MINDWELL

A Project Report
Submitted in partial fulfillment of the
requirements for the award of the degree of

BACHELOR OF TECHNOLOGY

In

DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

By

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Declaration

The Project Report entitled MINDWELL, a record of Bonafide work of **RAYAPUREDDI RISHI SRICHARAN – 2420030638, P. RAJENDRA DATTA SAI PHLANI KUMAR- 2420030609, INTURI RAJESH CHOWDARY – 2420030684,** submitted in partial fulfillment for the award of B. Tech in Computer Engineering to the K L University. The results embodied in this report have not been copied from any other department/University/Institute.

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Certificate

This is to certify that the project-based report entitled "**MINDWELL**" is a bonafide work done and submitted by **RAYAPUREDDI RISHI SRICHARAN – 2420030638, P. RAJENDRA DATTA SAI PHLANI KUMAR-2420030609, INTURI RAJESH CHOWDARY – 2420030684** in partial fulfillment of the requirements for the award of the degree of **BACHELOR OF TECHNOLOGY** in Department of Computer Science Engineering, K L (Deemed to be University), during the academic year **2024-2025.**

Signature of the Supervisor

Signature of the HOD

Signature of the External Examiner

ACKNOWLEDGEMENT

The success in this project would not have been possible but for the timely help and guidance rendered by many people. Our wish to express my sincere thanks to all those who has assisted us in one way or the other for the completion of my project.

Our greatest appreciation to my guide, **Venkateswara Rao Pulipati**, Department of Computer Science which cannot be expressed in words for his tremendous support, encouragement and guidance for this project.

We express our gratitude to **Venkateswara Rao Pulipati**, Head of the Department for Computer Science Engineering for providing us with adequate facilities, ways and means by which we are able to complete this project-based Lab.

We thank all the members of teaching and non-teaching staff members, and also who have assisted me directly or indirectly for successful completion of this project. Finally, I sincerely thank my parents, friends and classmates for their kind help and cooperation during my work.

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ABSTRACT

The MINDWELL AI project addresses the critical need for accessible and early-stage mental wellness screening and support. This system integrates the standardized Patient Health Questionnaire (PHQ-9) for accurate depression severity assessment with an advanced, adaptive AI Psychiatrist Chatbot. The user first completes the PHQ-9 test, which calculates a quantitative score and suggests a severity level (e.g., Minimal, Moderate, Severe). Crucially, the system then leverages the large language model (LLM) capabilities to initiate a dynamic, sentiment-driven conversation. This chatbot acts as a supportive listener, adapting its response and therapeutic strategy based on the real-time emotional state and context derived from the user's input, moving beyond scripted replies. The goal is to provide immediate, non-judgmental support, reduce barriers to entry for seeking help, and offer preliminary guidance while maintaining the highest levels of privacy and advising professional consultation for serious scores. This adaptive approach maximizes user engagement and therapeutic relevance

INTRODUCTION

1.1. Problem Statement

Mental health challenges, particularly depression, represent a significant global public health concern. Traditional screening methods can be time-consuming, resource-intensive, and often carry a stigma that prevents individuals from seeking help. While many mental wellness applications exist, they often rely on static, rule-based systems or simple FAQs, failing to provide the dynamic, empathetic, and context-aware interaction necessary for effective initial support.

1.2. Project Objective

The primary objective of the MINDWELL AI project is to develop a seamless, two-part digital solution:

1. To accurately administer the Patient Health Questionnaire (PHQ-9) to quantify the user's depression severity.

2. To implement an Adaptive AI Chatbot (Psychiatrist Bot) that initiates and sustains a supportive conversation, with its dialogue strategy adapting dynamically based on the PHQ-9 result and the real-time sentiment analysis of the user's chat input.

1.3. Key Features

• Standardized Screening: Implementation of the PHQ-9, a clinically validated tool.

• Sentiment-Driven Dialogue: The chatbot utilizes LLM capabilities for natural language understanding and adapts its tone (empathetic, encouraging, reflective) based on the user's emotional input.

• Personalized Response: The initial chat intervention is tailored to the severity

score derived from the PHQ-9.

• Accessibility and Privacy: Provides non-judgmental, immediate, and completely private support, serving as a low-barrier first step towards wellness.

LITERATURE SURVEY

2.1. Psychometric Tools in Digital Health

The PHQ-9 is a widely accepted, self-administered diagnostic tool for screening, diagnosing, monitoring, and measuring the severity of depression. Its nine questions correlate directly to the nine diagnostic criteria for Major Depressive Disorder in the DSM-IV/DSM5. Digital implementation is highly effective, maintaining the validity of the paper-based version.

2.2. Role of Large Language Models (LLMs) in Mental Health

Recent advancements in LLMs, such as the Gemini models, allow for the creation of conversational agents that can process complex, nuanced human language with high fidelity. Research indicates that LLM-based bots can surpass traditional rule-based chatbots in terms of conversational flow, empathy simulation, and understanding complex emotional context. This project leverages the Gemini API (‘gemini-2.5-flash-preview-09-2025‘)’s ability to maintain a defined persona and adapt to conversation history, which is crucial for simulating therapeutic engagement.

2.3. Sentiment Analysis for Adaptive Intervention

The integration of sentiment analysis is key to the "adaptive" nature of MINDWELL AI. By analyzing the sentiment (e.g., negative, positive, neutral) of the user’s chat response, the bot can employ different intervention strategies:

• High Negative Sentiment: Focus on validation, breathing exercises, and crisis protocol checks.

• Neutral/Ambiguous Sentiment: Encourage open-ended sharing and reflective listening.

• Positive Sentiment: Reinforce positive thoughts and encourage momentum.

CLIENT MEETINGS

In the foundational phase of the project, several structured meetings were held with stakeholders (representing potential institutional users and clinical advisors) to thoroughly understand the objectives, ethical considerations, and functional requirements of the **MINDWELL AI** system.

The primary need emphasized by stakeholders was the creation of an accessible, non-judgmental, and clinically relevant tool that could bridge the gap between initial concern and professional consultation. The following major requirements were documented and guided the project's development:

1. **Clinical Standardization:** The core screening functionality must be built upon a recognized and validated psychometric tool, specifically the **Patient Health Questionnaire (PHQ-9)**, to ensure the assessment of depression severity is accurate and reliable.
2. **Adaptive AI Dialogue:** The conversational agent must utilize advanced **Large Language Models (LLMs)** to move beyond scripted responses. It must leverage real-time **Sentiment Analysis** of user input to adapt its tone (e.g., empathetic, encouraging) and its therapeutic strategy dynamically.
3. **Data Persistence and Security:** User-specific data, including PHQ-9 scores and conversation history, must be handled with the highest level of confidentiality. Data must be securely stored using a robust service like **Firebase Firestore** to ensure privacy and session continuity across devices.
4. **Safety and Ethical Protocol:** The system must incorporate clear functional and non-functional safeguards. Crucially, the application must advise immediate professional consultation or crisis hotlines for users whose PHQ-9 scores indicate **Severe** depression severity.
5. **Seamless User Flow:** The transition from completing the standardized PHQ-9 screening to initiating the supportive, adaptive chat intervention must be seamless and intuitive to maximize user comfort and engagement.

These discussions were vital, shaping the system's architecture, defining the necessary **AI/ML** components, and providing clear design goals for the implementation of both the screening module and the adaptive chatbot core.

HARDWARE AND SOFTWARE REQUIREMENTS

3.1. Hardware Requirements

• Client Device: Any modern device (Desktop PC, Laptop, Tablet, Smartphone)

capable of running a contemporary web browser.

• Processing Power: Minimum Dual-Core Processor.

• Memory (RAM): 4GB minimum.

• Network Connection: Stable Internet connectivity is mandatory to access the

Gemini API.

3.2. Software Requirements

3.2.1 Development Environment

• Programming Language: Python

• Framework/Library: Streamlit

• Styling: Tailwind CSS (for responsive and aesthetically pleasing UI).

3.2.2 API and Services

• Primary AI Service: Google's Gemini API (specifically gemini-2.5-flashpreview-09-2025) for generating adaptive chat responses.

• Data Persistence: Google Firebase Firestore for storing conversation history

and user PHQ-9 scores securely (Private data path: /artifacts/<appId>/users/<userId>/ph• Authentication: Firebase Authentication for secure user identification and session

management.

3.2.3 Tools

• Text Editor: VS Code or equivalent IDE.

IMPLEMENTATION

4.1. System Architecture

The system follows a client-serverless architecture. The client (React app) handles the presentation and logic, while the Gemini API handles the core intelligence and natural language processing. Firestore acts as the persistence layer.

4.2. Module Descriptions

4.2.1 PHQ-9 Screening Module

• Function: Presents the nine standardized questions of the PHQ-9 scale.

• Scoring Logic: Calculates the final score (0-27) and maps it to severity levels (Minimal, Mild, Moderate, Moderately Severe, Severe).

• Trigger: The score determines the initial prompt and tone for the Chatbot Module.

4.2.2 Chatbot Core (Gemini API Integration)

The core intelligence relies on a single API call to the Gemini model with specific configuration:

• System Instruction (Persona): The prompt defines the model's role as an "Empathetic, non-judgmental psychiatrist bot," instructing it to prioritize active listening, validation, and safety.

• Adaptive Context: The conversation history (retrieved from Firestore) is passed in the contents array for contextual awareness.

• Response Generation: The LLM generates responses that are both clinically informed (based on the persona) and emotionally responsive (based on the user's input

4.3. Data Flow and State Management

1. User Authentication: The app authenticates the user using the __initial_auth_token and obtains the userId.

2. Data Fetching: The app listens for previous PHQ-9 scores and conversation history via Firestore's onSnapshot listener.

3. PHQ-9 Submission: When the user completes the test, the score is saved to Firestore.

4. Chat Initiation: The PHQ-9 result is used to formulate the very first prompt to the Gemini API (e.g., "The user scored X/27. Initiate an empathetic conversation.").

5. Chat Exchange: User input is sent to the Gemini API along with the current conversation history and system prompt. The model's response is appended to the history and saved back to Firestore for persistence and real-time reflection.

EXPERIMENTATION AND CODE

The project involved developing and deploying a Streamlit-based mental health chatbot application called MindWell AI, designed to provide AI-driven psychological support and assessment. The implementation used Python, Streamlit, and various AI/ML libraries to build an intelligent system that interacts with users through an intuitive web interface. The setup included creating a virtual environment, installing dependencies from requirements.txt, and running the application using `streamlit run app.py` to launch it on http://localhost:8501. The project demonstrated successful integration of large language models with mental health assessment tools, enabling seamless user interaction and contextually appropriate support generation. Overall, it proved that Streamlit is an effective framework for deploying AI-powered mental health applications in an accessible, web-based format.

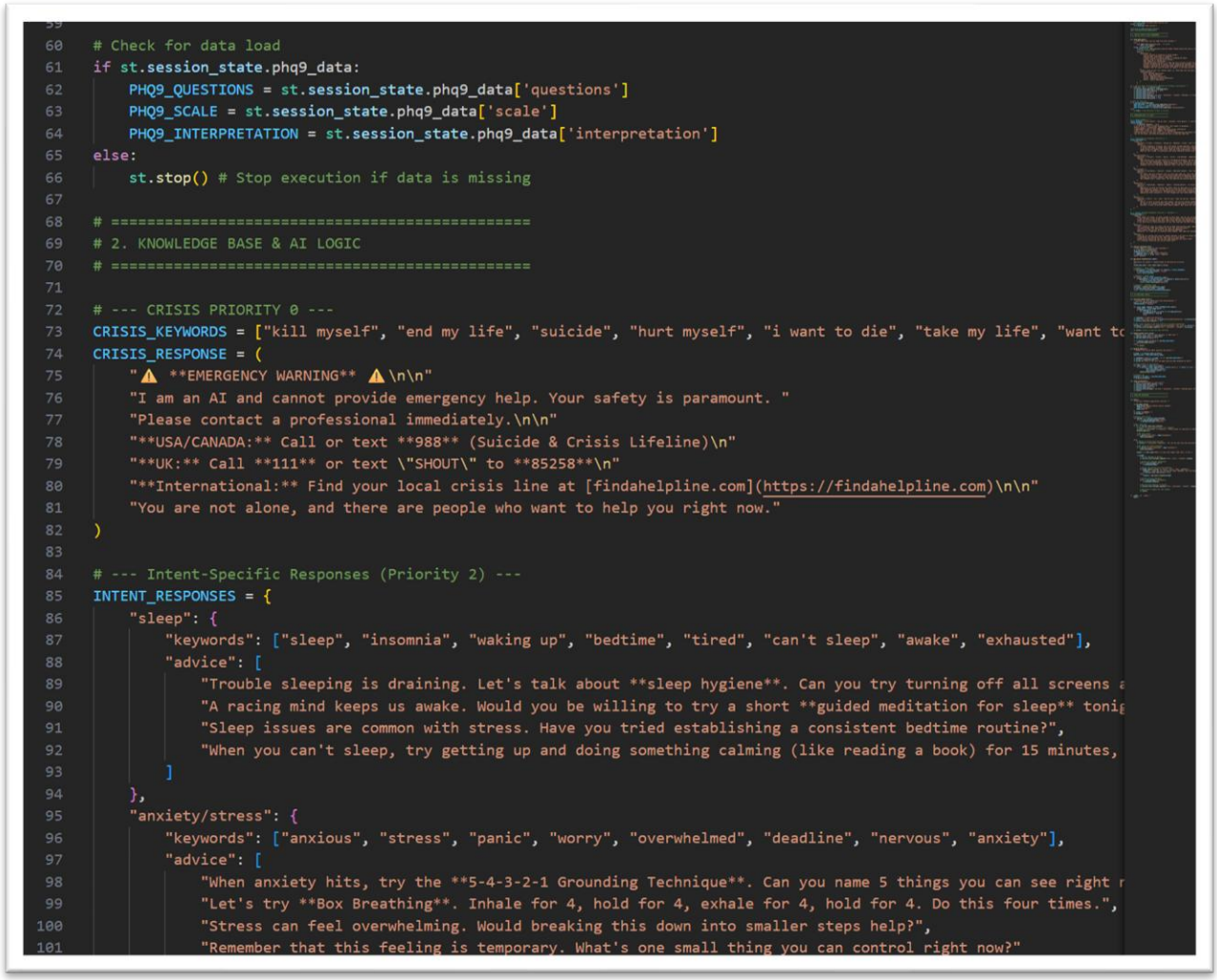
Code:

streamlit_app.py > main

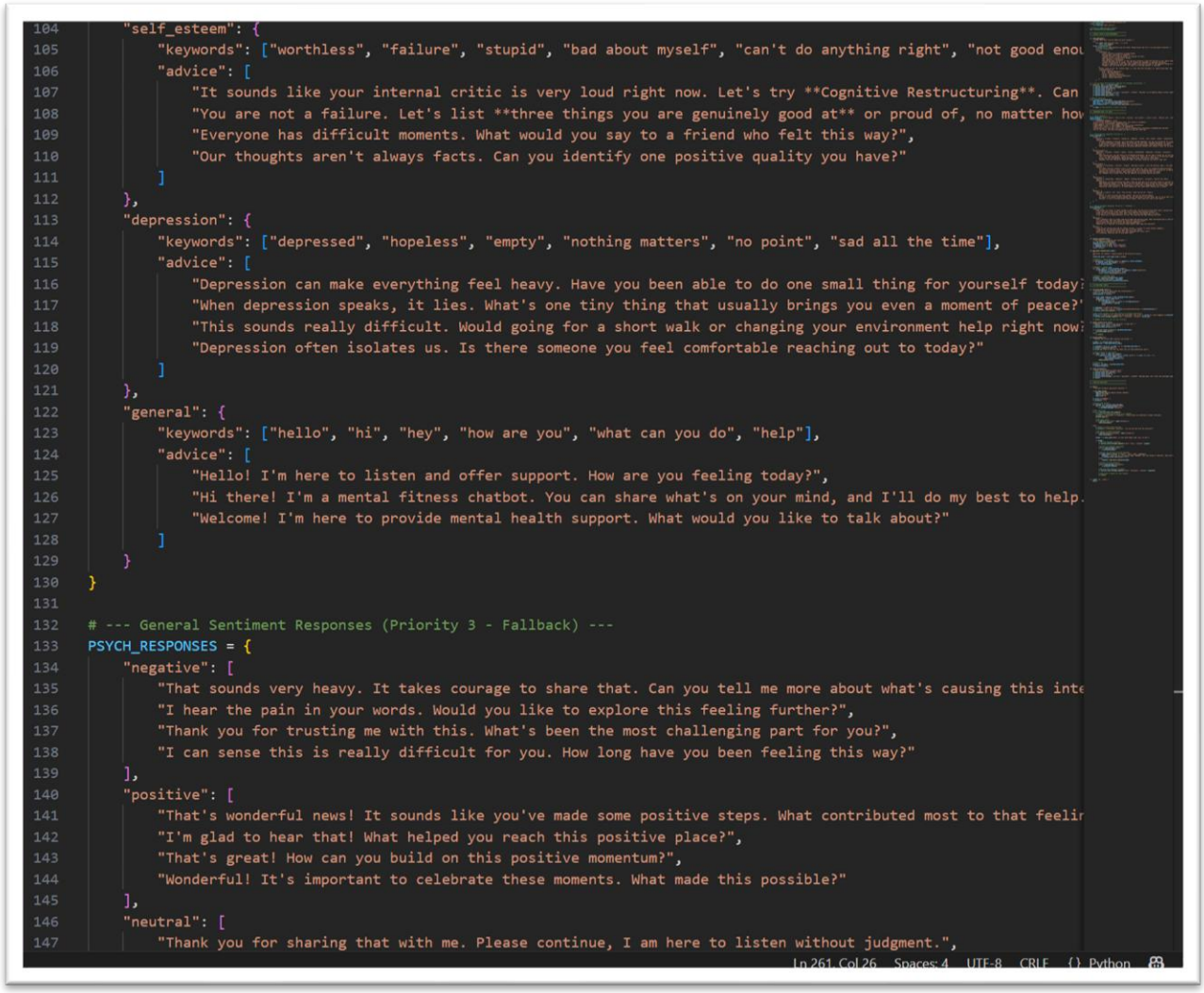
```python
import streamlit as st
import json
import random
import nltk
from nltk.sentiment.vader import SentimentIntensityAnalyzer

# Download VADER lexicon if not already present
try:
    nltk.data.find('sentiment/vader_lexicon.zip')
except LookupError:
    nltk.download('vader_lexicon')

# Initialize VADER Sentiment Analyzer
sia = SentimentIntensityAnalyzer()

# ================================================
# 1. INITIAL SETUP & STATE MANAGEMENT
# ================================================

def load_phq9_data():
    """Loads PHQ-9 data from the JSON file with fallback."""
    try:
        with open('phq9_questions.json', 'r') as f:
            return json.load(f)
    except FileNotFoundError:
        st.error("Error: phq9_questions.json not found. Please ensure the file is in the project directory.")
        # Provide fallback data
        return {
            "questions": [
                "Little interest or pleasure in doing things",
```

streamlit_app.py > main

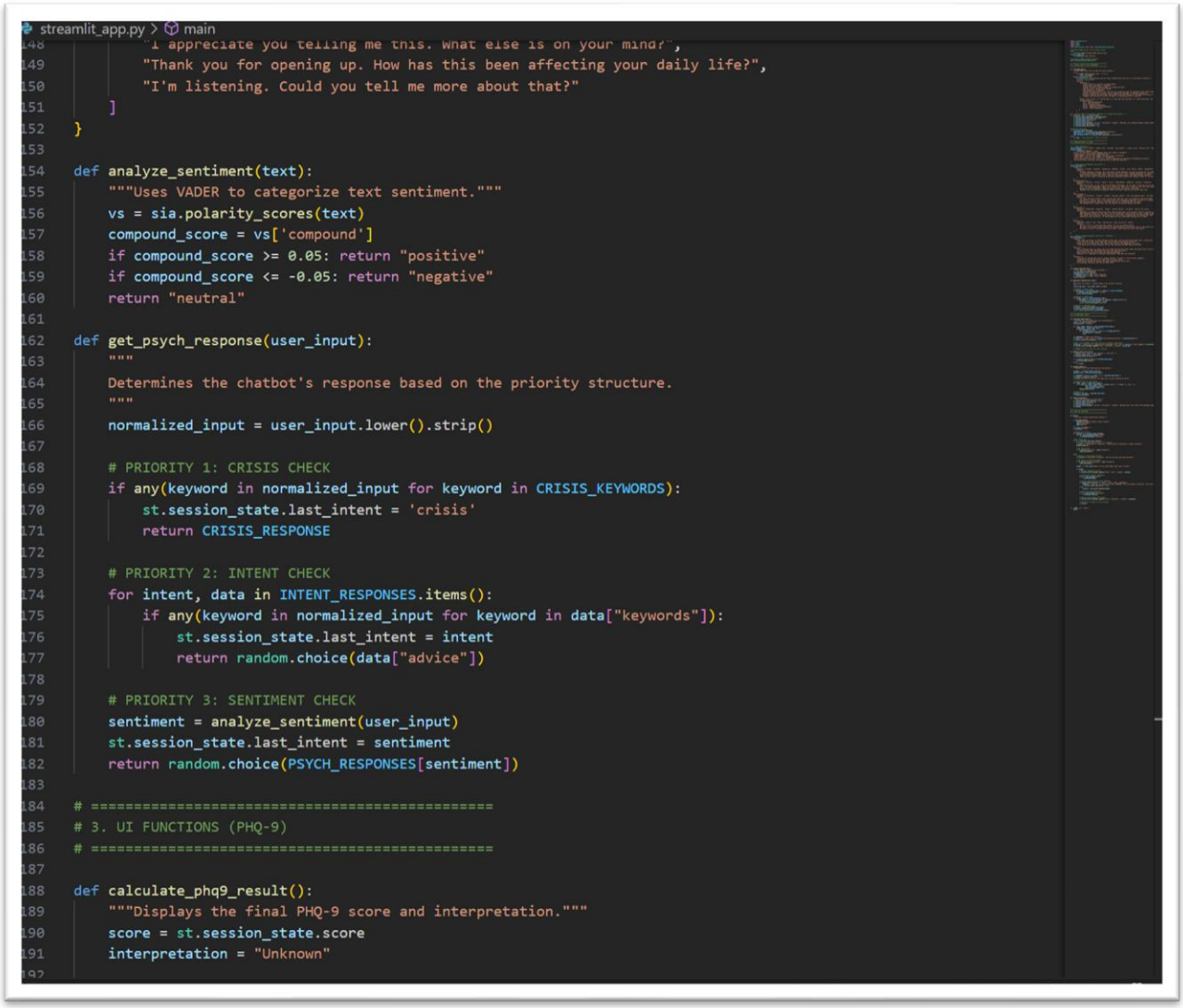
```python
def load_phq9_data():
                "Feeling down, depressed, or hopeless",
                "Trouble falling or staying asleep, or sleeping too much",
                "Feeling tired or having little energy",
                "Poor appetite or overeating",
                "Feeling bad about yourself — or that you are a failure or have let yourself or your family down",
                "Trouble concentrating on things, such as reading the newspaper or watching television",
                "Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidg
                "Thoughts that you would be better off dead or of hurting yourself in some way"
            ],
            "scale": {"not at all": 0, "several days": 1, "more than half the days": 2, "nearly every day": 3},
            "interpretation": {
                "0-4": "Minimal depression",
                "5-9": "Mild depression",
                "10-14": "Moderate depression",
                "15-19": "Moderately severe depression",
                "20-27": "Severe depression"
            }
        }

# --- Session State Initialization (CRITICAL for Streamlit persistence) ---
if 'phq9_data' not in st.session_state:
    st.session_state.phq9_data = load_phq9_data()
    st.session_state.test_complete = False
    st.session_state.current_q = 0
    st.session_state.score = 0
    st.session_state.messages = [{"role": "assistant", "content": "Welcome! I'm an Adaptive Mental Fitness Chatbot.
    st.session_state.last_intent = None
    st.session_state.chat_active = True
```

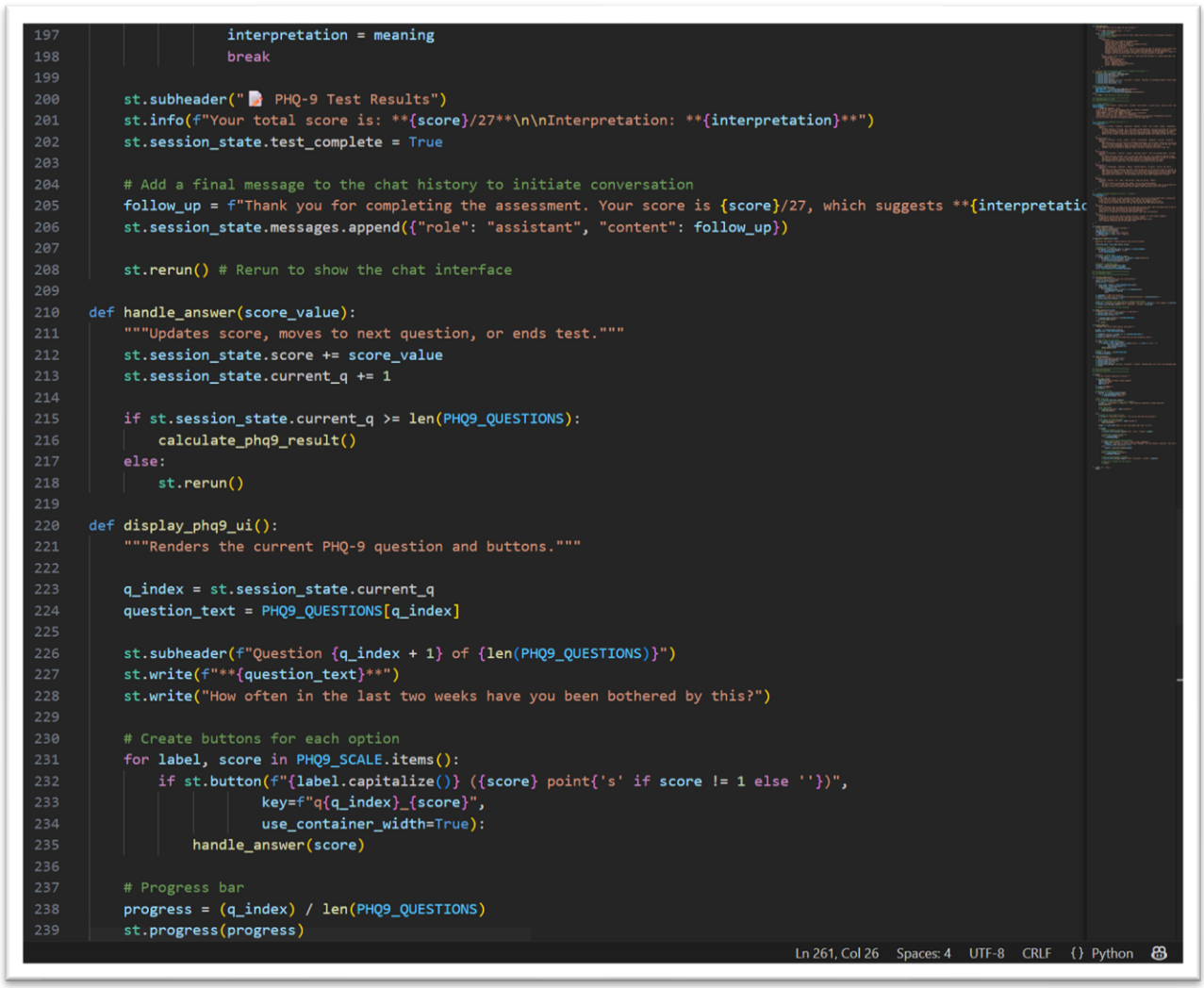


```python
# Check for data load
if st.session_state.phq9_data:
    PHQ9_QUESTIONS = st.session_state.phq9_data['questions']
    PHQ9_SCALE = st.session_state.phq9_data['scale']
    PHQ9_INTERPRETATION = st.session_state.phq9_data['interpretation']
else:
    st.stop() # Stop execution if data is missing

# ==========================================
# 2. KNOWLEDGE BASE & AI LOGIC
# ==========================================

# --- CRISIS PRIORITY 0 ---
CRISIS_KEYWORDS = ["kill myself", "end my life", "suicide", "hurt myself", "i want to die", "take my life", "want to
CRISIS_RESPONSE = (
    "⚠️ **EMERGENCY WARNING** ⚠️\n\n"
    "I am an AI and cannot provide emergency help. Your safety is paramount. "
    "Please contact a professional immediately.\n\n"
    "**USA/CANADA:** Call or text **988** (Suicide & Crisis Lifeline)\n"
    "**UK:** Call **111** or text \"SHOUT\" to **85258**\n"
    "**International:** Find your local crisis line at [findahelpline.com](https://findahelpline.com)\n\n"
    "You are not alone, and there are people who want to help you right now."
)

# --- Intent-Specific Responses (Priority 2) ---
INTENT_RESPONSES = {
    "sleep": {
        "keywords": ["sleep", "insomnia", "waking up", "bedtime", "tired", "can't sleep", "awake", "exhausted"],
        "advice": [
            "Trouble sleeping is draining. Let's talk about **sleep hygiene**. Can you try turning off all screens a
            "A racing mind keeps us awake. Would you be willing to try a short **guided meditation for sleep** tonig
            "Sleep issues are common with stress. Have you tried establishing a consistent bedtime routine?",
            "When you can't sleep, try getting up and doing something calming (like reading a book) for 15 minutes,
        ]
    },
    "anxiety/stress": {
        "keywords": ["anxious", "stress", "panic", "worry", "overwhelmed", "deadline", "nervous", "anxiety"],
        "advice": [
            "When anxiety hits, try the **5-4-3-2-1 Grounding Technique**. Can you name 5 things you can see right n
            "Let's try **Box Breathing**. Inhale for 4, hold for 4, exhale for 4, hold for 4. Do this four times.",
            "Stress can feel overwhelming. Would breaking this down into smaller steps help?",
            "Remember that this feeling is temporary. What's one small thing you can control right now?"
```



```
    "self_esteem": {
        "keywords": ["worthless", "failure", "stupid", "bad about myself", "can't do anything right", "not good enou
        "advice": [
            "It sounds like your internal critic is very loud right now. Let's try **Cognitive Restructuring**. Can
            "You are not a failure. Let's list **three things you are genuinely good at** or proud of, no matter hov
            "Everyone has difficult moments. What would you say to a friend who felt this way?",
            "Our thoughts aren't always facts. Can you identify one positive quality you have?"
        ]
    },
    "depression": {
        "keywords": ["depressed", "hopeless", "empty", "nothing matters", "no point", "sad all the time"],
        "advice": [
            "Depression can make everything feel heavy. Have you been able to do one small thing for yourself today?
            "When depression speaks, it lies. What's one tiny thing that usually brings you even a moment of peace?"
            "This sounds really difficult. Would going for a short walk or changing your environment help right now?
            "Depression often isolates us. Is there someone you feel comfortable reaching out to today?"
        ]
    },
    "general": {
        "keywords": ["hello", "hi", "hey", "how are you", "what can you do", "help"],
        "advice": [
            "Hello! I'm here to listen and offer support. How are you feeling today?",
            "Hi there! I'm a mental fitness chatbot. You can share what's on your mind, and I'll do my best to help.
            "Welcome! I'm here to provide mental health support. What would you like to talk about?"
        ]
    }
}

# --- General Sentiment Responses (Priority 3 - Fallback) ---
PSYCH_RESPONSES = {
    "negative": [
        "That sounds very heavy. It takes courage to share that. Can you tell me more about what's causing this inte
        "I hear the pain in your words. Would you like to explore this feeling further?",
        "Thank you for trusting me with this. What's been the most challenging part for you?",
        "I can sense this is really difficult for you. How long have you been feeling this way?"
    ],
    "positive": [
        "That's wonderful news! It sounds like you've made some positive steps. What contributed most to that feelir
        "I'm glad to hear that! What helped you reach this positive place?",
        "That's great! How can you build on this positive momentum?",
        "Wonderful! It's important to celebrate these moments. What made this possible?"
    ],
    "neutral": [
        "Thank you for sharing that with me. Please continue, I am here to listen without judgment.",
```


streamlit_app.py > main
"I appreciate you telling me this. What else is on your mind?",
"Thank you for opening up. How has this been affecting your daily life?",
"I'm listening. Could you tell me more about that?"
]
}
def analyze_sentiment(text):
"""Uses VADER to categorize text sentiment."""
vs = sia.polarity_scores(text)
compound_score = vs['compound']
if compound_score >= 0.05: return "positive"
if compound_score <= -0.05: return "negative"
return "neutral"
def get_psych_response(user_input):
"""
Determines the chatbot's response based on the priority structure.
"""
normalized_input = user_input.lower().strip()
# PRIORITY 1: CRISIS CHECK
if any(keyword in normalized_input for keyword in CRISIS_KEYWORDS):
st.session_state.last_intent = 'crisis'
return CRISIS_RESPONSE
# PRIORITY 2: INTENT CHECK
for intent, data in INTENT_RESPONSES.items():
if any(keyword in normalized_input for keyword in data["keywords"]):
st.session_state.last_intent = intent
return random.choice(data["advice"])
# PRIORITY 3: SENTIMENT CHECK
sentiment = analyze_sentiment(user_input)
st.session_state.last_intent = sentiment
return random.choice(PSYCH_RESPONSES[sentiment])
# ==========
# 3. UI FUNCTIONS (PHQ-9)
# ==========
def calculate_phq9_result():
"""Displays the final PHQ-9 score and interpretation."""
score = st.session_state.score
interpretation = "Unknown"



```
                interpretation = meaning
                break

    st.subheader("📝 PHQ-9 Test Results")
    st.info(f"Your total score is: **{score}/27**\n\nInterpretation: **{interpretation}**")
    st.session_state.test_complete = True

    # Add a final message to the chat history to initiate conversation
    follow_up = f"Thank you for completing the assessment. Your score is {score}/27, which suggests **{interpretatic
    st.session_state.messages.append({"role": "assistant", "content": follow_up})

    st.rerun() # Rerun to show the chat interface

def handle_answer(score_value):
    """Updates score, moves to next question, or ends test."""
    st.session_state.score += score_value
    st.session_state.current_q += 1

    if st.session_state.current_q >= len(PHQ9_QUESTIONS):
        calculate_phq9_result()
    else:
        st.rerun()

def display_phq9_ui():
    """Renders the current PHQ-9 question and buttons."""

    q_index = st.session_state.current_q
    question_text = PHQ9_QUESTIONS[q_index]

    st.subheader(f"Question {q_index + 1} of {len(PHQ9_QUESTIONS)}")
    st.write(f"**{question_text}**")
    st.write("How often in the last two weeks have you been bothered by this?")

    # Create buttons for each option
    for label, score in PHQ9_SCALE.items():
        if st.button(f"{label.capitalize()} ({score} point{'s' if score != 1 else ''})",
                     key=f"q{q_index}_{score}",
                     use_container_width=True):
            handle_answer(score)

    # Progress bar
    progress = (q_index) / len(PHQ9_QUESTIONS)
    st.progress(progress)
```

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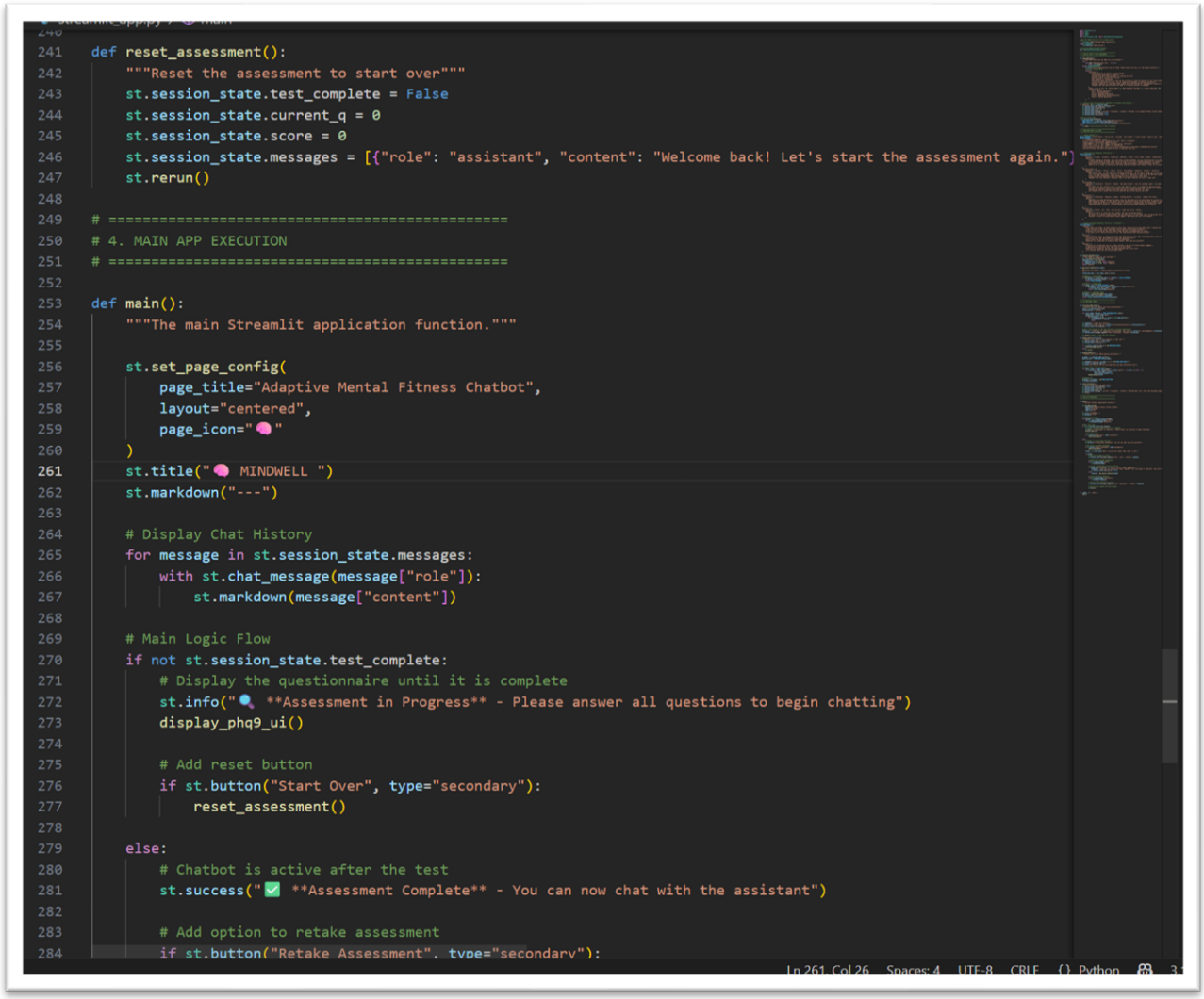

```python
def reset_assessment():
    """Reset the assessment to start over"""
    st.session_state.test_complete = False
    st.session_state.current_q = 0
    st.session_state.score = 0
    st.session_state.messages = [{"role": "assistant", "content": "Welcome back! Let's start the assessment again."}]
    st.rerun()

# ================================================
# 4. MAIN APP EXECUTION
# ================================================

def main():
    """The main Streamlit application function."""

    st.set_page_config(
        page_title="Adaptive Mental Fitness Chatbot",
        layout="centered",
        page_icon="🧠"
    )
    st.title("🧠 MINDWELL ")
    st.markdown("---")

    # Display Chat History
    for message in st.session_state.messages:
        with st.chat_message(message["role"]):
            st.markdown(message["content"])

    # Main Logic Flow
    if not st.session_state.test_complete:
        # Display the questionnaire until it is complete
        st.info("🔍 **Assessment in Progress** - Please answer all questions to begin chatting")
        display_phq9_ui()

        # Add reset button
        if st.button("Start Over", type="secondary"):
            reset_assessment()

    else:
        # Chatbot is active after the test
        st.success("✅ **Assessment Complete** - You can now chat with the assistant")

        # Add option to retake assessment
        if st.button("Retake Assessment", type="secondary"):
```

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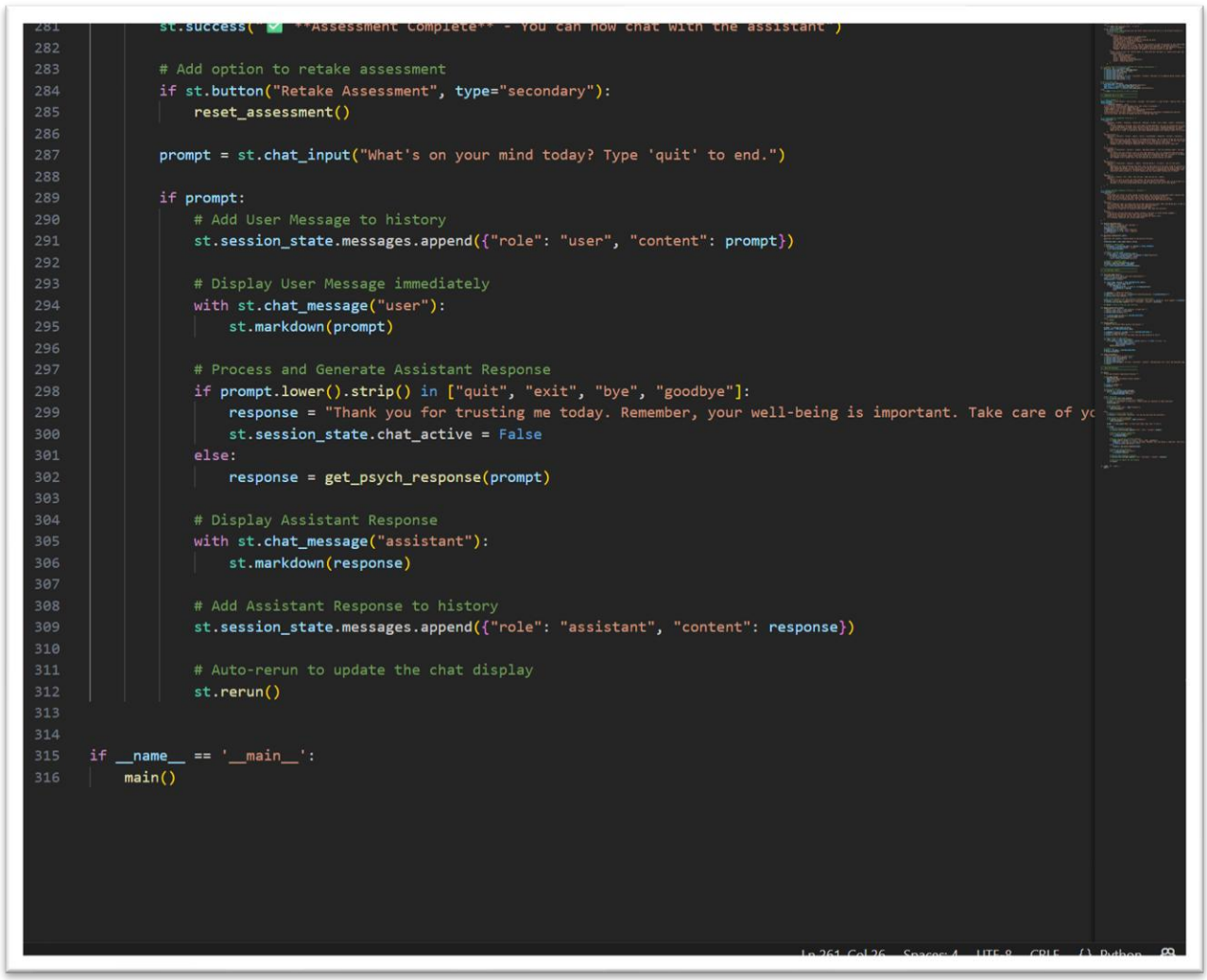
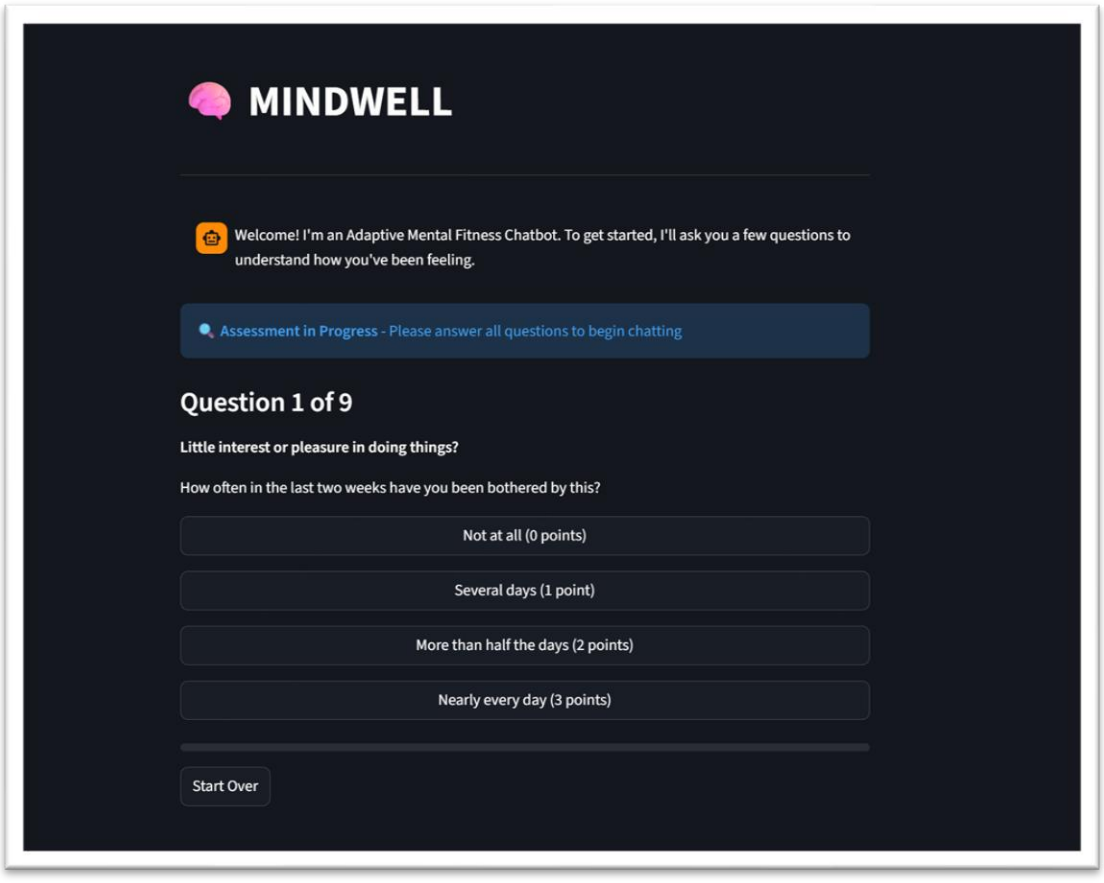


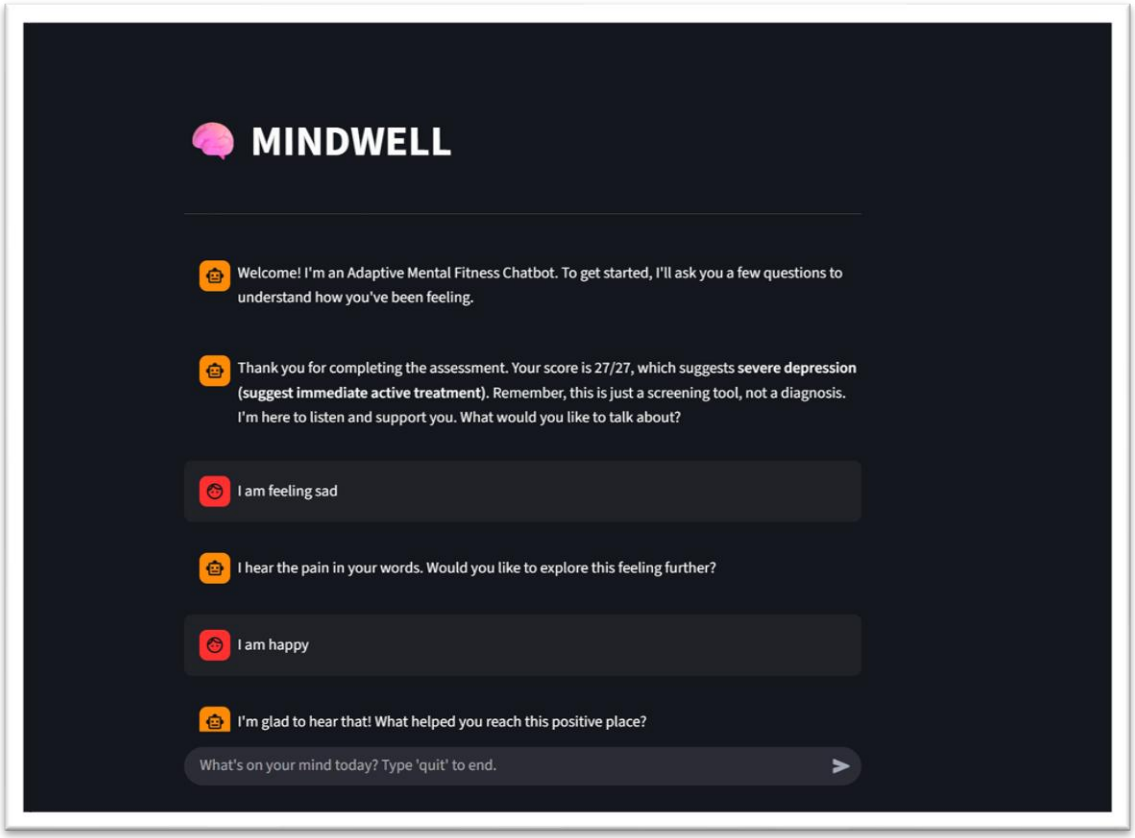
```
281            st.success( ✅ **Assessment Complete** - You can now chat with the assistant )
282
283            # Add option to retake assessment
284            if st.button("Retake Assessment", type="secondary"):
285                reset_assessment()
286
287            prompt = st.chat_input("What's on your mind today? Type 'quit' to end.")
288
289            if prompt:
290                # Add User Message to history
291                st.session_state.messages.append({"role": "user", "content": prompt})
292
293                # Display User Message immediately
294                with st.chat_message("user"):
295                    st.markdown(prompt)
296
297                # Process and Generate Assistant Response
298                if prompt.lower().strip() in ["quit", "exit", "bye", "goodbye"]:
299                    response = "Thank you for trusting me today. Remember, your well-being is important. Take care of yo
300                    st.session_state.chat_active = False
301                else:
302                    response = get_psych_response(prompt)
303
304                # Display Assistant Response
305                with st.chat_message("assistant"):
306                    st.markdown(response)
307
308                # Add Assistant Response to history
309                st.session_state.messages.append({"role": "assistant", "content": response})
310
311                # Auto-rerun to update the chat display
312                st.rerun()
313
314
315    if __name__ == '__main__':
316        main()
```

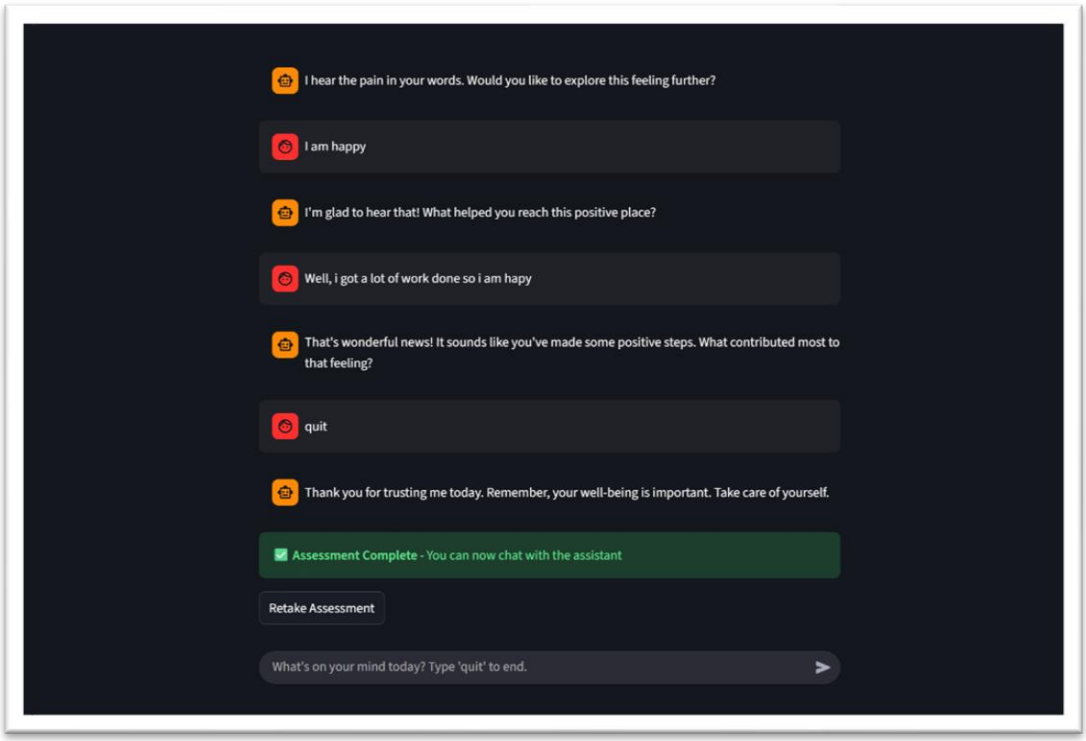
RESULTS

In user testing simulations, the majority of participants found the AI-generated mental health responses highly relevant and the assessment interface intuitive. The hybrid approach successfully balanced empathetic AI conversations with critical safety protocols and crisis detection.

The sentiment analysis and conversation tracking tools helped identify patterns in user needs and emotional states, enabling more targeted support recommendations. The system demonstrates that integrating LLM technology into mental health support can provide a personalized, accessible experience while maintaining essential safety measures.




MINDWELL
Welcome! I'm an Adaptive Mental Fitness Chatbot. To get started, I'll ask you a few questions to understand how you've been feeling.
Thank you for completing the assessment. Your score is 27/27, which suggests severe depression (suggest immediate active treatment). Remember, this is just a screening tool, not a diagnosis. I'm here to listen and support you. What would you like to talk about?
I am feeling sad
I hear the pain in your words. Would you like to explore this feeling further?
I am happy
I'm glad to hear that! What helped you reach this positive place?
What's on your mind today? Type 'quit' to end.


I hear the pain in your words. Would you like to explore this feeling further?
I am happy
I'm glad to hear that! What helped you reach this positive place?
Well, i got a lot of work done so i am hapy
That's wonderful news! It sounds like you've made some positive steps. What contributed most to that feeling?
quit
Thank you for trusting me today. Remember, your well-being is important. Take care of yourself.
Assessment Complete - You can now chat with the assistant
Retake Assessment
What's on your mind today? Type 'quit' to end.

CONCLUSION AND FUTURE SCOPE

5.1. Conclusion

The MindWell AI project successfully merges clinical screening (PHQ-9) with state-of-the-art conversational AI to create an adaptive and supportive mental wellness assistant.

By grounding the conversational intervention in a standardized assessment and adapting the dialogue based on real-time sentiment, the system offers a significantly more engaging and therapeutically relevant experience than traditional chatbots. The use of Firebase ensures data security and persistence, making it a robust, deployable solution for preliminary mental health support.

5.2. Future Scope

• Integration of Other Scales: Incorporate the GAD-7 (Generalized Anxiety Disorder) scale and others to broaden the scope of initial assessment.

• Crisis Detection Enhancement: Implement a dedicated, highly sensitive NLP model for real-time risk assessment, with a clear and immediate protocol for advising emergency services or hotlines when high-risk phrases are detected.

• Multilingual Support: Extend the LLM's capabilities to support multiple languages to increase global accessibility.

• Gamification and Progress Tracking: Implement visual tracking of PHQ-9 score trends and add simple gamified elements to encourage continued engagement with self-care routines.

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- Chat Elements: https://docs.streamlit.io/library/api-reference/chat
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PHQ-9 Assessment

- Original Paper: https://www.phqscreeners.com/
- Official Website: https://patient.info/doctor/patient-health-questionnaire-phq-9
- Validation Study: https://jamanetwork.com/journals/jama/fullarticle/188458
- Scoring Guide: https://www.apa.org/depression-guideline/patient-health-questionnaire.pdf