**CHAT-HIVE**

**CHATHIVE** is a web-based chatbot application built using FastAPI, Google Gemini AI, and a frontend with HTML, CSS, and JavaScript. It allows users to engage in AI-driven conversations, storing chat history under unique chat IDs for continuity. The backend handles user queries, processes responses using the Gemini model, and returns formatted replies. The frontend provides a dark-themed, structured chat interface with dynamic updates, smooth interactions, and a sidebar for managing multiple chat sessions.

**BACKEND:**

* FastAPI-based chatbot integrating Google's Gemini AI for generating responses.
* Loads API key from .env file using dotenv for secure access.
* Configures genai library with the API key and fetches available Gemini models.
* Selects preferred model (gemini-2.0-flash-thinking-exp-01-21) if available; otherwise, uses the first available model.
* Initializes FastAPI app with Jinja2 templates for rendering an HTML-based frontend.
* Routes:
  + - / → Renders index.html displaying stored chats.
    - /chat → Processes user messages and retrieves AI response
* Response Formatting:
  + - Converts markdown-style bold text (\*\*text\*\*) to HTML <b> tags.
    - Replaces \* bullet points with • for better readability.
* Handles errors:
  + - Returns an error if no valid Gemini model is available.
    - Responds with a JSON error message if an exception occurs.

**FRONTEND:**

* Simple chatbot frontend built using HTML, CSS, and JavaScript, interacting with a FastAPI backend.
* Layout Components:
  + - Sidebar with a "New Chat" button to start fresh conversations.
    - Chat container displaying user messages (right, purple) and bot responses (left, gray).
    - Input field for users to type messages.
* Message Handling:
  + - Messages are submitted via an AJAX request to the /chat endpoint of the FastAPI server.
    - The "Send" button is temporarily disabled while fetching a response.
    - The chat history updates dynamically as messages arrive.
* CSS Styling Features:
  + - Dark-themed interface with smooth transitions and structured spacing.
    - Responsive layout for a clean and modern chat experience.
* User Experience Enhancements:
  + - Auto-scrolling ensures new messages are always visible.
    - Error Handling: Displays a message if the server is unavailable.

**USERINTERFACE:  
  
A black screen with white text

AI-generated content may be incorrect.**

**SAMPLE OUTPUT:**

**A screenshot of a computer

AI-generated content may be incorrect.**

**PROJECT STRUCTURE:**

**A screen shot of a computer screen

AI-generated content may be incorrect.**

* backend/ - Contains the backend logic and API handling.
* templates/ - Stores frontend HTML files for rendering UI.
* Files:
* index.html - The main chatbot UI (HTML + JavaScript for interactions).
* main.py - FastAPI backend handling chat requests and AI responses.
* .env - Stores the Google Gemini API key (keep it secret).
* requirements.txt - Lists necessary Python dependencies.
* .gitignore - Prevents committing sensitive/unnecessary files to Git.
* README.md - Documentation explaining setup and usage.