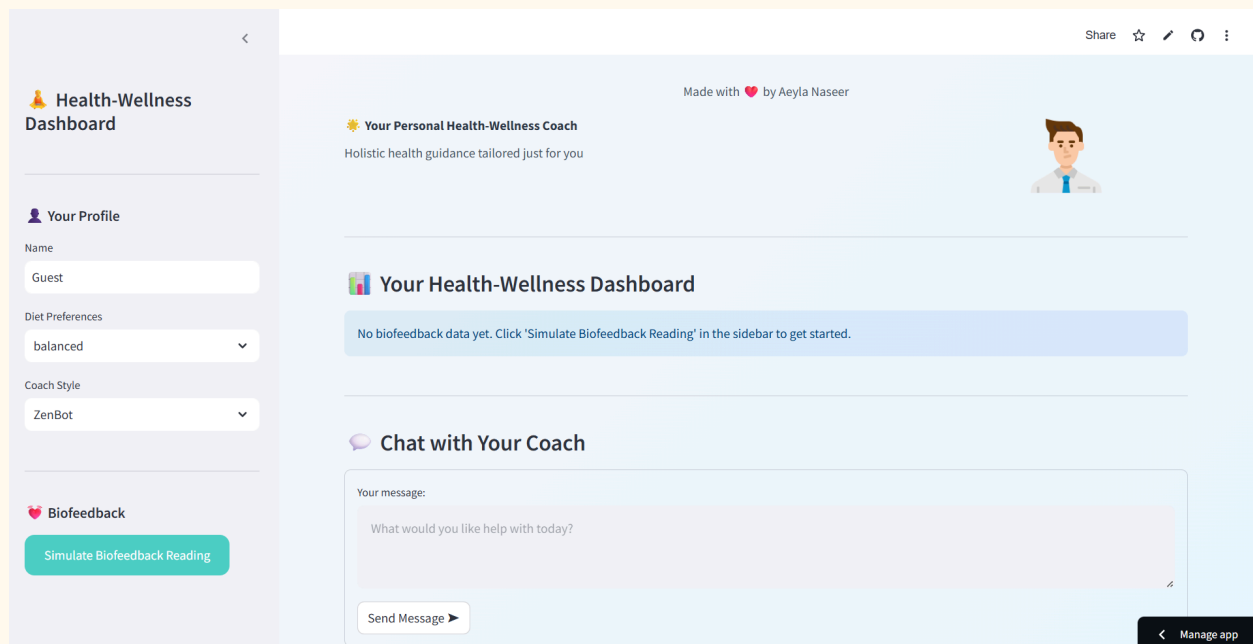


Created by: Aeyla-Naseer

Rollno: 00105072

Slot: Monday (6-9pm)

HEALTH-WELLNESS AGENT



INTRODUCTION:

The Health & Wellness Agent acts as a digital coach powered by AI, delivering customized health advice via an easy-to-use chat interface. By merging nutritional guidance, exercise planning, and mental wellness assistance, it provides:

- Tailored meal plans that cater to individual dietary needs
- Personalized workout plans that align with specific fitness objectives
- Techniques for mood tracking and stress relief
- Integration of biofeedback for comprehensive health monitoring

Utilizing cutting-edge web technologies and AI capabilities, the platform offers adaptive health coaching that responds to user context.

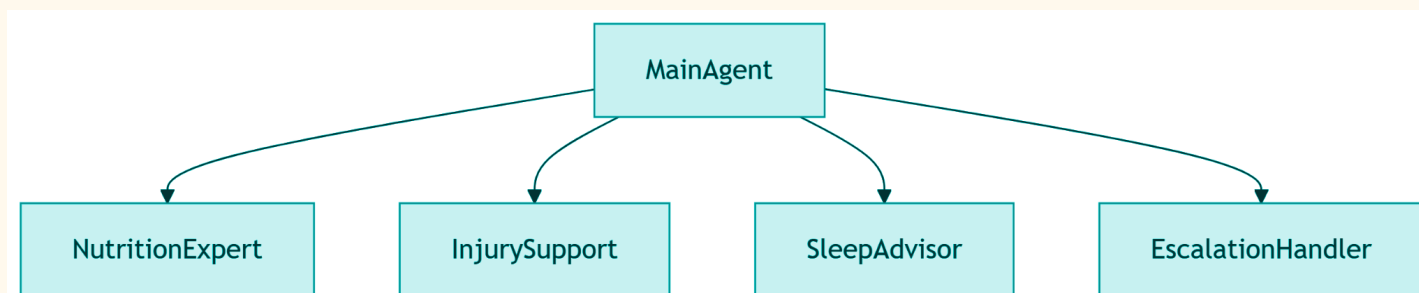
TECHNOLOGY STACK:

<u>Component</u>	<u>Technology</u>	<u>Purpose</u>
Frontend	Streamlit	User Interface and data visualizations
Backend	FastAPI	Service layer for RESTAPI
AI implementation	GeminiPro,Custom Agents	Smart recommendation system
DataBase	In-memory database(compatible with Redis)	Management of user sessions

KEY LIBRARIES:

- ★ **streamlit-chat** → User Interface for Conversations
- ★ **google-generativeai** → Integration with Gemini API
- ★ **requests** → Communication with the Backend
- ★ **matplotlib** → Visualizations for Health Metrics

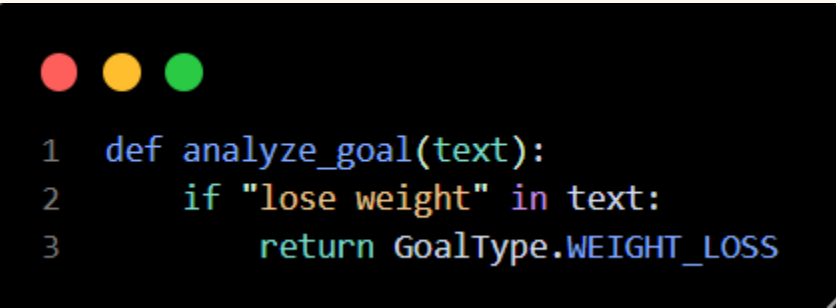
AI-IMPLEMENTATION:



SPECIALIZED MODULES:

❖ GOAL ANALYZER:

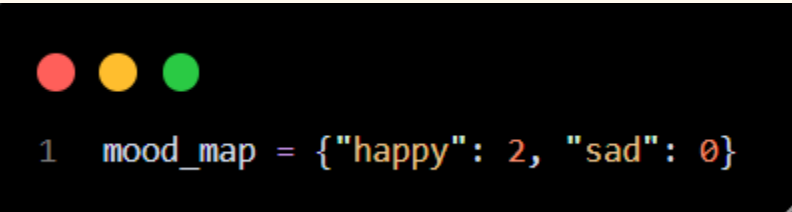
Categorizes user goals (losing weight/building muscle).



```
1 def analyze_goal(text):
2     if "lose weight" in text:
3         return GoalType.WEIGHT_LOSS
```

❖ MOOD DETECTOR:

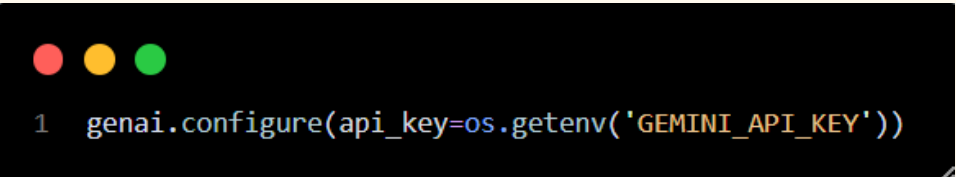
Analysis of sentiments based on chat input.



```
1 mood_map = {"happy": 2, "sad": 0}
```

❖ GEMINI INTEGRATION/AI- IMPLEMENTATION:

Manages intricate questions using Google's large language model.



```
1 genai.configure(api_key=os.getenv('GEMINI_API_KEY'))
```

BACKEND INTEGRATION:

- FASTAPI-SERVICES:

:- KEY ENDPOINTS:

- ❖ POST/meal-plans » Create dietary plans.
- ❖ GET/workouts » Design workout routines.
- ❖ POST/biofeedback » Record health data.

- DATA MODELS:

```
1 class User(BaseModel):
2     name: str
3     diet_preference: DietType # Enum: VEGAN/KETO/etc.
4
5 class Biofeedback(BaseModel):
6     heart_rate: int
7     stress_level: int # 1-10 scale
```

FRONTEND-IMPLEMENTATION:

- Chat Interface: streamlit-chat for conversational UI.
- Dynamic Visualizations: Matplotlib mood/health graphs.
- Session State: Persists user context

KEY-FEATURES:

- ✓ Live biofeedback display.
- ✓ Engaging meal and exercise planners.
- ✓ Coaching approaches tailored to individual personalities.

DEPLOYMENT:

<u>ENVIRONMENT</u>	<u>PLATFORM</u>
FRONTEND	STREAMLIT CLOUD
BACKEND	RAILWAY.APP
DATABASE	REDIS(PRODUCTION)

CONCLUSION:

The **Health & Wellness Agent** effectively connects AI-driven technology with individualized health coaching, providing users with a user-friendly, data-informed approach to wellness. By utilizing **FastAPI** for a strong backend service, **Streamlit** for engaging frontend interactions, and Gemini AI for smart recommendations, the platform offers customized **nutrition plans, exercise programs, and mental wellness assistance**. Future improvements, including wearable device integration and **voice-activated features**, will enhance the user experience even further. This initiative illustrates the possibilities of modular AI systems in healthcare, empowering users to make educated, real-time choices about their health. With its scalable framework and user-focused design, the **Health & Wellness Agent** establishes a solid groundwork for the future of digital health companions.