AI DOCTOR CHATBOT

B.Tech CSE Core, Computing Technologies

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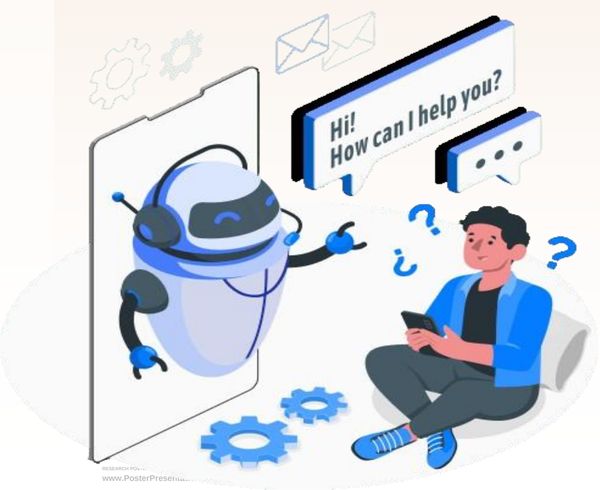
ABSTRACT

The AI Doctor Chatbot is an innovative web-based solution designed to provide preliminary medical assistance by analyzing user-reported symptoms. Developed using React and Vite, the chatbot leverages Google's Gemini API for intelligent and dynamic natural language understanding. Additionally, a local database (package.json) enhances the system by mapping common symptoms to recommended responses. The chatbot aims to offer instant, reliable, and user-friendly interactions, making basic healthcare advice more accessible. While not a replacement for professional diagnosis, it empowers users with initial guidance, contributing to improved health awareness and proactive care-seeking behavior.

OBJECTIVES

- To create a user-friendly health chatbot capable of interpreting symptoms via natural conversation.
- To provide medicine suggestions, home remedies, and general care tips.
- To utilize AI for instant, intelligent responses based on symptom patterns.
- To store and retrieve information using a SQL database for learning and history tracking.



MATERIALS & METHODS

- **Frontend**: React.js + Vite
- **AI Engine**: Gemini API
- **Database**: JSON (package.json)
- **Language**: JavaScript

Methodology:
- User Input Handler
- Symptom Matcher
- Gemini Query Engine
- Output Formatter
- **Tools**: VS Code, Chrome, Node.js

Modules

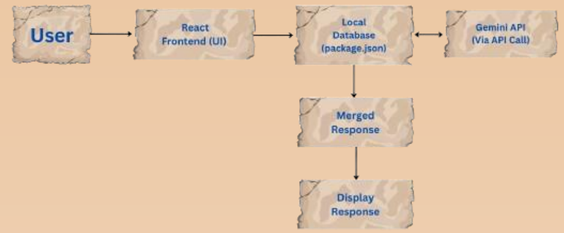
1. User Input Module
Purpose: Interface between user and the system.
- Captures raw text input.
- Preprocesses it (e.g., removes stopwords or irrelevant words).
- Sends sanitized input to next modules.
- **Handles:** typo resilience, user intent mapping.

2. AI Processing Module
Purpose: Communicate with Gemini API.
- Creates prompt combining user's symptom with medical context.
- Sends it securely using the API key.
- Receives contextual, conversational replies.
- Handles fallback logic if the AI returns no response or uncertain results.

3. Data Management Module
Purpose: Store and retrieve static mappings.
- Uses package.json to store common symptoms and their first-aid guidance.
- Local mapping helps with faster response and reduced API dependency.

4. Response Display Module
Purpose: Deliver a human-friendly, readable response.
- Displays both Gemini AI and local DB responses.
- Uses styled components to format chatbot replies.

Architecture Digram

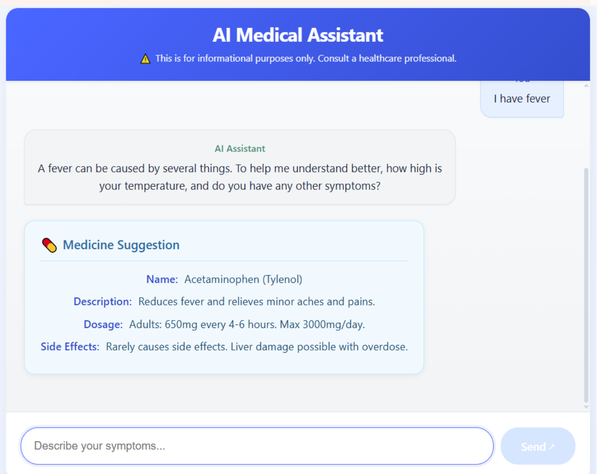


- **User Interface**: Built with React, capturing user inputs.
- **Local Database**: package.json stores predefined symptom-response pairs.
- **AI Integration**: Inputs are processed through Gemini API for dynamic responses.
- **Response Handling**: Combines AI output with local data to present comprehensive information to the user.

Results

The AI Doctor Chatbot successfully responds to common medical symptoms like fever, cold, and cough with relevant advice by combining Gemini API intelligence and local symptom mapping via package.json.
The chatbot delivers:
- Instant, AI-powered medical suggestions
- Context-aware responses, dynamically generated based on user inputs
- Lightweight and responsive frontend using React + Vite
- Accurate responses in line with the local symptom database, backed by Gemini's conversational capabilities.

The system was tested with multiple symptoms and consistently provided useful, coherent, and appropriate guidance to the user.



CONCLUSION

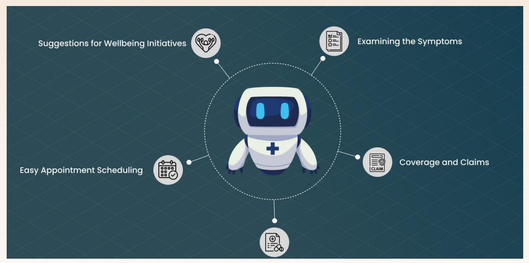
The AI Doctor Chatbot successfully demonstrates how artificial intelligence can enhance accessibility to preliminary healthcare advice. By combining a lightweight local database with the dynamic conversational power of Gemini API, the system provides instant, context-aware responses to user-reported symptoms.

This project highlights the potential of AI-driven chat interfaces in assisting users with basic medical information, promoting early awareness, and encouraging responsible healthcare decisions. While it does not replace professional diagnosis, it serves as a valuable tool for guiding users toward better health management.

Overall, the chatbot achieves its goal of offering a fast, reliable, and user-friendly solution that bridges the gap between technology and healthcare awareness.

Future Work

- **Enhanced Database**: Expand package.json to include a wider range of symptoms and responses.
- **Multilingual Support**: Incorporate language translation features for broader accessibility.
- **User Authentication**: Implement user accounts to track symptom history.
- **Mobile Application**: Develop a mobile version for increased accessibility.



References

1. **Gemini API Documentation** – https://ai.google.dev
2. **React Official Documentation** – https://reactjs.org
3. **Vite Build Tool** – https://vitejs.dev
4. **JavaScript MDN Docs** – https://developer.mozilla.org/en-US/docs/Web/JavaScript
5. **Healthcare Chatbot Research Articles** – IEEE Xplore / Google Scholar
6. **Stack Overflow & GitHub Discussions** – For community-based troubleshooting