Project Report – Sauriel Chatbot

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# Title of the Project

Sauriel Chatbot – A Mental Health Support System

# Abstract

The Sauriel Chatbot is a web-based application designed to provide real-time mental health support through interactive conversations. It is developed using Flask for the backend and React (Vite) with Tailwind CSS for the frontend. The chatbot simulates counseling sessions and helps users share their thoughts, offering a clean, user-friendly interface and smooth communication. This project aims to build an easily deployable and extendable support system that can be further integrated with databases and advanced AI solutions.

# Objectives

• To develop a chatbot interface that allows users to share mental health concerns.  
• To create a RESTful API using Flask that processes user messages.  
• To design a responsive, intuitive frontend using modern frameworks like React and Tailwind CSS.  
• To enable session tracking for better user experience.  
• To create documentation and project structure that can be easily shared and deployed.

# Technologies Used

Backend:  
• Python  
• Flask  
• Flask-Cors  
• Gunicorn  
  
Frontend:  
• React (Vite)  
• Tailwind CSS  
• Axios for API requests  
  
Tools:  
• Git & GitHub for version control  
• Visual Studio Code / Online IDE for development

# System Architecture

User → Frontend (React) → API Request → Backend (Flask) → Response → Frontend → User  
  
1. The user types a message in the chatbot interface.  
2. The message is sent via an API request to the Flask server.  
3. The Flask server processes the request and sends a response.  
4. The frontend displays the response in real time.

# Implementation Details

Backend:  
• The backend is built with Flask.  
• CORS is enabled to allow requests from the frontend.  
• The server runs using Gunicorn for deployment readiness.  
• All dependencies are listed in requirements.txt.  
  
Frontend:  
• React is used with Vite for fast development.  
• Tailwind CSS provides responsive and modern styling.  
• Axios handles HTTP requests to the backend.  
• The UI is structured with reusable components for scalability.

# Features

• Real-time messaging  
• Simple and intuitive user interface  
• Session tracking for conversations  
• Easily extendable architecture  
• Well-documented setup instructions

# Challenges Faced

• Handling cross-origin requests between frontend and backend.  
• Managing session states and ensuring the chat flows smoothly.  
• Learning new tools like Vite and Tailwind CSS for frontend development.  
• Structuring the project for easy sharing and deployment without access to a PC.

# Screenshots / UI Previews

# Future Scope

• Integrate database storage for storing chat history and user profiles.  
• Implement user authentication for privacy and security.  
• Deploy the application using cloud platforms like Render and Vercel.  
• Add AI-based conversation flow using Natural Language Processing libraries.  
• Provide multilingual support and voice interaction.

# Conclusion

The Sauriel Chatbot is a step toward creating accessible mental health support tools using modern web technologies. Though developed as a learning project, it provides a foundation that can be scaled for real-world applications. The project also emphasizes good documentation, modular code structure, and best practices in web development.

# References

• Flask Documentation: https://flask.palletsprojects.com/  
• React Documentation: https://reactjs.org/docs/getting-started.html  
• Tailwind CSS: https://tailwindcss.com/docs/installation  
• Vite: https://vitejs.dev/