

DEPRESSION SYMPTOMS DETECTION

DESCRIPTION

1. REAL-TIME CHAT

- Users can engage in conversations with an AI assistant, which is designed to:
 - Analyze user inputs.
 - Identify symptoms of depression based on their responses.
 - Provide empathetic and engaging responses tailored to the user's current and past conversations.

2. GENERAL MOOD AND SYMPTOM TRACKING

- **General Mood Score:**
 - Computed based on weighted analysis of depression symptoms, ranging from 0% (no signs of depression) to 100% (high likelihood of depression).
- **Symptom Scores:**
 - Individual symptoms such as anxiety, sadness, irritability, etc., are scored per conversation session.
 - These scores are saved and visualized to track trends over time.

3. DATA VISUALIZATION

- **General Mood Graph:**
 - Displays the trend of the user's general mood scores across multiple sessions.
- **Symptom Graphs:**
 - Plots each symptom's score over time, allowing users to identify patterns and improvements in specific areas.
- **Interactive Visualization:**
 - Graphs include tooltips, markers, and labels for better interpretability.

4. PRIVACY

- **Federated:**
 - Data is saved locally, instead of being stored on a remote server
- **Anonymity:**
 - It is not associated to any user, name or real person.

TECHNICAL ARCHITECTURE

DATA MANAGER & PROCESSOR

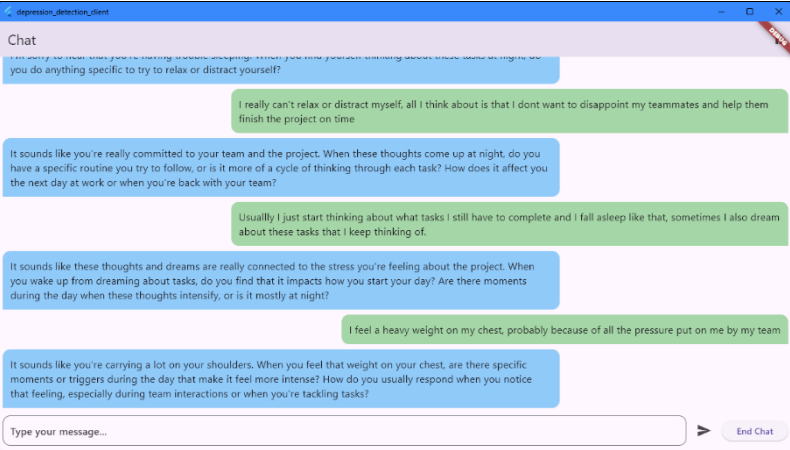
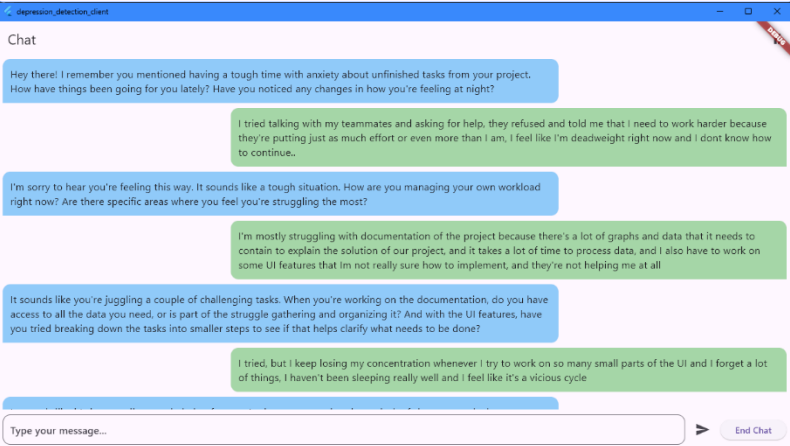
- **Built with Node.js:**
 - Handles real-time communication using **Socket.IO (TCP)**.
 - Processes data storage and retrieval using **file-based JSON local storage**.
- **Key Functionalities:**
 1. **Start Chat:**
 - Generates initial questions based on past conversations or starts a generic conversation if no history exists.
 2. **Chat Analysis:**
 - Analyzes user responses using ChatGPT and extracts scores for depression symptoms and general mood.
 - Summarizes each conversation and updates the summary of all past interactions at the end of each conversation.
 3. **Data Storage:**
 - Stores user conversations, scores, and summaries in a structured JSON format.

UI (FLUTTER)

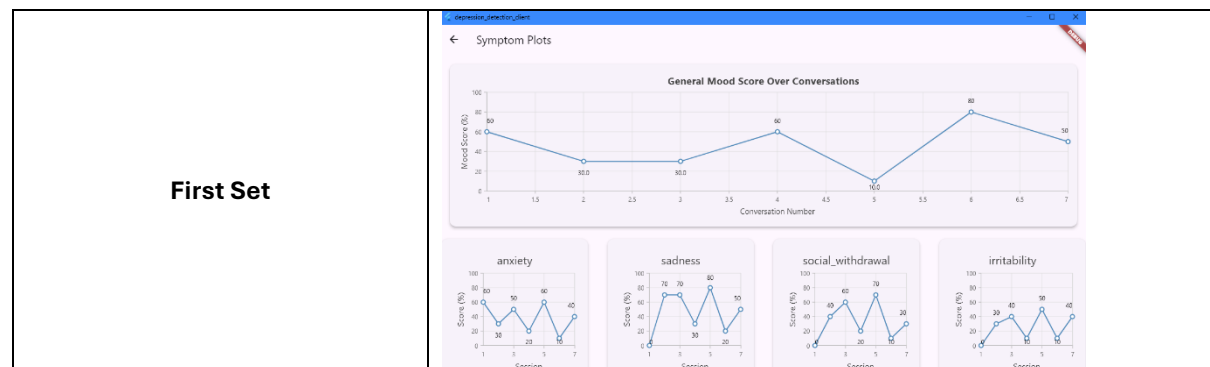
- **Built with Flutter:**
 - Provides a seamless and interactive user interface.
 - Handles chat interaction, and data visualization.
- **Key Features:**
 1. **Chat Interface:**
 - Real-time chat bubbles with text wrapping and auto scrolling.
 - Supports starting and ending conversations dynamically.
 2. **Data Visualization:**
 - Fetches data on depression symptoms from Node client and the general mood scores across conversations (0% to 100%), higher scores indicate higher probability of depression.
 - Uses Syncfusion charts to display graphs for symptoms and general mood.

EXAMPLES (SCREENSHOTS)

1. CHATS

Starting a chat	
Picking up the conversation after some time	

2. VISUALIZATION OF DATA





3. DATA STORAGE

```

() appDataJson × JS server.js
data > {} appDataJson > [] conversations
2   "conversations": [
3     {
4       "chat": [
21      {
23        "content": "Usually I just start thinking about what tasks I still have to complete and I fall asleep like that, sometimes I also dream about these tasks that I keep thinking of
24      },
25      {
26        "role": "assistant",
27        "content": "It sounds like these thoughts and dreams are really connected to the stress you're feeling about the project. When you wake up from dreaming about tasks, do you find
28      },
29      {
30        "role": "user",
31        "content": "I feel a heavy weight on my chest, probably because of all the pressure put on me by my team"
32      },
33      {
34        "role": "assistant",
35        "content": "It sounds like you're carrying a lot on your shoulders. When you feel that weight on your chest, are there specific moments or triggers during the day that make it fe
36      }
37    ],
38    "finalScores": {
39      "anxiety": 60,
40      "sadness": 0,
41      "social_withdrawal": 0,
42      "irritability": 0,
43      "sleep_disturbance": 70,
44      "appetite_disturbance": 0,
45      "reckless_behavior": 0,
46      "reduced_productivity": 0,
47      "loss_of_interest": 0,
48      "physical_complaints": 0,
49      "memory_issues": 0,
50      "fear_of_separation": 0,
51      "sensitivity_to_rejection": 0,
52      "physical_heaviness": 50,
53      "concentration_difficulty": 0,
54      "fatigue": 0,
55      "worthlessness": 0,
56      "suicidal_ideation": 0
  
```