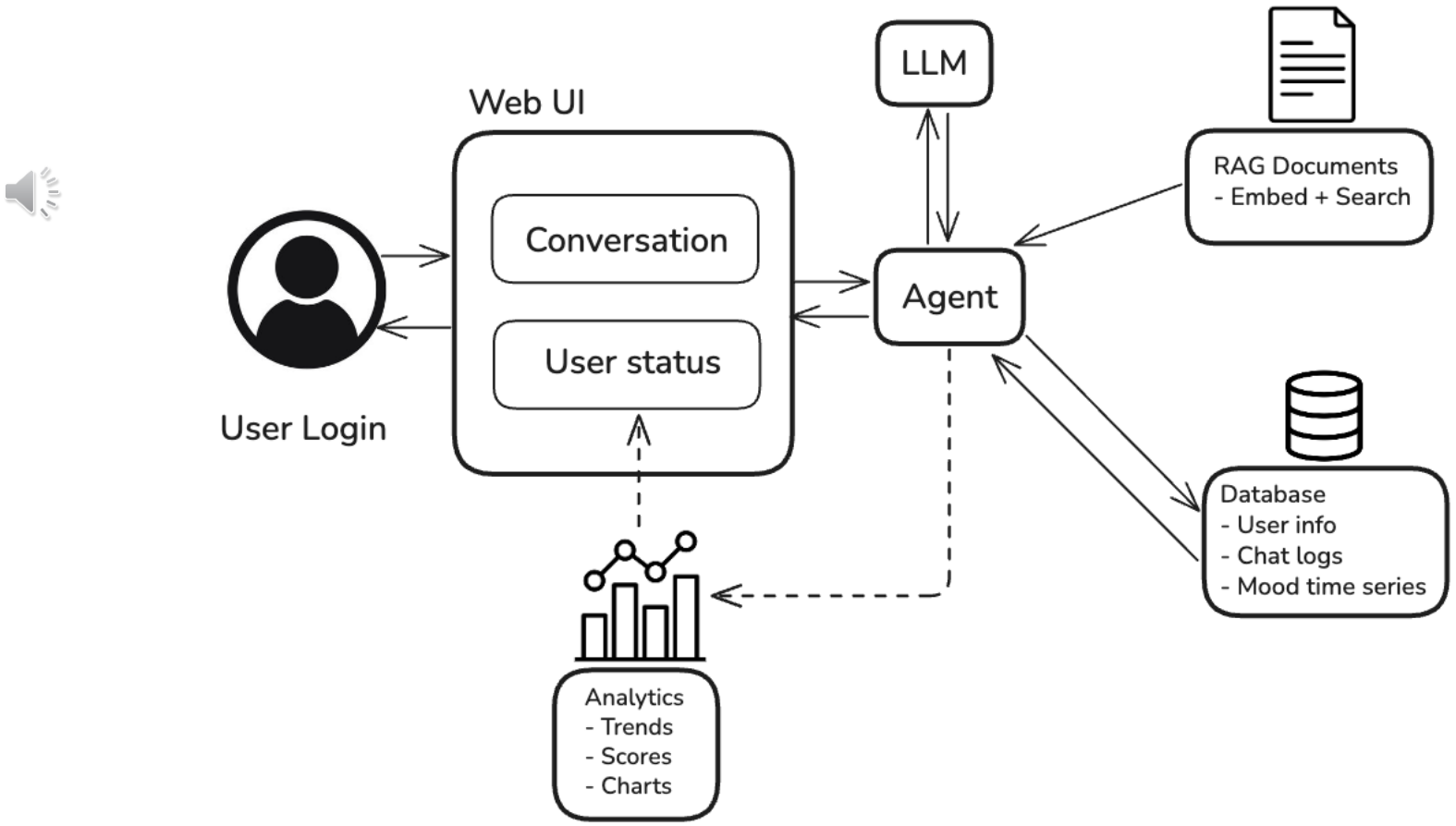
As a non-expert user, I want simple, friendly language so conversations are easy to understand.

Design Diagrams

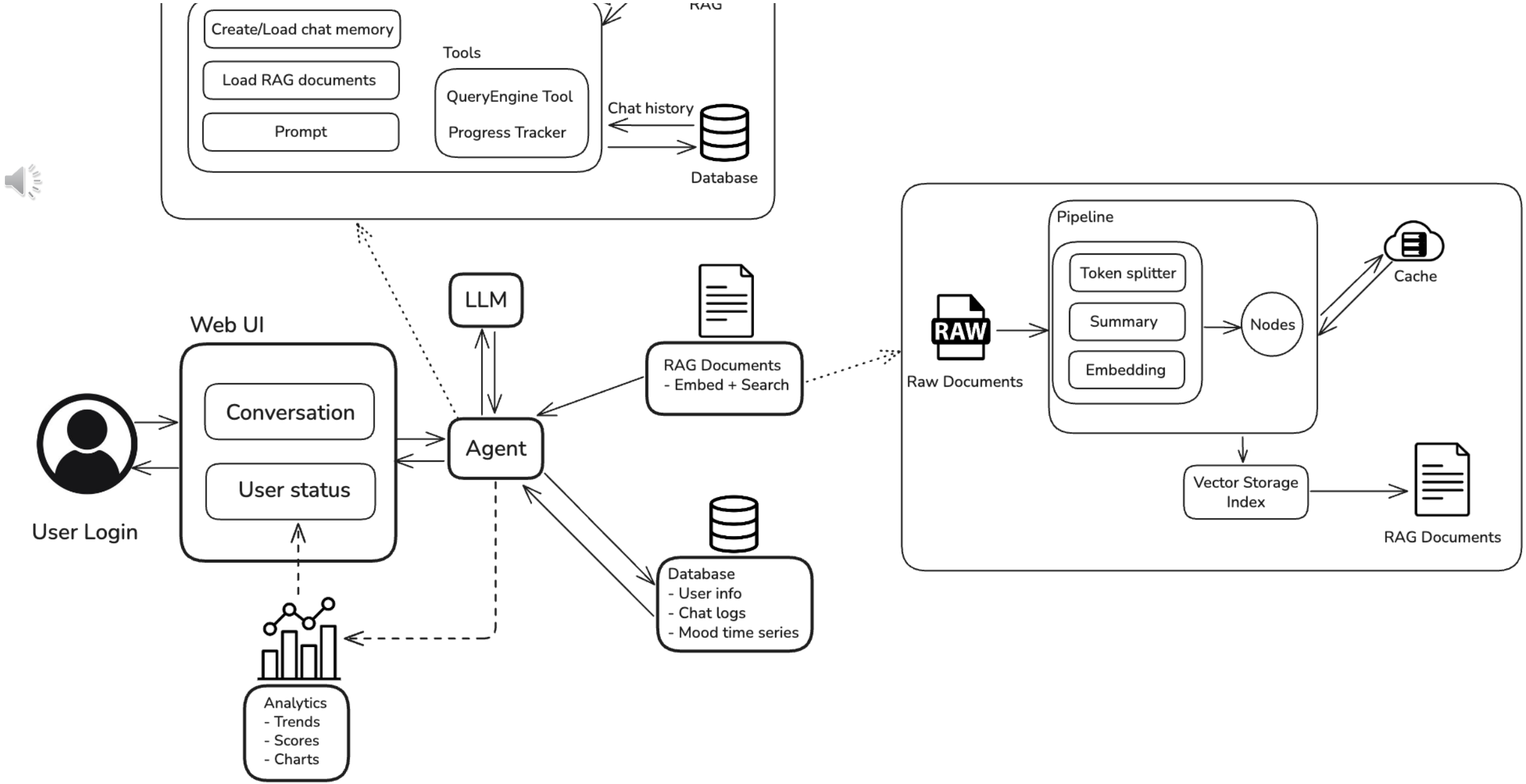
D0: General System Overview



D1: Chatbot System Overview



D2: Advanced Chatbot Overview



Major Project Constraints

Economic:
- Limited GPU access and paid API costs
- Must use lightweight models and optimize RAG queries

Ethical:
- Chatbot provides support only, not medical diagnosis or treatment
- Must protect user privacy

Security:
- Encrypt data and protect API keys to keep user conversations private and safe from unauthorized access

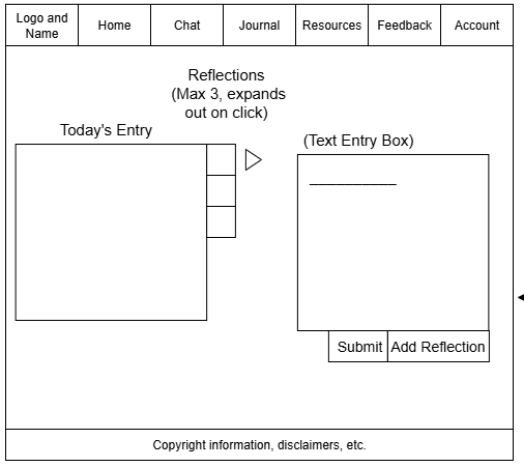
Legal:
- Follow API and open-source licensing
- Include disclaimers to avoid misrepresentation of medical advice

Social and Cultural:
- Use simple, non-judgmental jargon-free language

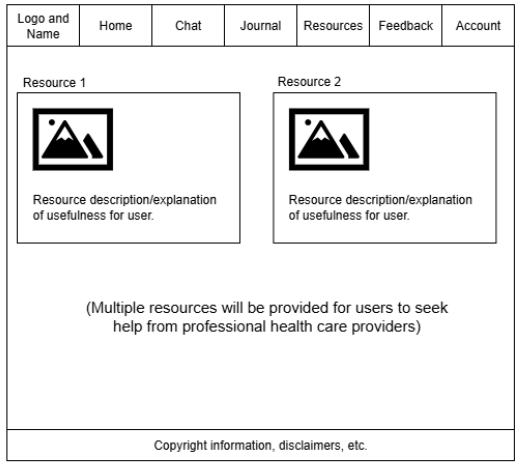
Current Progress

- Frontend: Created basic chat, health tracking, and journal pages.
- Backend: Developing RAG pipeline.
- Dataset: Loaded DSM-5 content.
- Testing: Will begin once other main components are finished.
- Current challenge: Limited time for this semester.

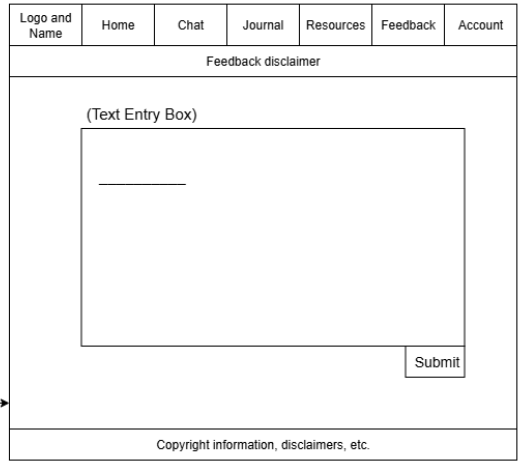
Front-end Overview:



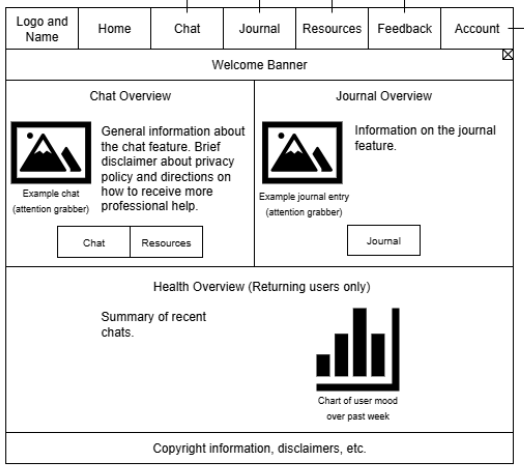
Journal Page



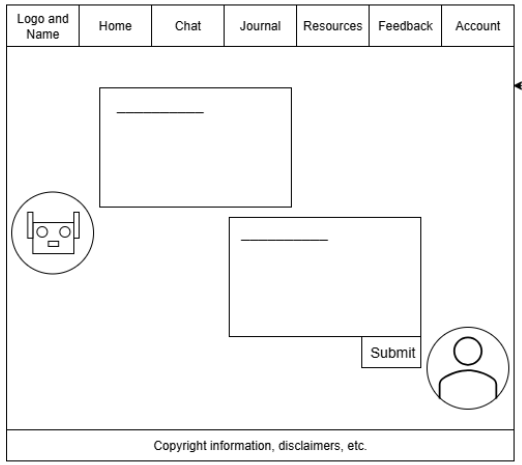
Resources Page



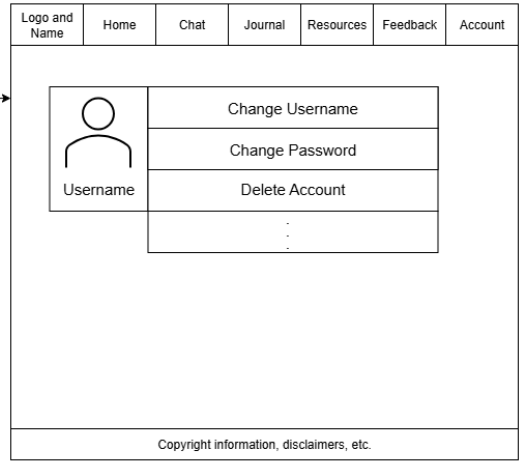
Feedback Page



Home Page



Chat Page



Account Page

Expected Accomplishments

1	• Show a simple RAG + LLM demo retrieving relevant responses.
2	• Complete basic frontend interface for testing chat.
3	• Connect backend and database so the chatbot can store and access user summaries.

Division of Work

Toan Ly	Daniel Lindsey
Team leader/manager	Frontend and database development
Backend development	Connect frontend with backend & database
Build and test RAG + LLM pipeline	
Handle chatbot flow, API setup	

Joint
System integration and feature testing
Documentation

Expected Expo Demo

Participants will be able to test out the MedAssist chatbot either by using their own device or a provided computer.

Participants can also expect to create an account, host multiple chat sessions, record their progress, leave feedback, and explore resources on how to further improve their mental health.

Thank you!

Repository: https://github.com/toan-ly/Senior-Design