Team099 - Aloo

1. Project Title

MediBuddy: A Personal Health Assistant

2. Project Summary

MediBuddy is a personal health assistant web application designed to help users manage their medications and basic healthcare needs. The platform enables users to store prescriptions, receive reminders for medication intake and refills, check for potential drug interactions, and stay connected with emergency contacts in case of non-compliance. In addition, MediBuddy integrates a conversational chatbot that allows users to discuss their symptoms and receive a preliminary health summary along with nearby doctor recommendations.

By combining multiple healthcare datasets and APIs, MediBuddy provides users with a practical, reliable, and intelligent tool to streamline day-to-day health management while ensuring safety and adherence to treatments.

3. Description of Application

The problem MediBuddy addresses is the challenge of medication management and accessibility of basic health insights. Many patients forget to take their prescriptions on time, fail to notice when their stock runs low, or are unaware of dangerous interactions between their active medications. MediBuddy simplifies this by centralizing prescriptions and using datasets and APIs to identify risks.

The chatbot offers additional utility: by taking user-reported symptoms and cross-referencing them with disease-symptom datasets, it generates a summary and recommends appropriate doctors nearby using the U.S. CMS provider dataset. This feature empowers users to make informed healthcare decisions and avoid delays in seeking professional care.

4. Creative Component

The creative component of MediBuddy lies in its chatbot-driven health assistant. The chatbot goes beyond keyword matching:

- It interprets free-text symptom descriptions from the user.
- It cross-references symptoms with a curated disease-symptom dataset.

- It summarizes possible conditions and maps them to specialties.
- Finally, it uses the CMS provider dataset to recommend nearby doctors by specialty and location.

This integration of symptom-to-condition mapping and cross-dataset querying creates a technically challenging yet valuable feature. It is not a simple search bar or API call, but a system in its own that improves user experience.

5. Usefulness

MediBuddy is useful because it combines multiple aspects of healthcare management into one accessible platform:

- Prescription storage and reminders reduce the risk of missed doses.
- Stock tracking and refill alerts ensure patients never run out of medication.
- Drug interaction checks increase safety by catching harmful combinations.
- The chatbot provides accessible health insights and doctor recommendations.
- Emergency contact notifications help caregivers intervene when necessary.

While there are apps like Medisafe or MyTherapy that handle reminders, MediBuddy is different because it integrates openFDA drug safety data and a symptom-doctor recommendation system, features typically found in separate applications. This integration gives MediBuddy a distinct edge.

6. Realness - Data Sources

MediBuddy will rely on **real-world datasets and APIs**:

1. **openFDA API** - provides drug interaction and safety data. Data in JSON format, dynamic and extensive (millions of records).
2. **CMS Provider Dataset** (link) - CSV format; contains information about healthcare providers, specialties, and practice locations (~2M+ records).
3. **Disease and Symptoms Dataset** (link) - CSV format; contains mappings of diseases to symptoms for chatbot reasoning (~1K+ rows, 800+ unique diseases).

7. Functionality

User Interactions

- **Read / Add / Update / Delete Prescriptions** - user inputs prescriptions (Image or PDF) which can be viewed, updated, or deleted
- **Drug Interaction Check** - system automatically checks the openFDA API for active drug interactions when a new prescription is added.
- **Reminders** - users can download a calendar file (.ics) or sync to Google Calendar.
- **Stock Tracking** - system reduces count after each dose; user can manually adjust for accidental loss.
- **Emergency Contact Notification** - system emails an emergency contact if a user misses multiple doses or fails to refill.
- **Chatbot Symptom Analysis** - user chats with the assistant about their symptoms; system generates a summary and recommends doctors by specialty and city using the CMS dataset.

UI Mockup (conceptual)

Please use this link: Wireframes.pdf

8. Project Work Distribution

- **UI/UX:** Aaryan Sharma
- **Frontend (Homepage/Dashboard and Prescriptions Tab):** Peter Guan
- **Frontend (Reminders Tab, Chatbot Tab, Settings):** Seth Oberholtzer
- **Backend (Connection to datasets):** Peter Guan
- **Backend (Calendar, reminders, prescription manager, etc.):** Zaid Khan Mohammed
- **Chatbot:** Aaryan Sharma, Seth Oberholtzer