

WellBot Global Multilingual Wellness Assistant

AI-powered conversational assistant delivering accessible health information worldwide

Team Details:

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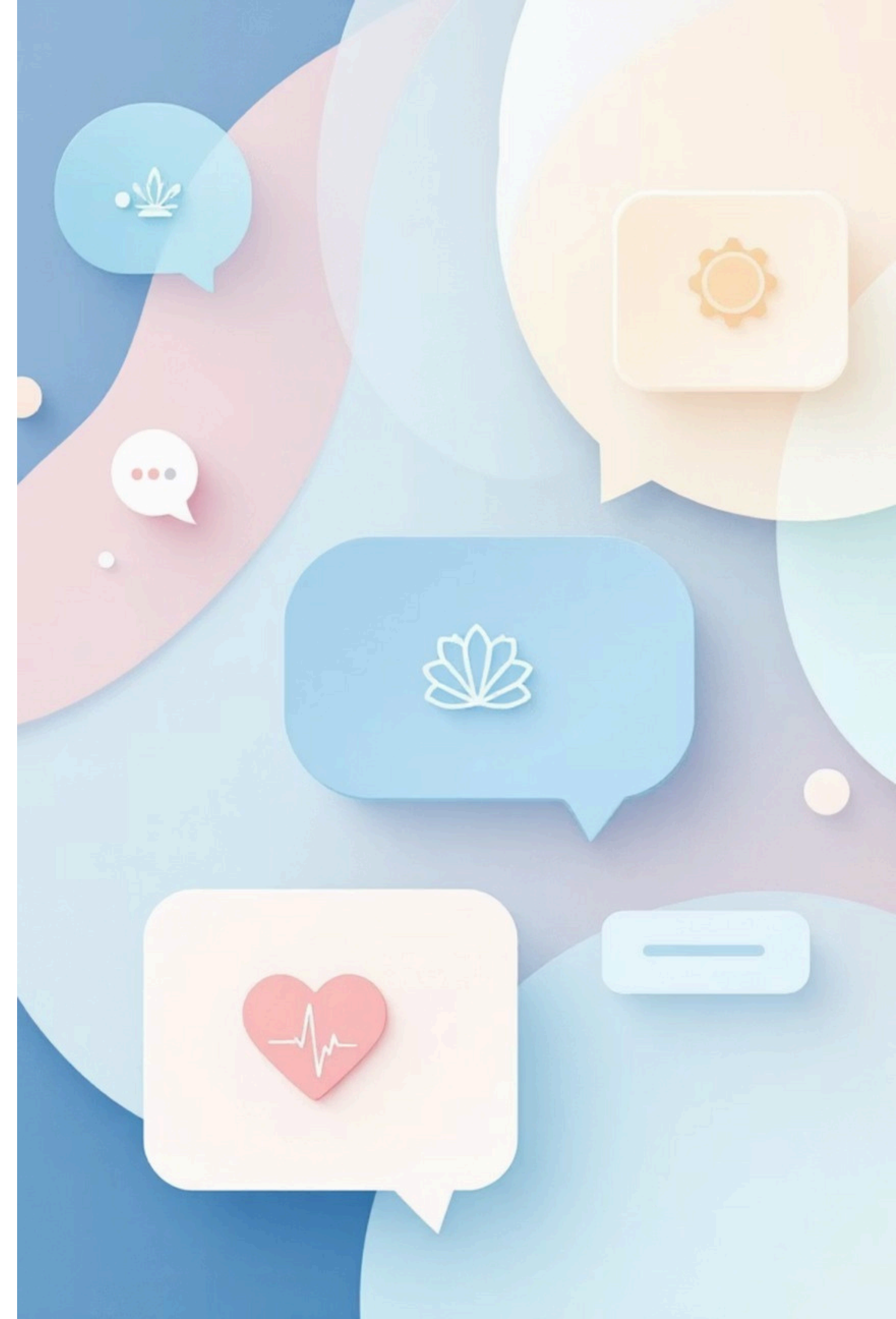
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Omkar Bondge

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Under the guidance of:

Dr.K.Santhiya



Project Introduction

Mission

Deliver accessible, non-diagnostic wellness information based on authoritative sources (WHO/CDC guidelines) through an intelligent, multilingual conversational interface

Core Technologies



Flask

Backend & web framework



JWT Auth

Secure HTTP-only cookies



Rasa

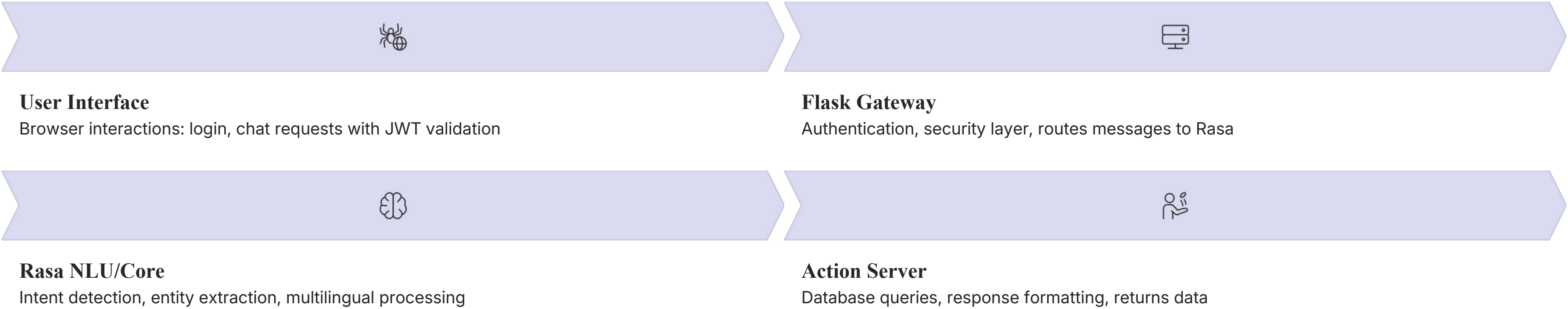
NLU & conversational AI



SQLite

Data persistence layer

System Architecture



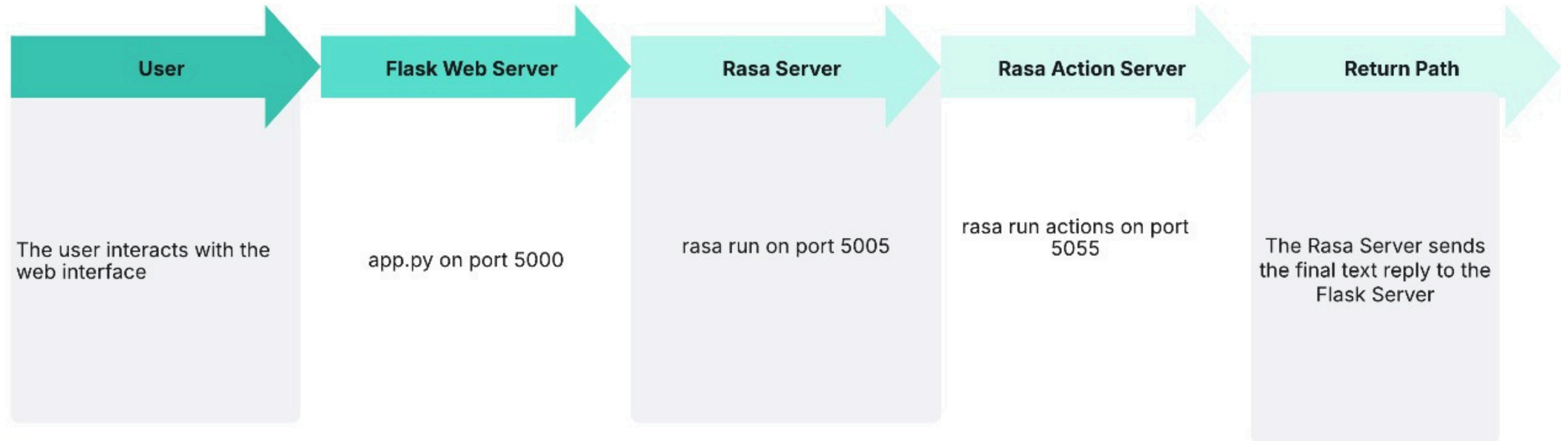
Integrated 3-Component Model

Flask server acts as central gateway, coordinating authentication, conversation flow, and knowledge base access

Secure Data Flow

- JWT-protected endpoints
- Language-aware routing
- Real-time database queries
- Bilingual response delivery

System Architecture



Welcome Back!

Please log in to your account.

Email:

Password:

Login

Don't have an account? [Sign Up](#)

[Admin Login](#)

Milestone 1: Foundation

User Authentication & Profile Management

01

User Registration

Secure account creation with salted/hashed passwords, capturing email, age group, preferred language

JWT-Based Login

Credential validation with secure HTTP-only cookie session establishment

Profile API

Protected endpoints for GET/PUT operations on user preferences and settings

Page Security

Automatic redirection for unauthenticated users accessing protected routes

Security First

werkzeug.security for password hashing, JWT tokens in HTTP-only cookies, protected API endpoints

User-Centric Design

Multilingual preference storage, age-appropriate content filtering, persistent session management



Milestone 2: Core Engine

Conversational AI & Web Interface



Rasa NLU Model

Trained to understand greet, goodbye, ask_symptom, ask_first_aid intents with entity extraction



Knowledge Base

SQLitehealth_knowledge table storing intent-entity-response mappings for English and Hindi



Custom Actions

ActionQueryKnowledgeBase connects to database, queries based on intent/entity, formats responses

Full-Stack UI

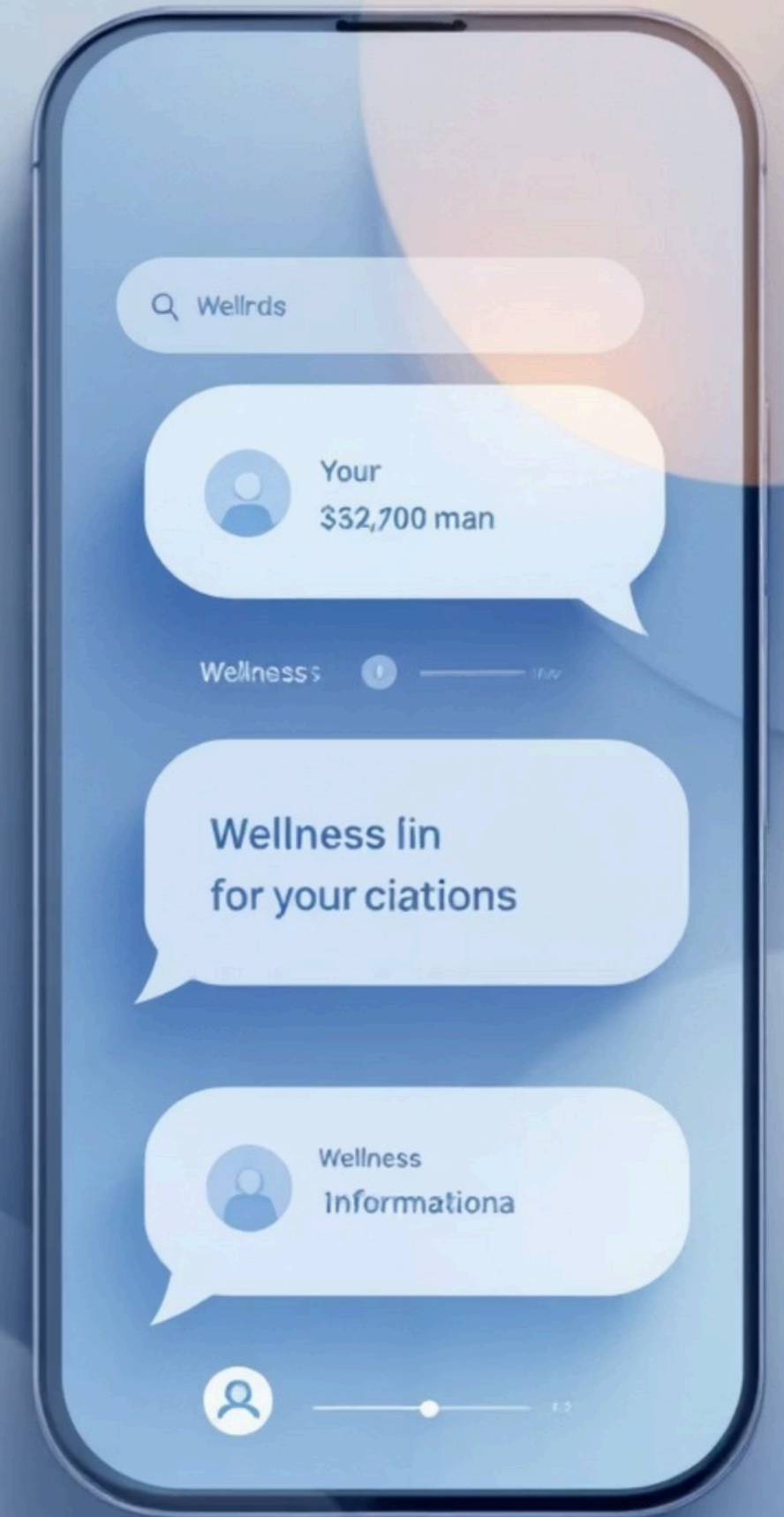
- Flask templates
- Professional CSS
- Dynamic JavaScript
-

Data Pipeline

- CSV import script
- Pandas processing
- SQLite persistence

API Integration

- /chat endpoint
- Real-time responses
- JSON formatting



Hello! I'm your Wellness Guide Bot. I can provide health information in multiple languages.

Note: The information provided is for general guidance and not a substitute for professional medical advice. Please consult a healthcare professional for any health concerns.

For example, you can try:

what are the symptoms of flu

how to prevent a cold

Hello! I'm your wellness assistant. You can ask me about symptoms, first-aid, or general wellness tips.

what are the symptoms of flu

Flu symptoms are more severe and include fever, body aches, headache, fatigue, and cough. Always consult a medical professional for a diagnosis.

what are symptoms of cold

Common cold symptoms include a runny nose, sore throat, sneezing, and cough. This is informational only and not a diagnosis.

The bot accurately distinguishes between specific conditions—identifying 'flu' vs. 'cold'—to retrieve the correct medical guidelines for each."

Milestone 3: Enhancement

Advanced NLP & Multilingual Expansion

1	100+ Knowledge Entries Comprehensive health database covering illnesses, first-aid, wellness tips, prevention—all WHO/CDC-styled
2	Ethical Guardrails Automatic disclaimer at conversation start: "Not a medical professional"
3	Hindi NLU Model Complete Hindi training dataset (data/hi/nlu.yml) with intent/entity examples
4	Dynamic Language Routing User preference metadata passed to Rasa, response_en or response_hi selected automatically
5	Advanced Entity Extraction New entities: duration, severity, location for precise health query understanding

Safety & Ethics

Clear disclaimers, non-diagnostic language, authoritative source alignment

True Bilingual Support

Intent recognition and response generation in both English and Hindi



I have a severe cold for 3 days

Common cold symptoms include a runny nose, sore throat, sneezing, and cough. This is informational only and not a diagnosis.

Advanced Entity Extraction: The system now parses complex user inputs. In the first example ('severe cold for 3 days'), the NLU successfully identifies granular details like Severity ('severe') and Duration ('3 days').

चिकनपॉक्स (छोटी माता) के लक्षणों में आमतौर पर तरल पदार्थ से भरे फफोलों के साथ खुजलीदार दाने, बुखार, थकान और सिरदर्द शामिल हैं। यह अत्यधिक संक्रामक है।

खरोंच का इलाज कैसे करें?

क्षेत्र को साबुन और ठंडे पानी से धीरे से साफ करें। एंटीबायोटिक मरहम की एक पतली परत (यदि एलर्जी नहीं है) लगाएं और एक जीवाणुरहित पट्टी से ढक दें।

The interface demonstrates the active Hindi NLU Model. The bot correctly processes queries in hindi and retrieves medically accurate responses in Hindi, proving the system is fully multilingual.

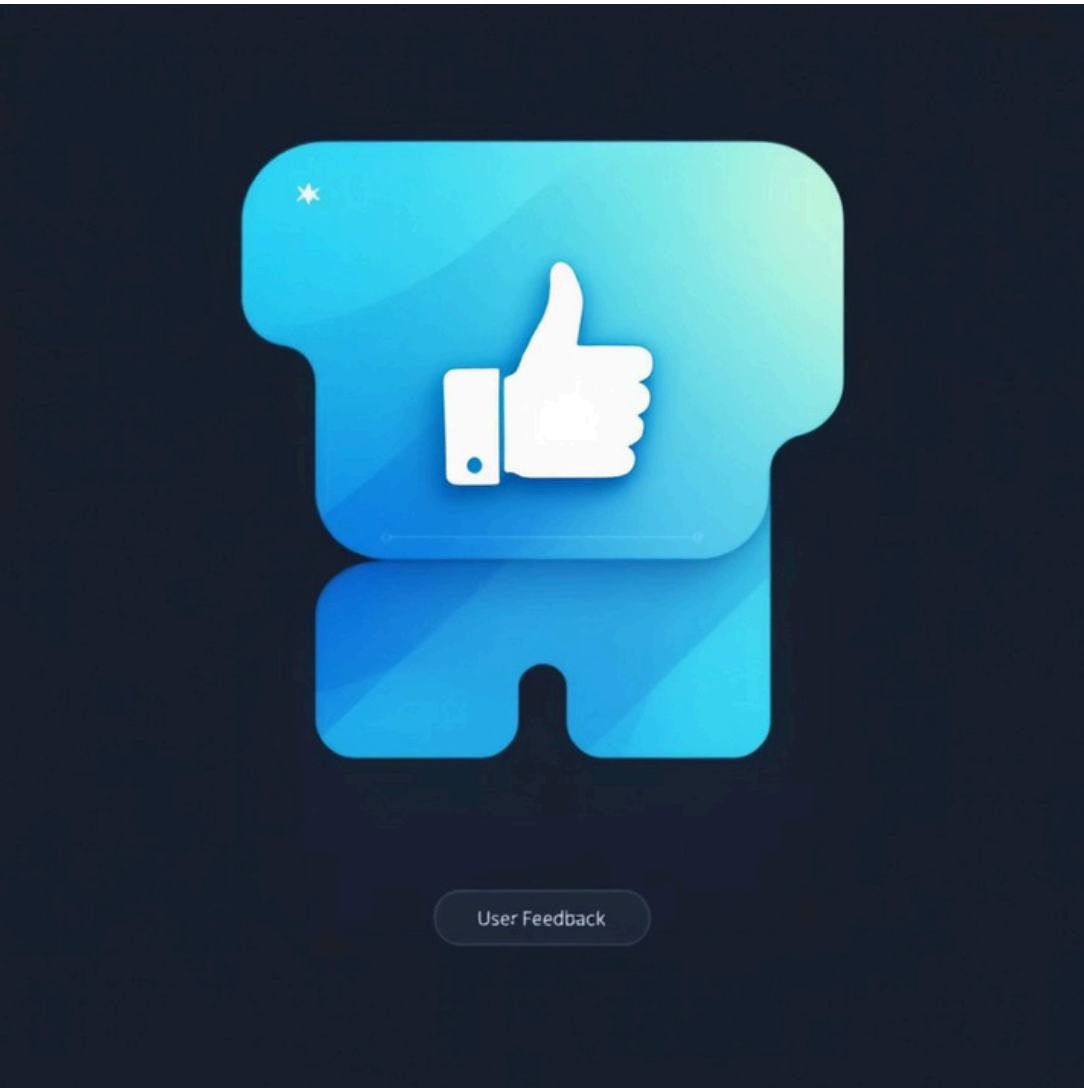
Milestone 4: Admin Control

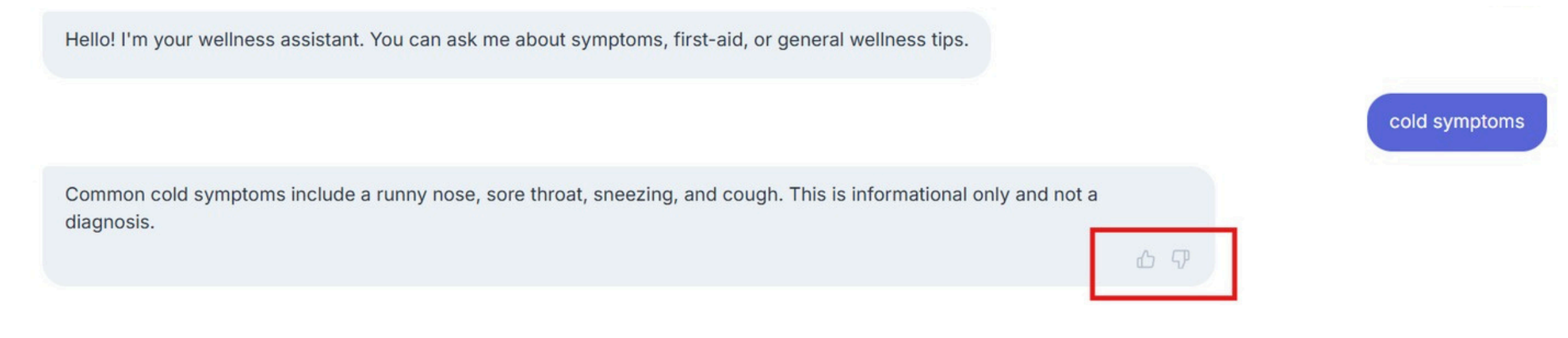
Dashboard & System Refinement

Knowledge Base Management View, add, delete intent-entity-response mappings directly from web UI	User Analytics Monitor interaction logs, identify common queries and usage patterns	Feedback Review Aggregate user ratings and comments to drive continuous improvement
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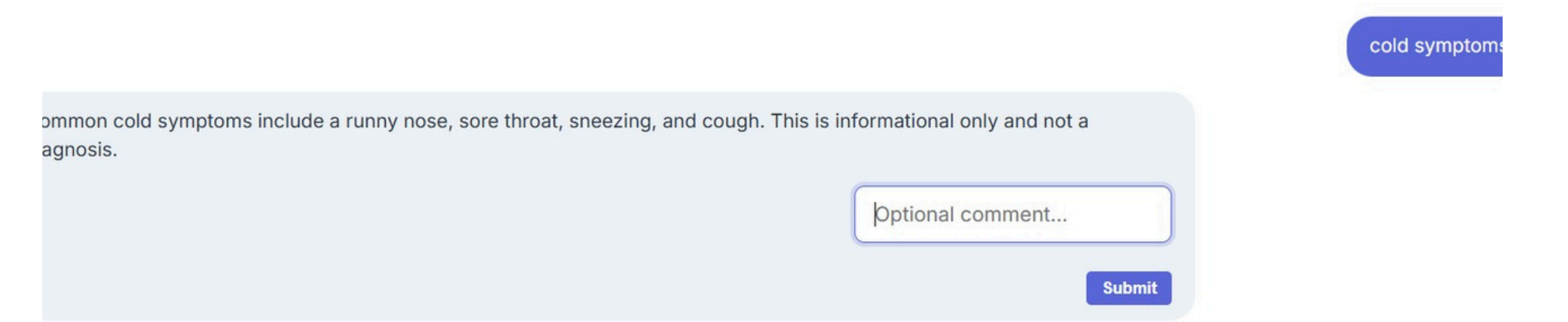
User Feedback Loop

Rating System Thumbsup/downonevery bot response
Comment Box Qualitativefeedbackwith timestamps
Feedback API Secure/feedbackendpoint with user ID tracking

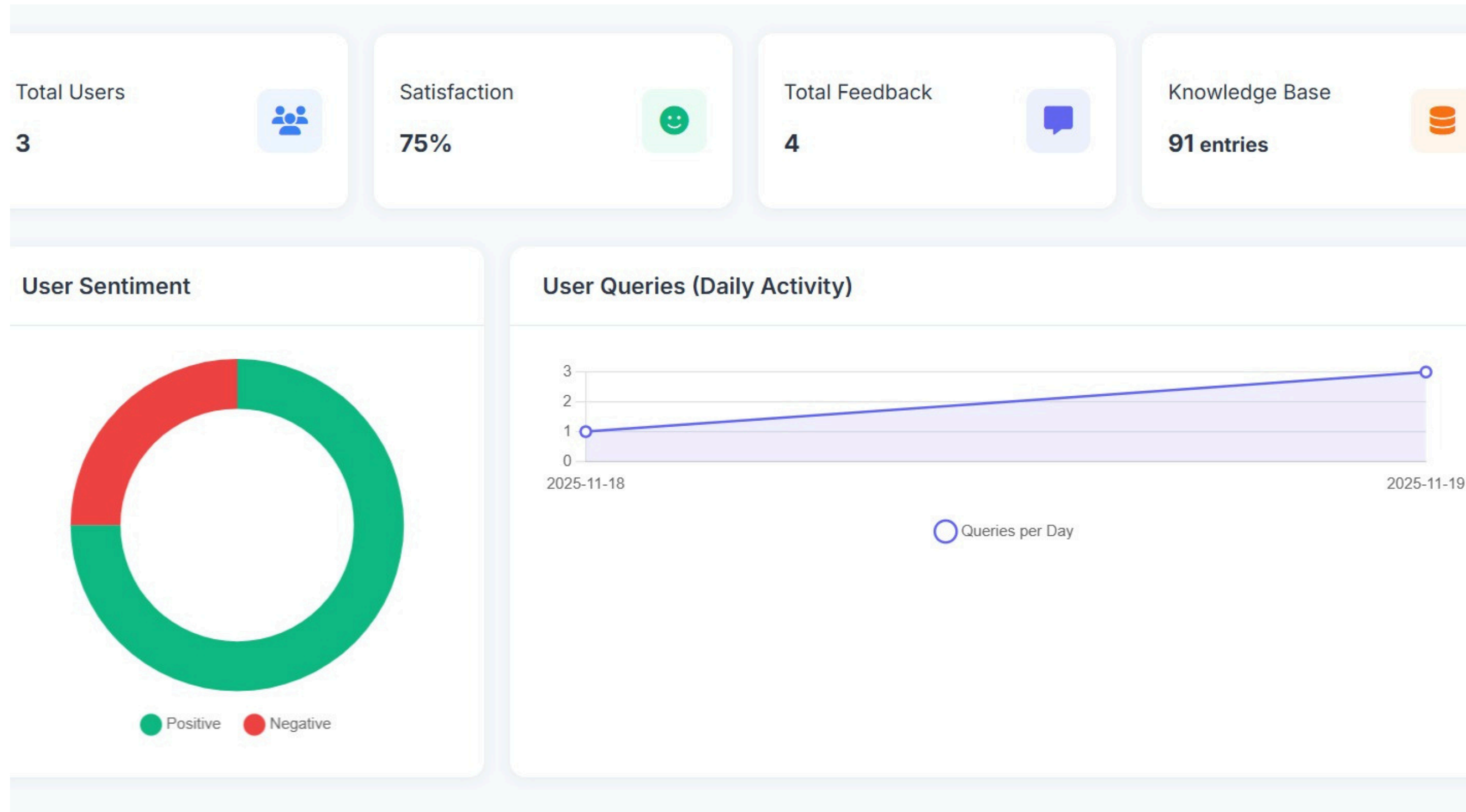




Rating System on every response (shown in the red box), allowing users to instantly provide 'thumbs up' or 'thumbs down' validation.



Upon a negative rating ('thumbs down'), a comment box appears, allowing the user to provide specific, contextual reasons for the unsatisfactory response



Admin Dashboard allows administrators to review the qualitative feedback submitted by users.

Feedback

Knowledge Base

User Logs

			emergency....	स्थिति...	
40	ask_first_aid	bee sting	Remove the stinger by scraping it off with a flat edge...	डंक को एक सपाट किनारे (जैसे क्रेडिट कार्ड) से खुरच कर...	
39	ask_first_aid	choking	For an adult, perform the Heimlich maneuver (abdominal...	एक वयस्क के लिए, हेमलिच पैंतरेबाज़ी (पेट पर दबाव) का...	
26	ask_first_aid	cold	For a cold, focus on rest and hydration....	सर्दी-जुकाम के लिए आराम और हाइड्रेशन पर ध्यान दें।...	
49	ask_first_aid	constipation	For mild constipation, try increasing fiber intake,...	हल्की कब्ज के लिए, फाइबर का सेवन बढ़ाने, अधिक पानी पीने...	
33	ask_first_aid	cut	Apply gentle, direct pressure with a clean cloth to stop...	खून बहना रोकने के लिए एक साफ कपड़े से हल्का, सीधा दबाव...	
89	ask first aid	default	For any serious medical situation, please	किसी भी गंभीर चिकित्सा स्थिति के लिए कपया तरंत...	

Knowledge Base Management :This allows administrators to directly View, Add, or Delete intent-entity-response mappings.

Recent User Feedback					
STATUS	USER ID	MESSAGE	COMMENT	DATE	
Good	3	i am having a bee bite		2025-11-19	
Good	3	i am having fever	response is good	2025-11-19	
Bad	3	cold symptoms		2025-11-19	
Good	1	चिकनपॉक्स के लक्षण क्या हैं?	good response	2025-11-18	

FeedBack: This dashboard view allows administrators to review specific user comments and messages in real-time to immediately target and correct knowledge gaps.

UI/UX Excellence

Professional Aesthetic

Consistent indigo/violet theme, modern design language, polished visual hierarchy

Responsive Layout

Two-column chat interface with navigation sidebar, optimized for desktop

Split-Screen Auth

Enhanced login/registration experience with visual appeal and clear user flow

Production-Ready

Secure, scalable, multilingual wellness assistant built with best practices

100+

Knowledge Entries

2

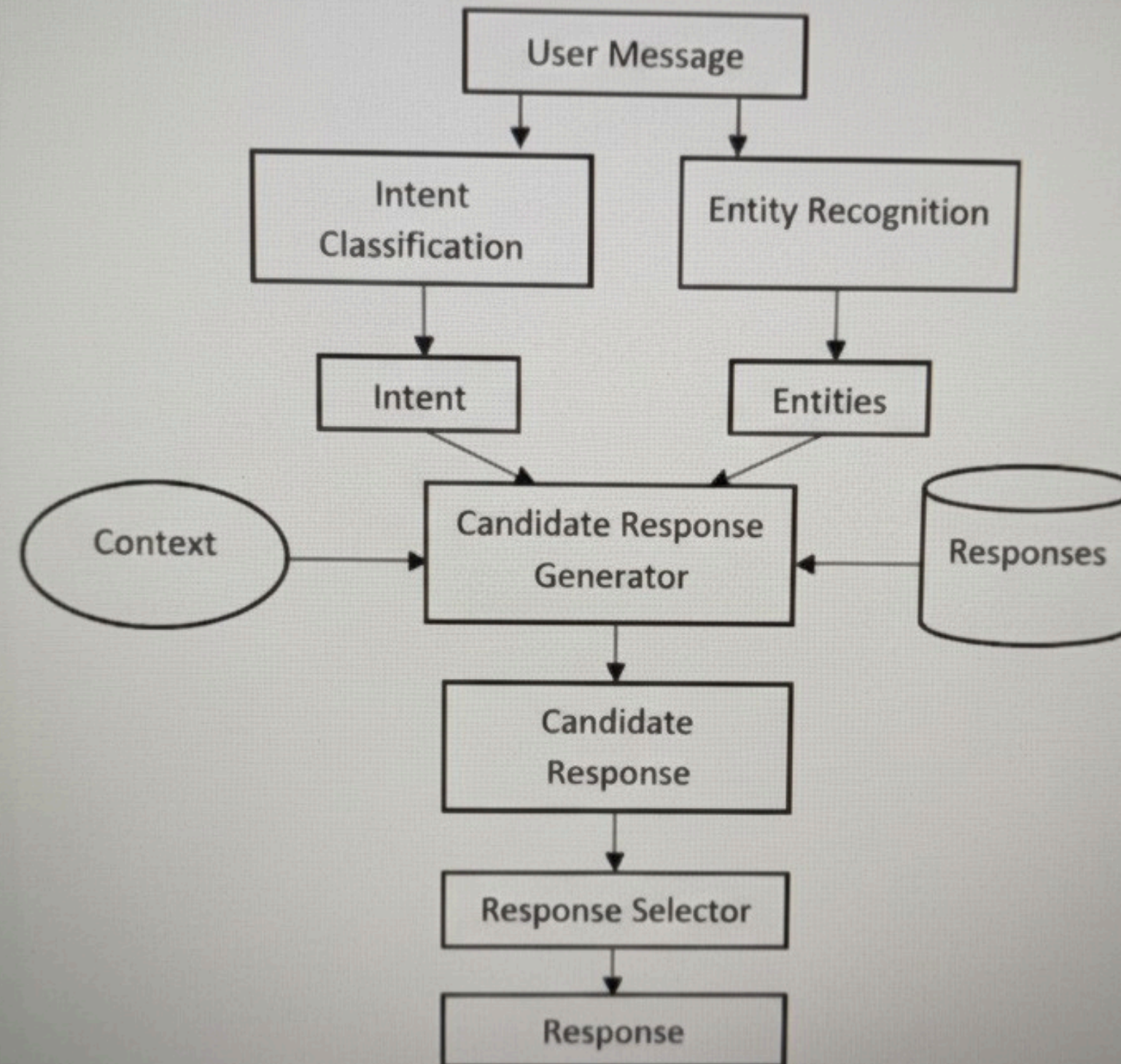
Languages

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Major Milestones



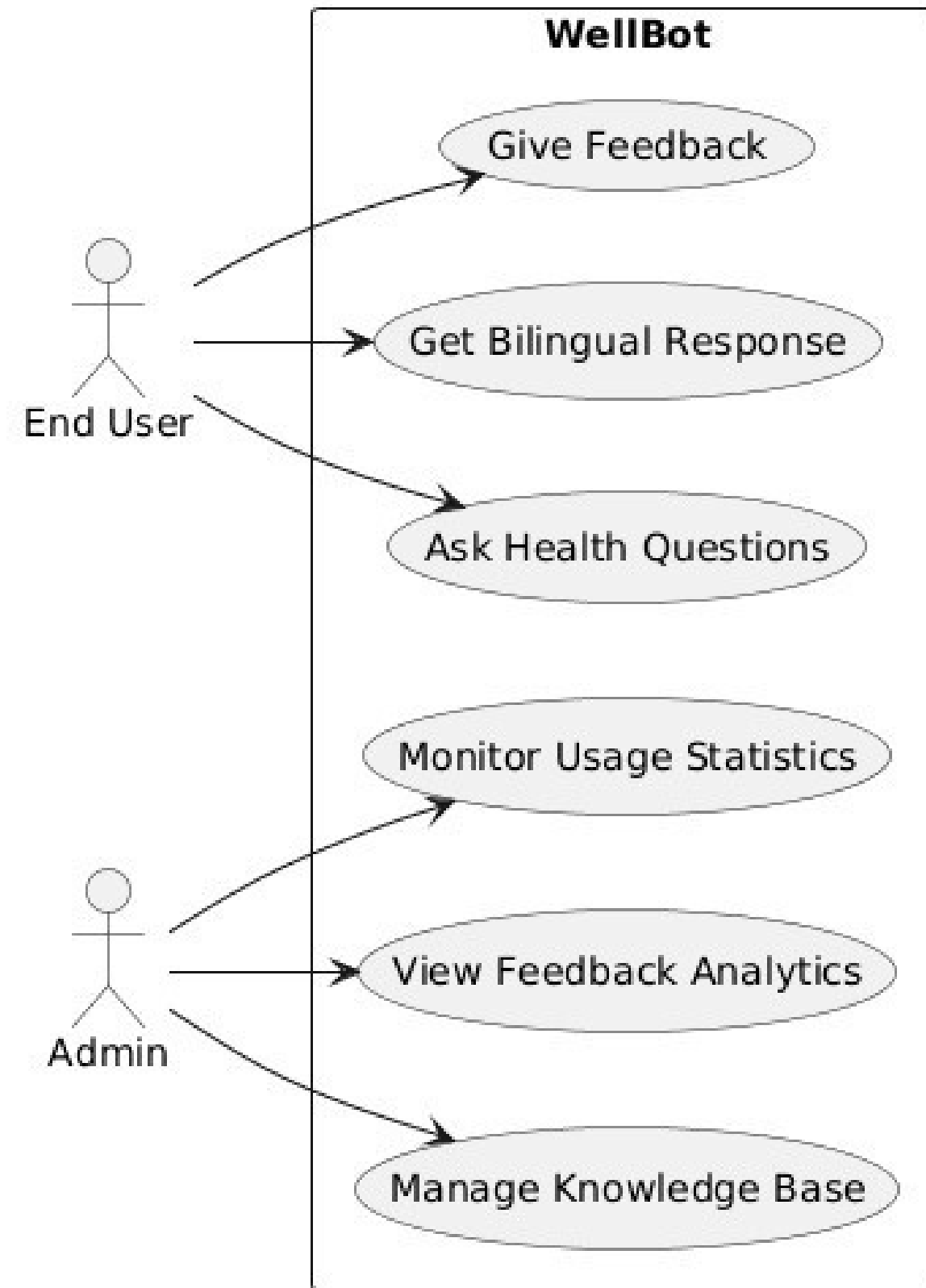
User Workflow



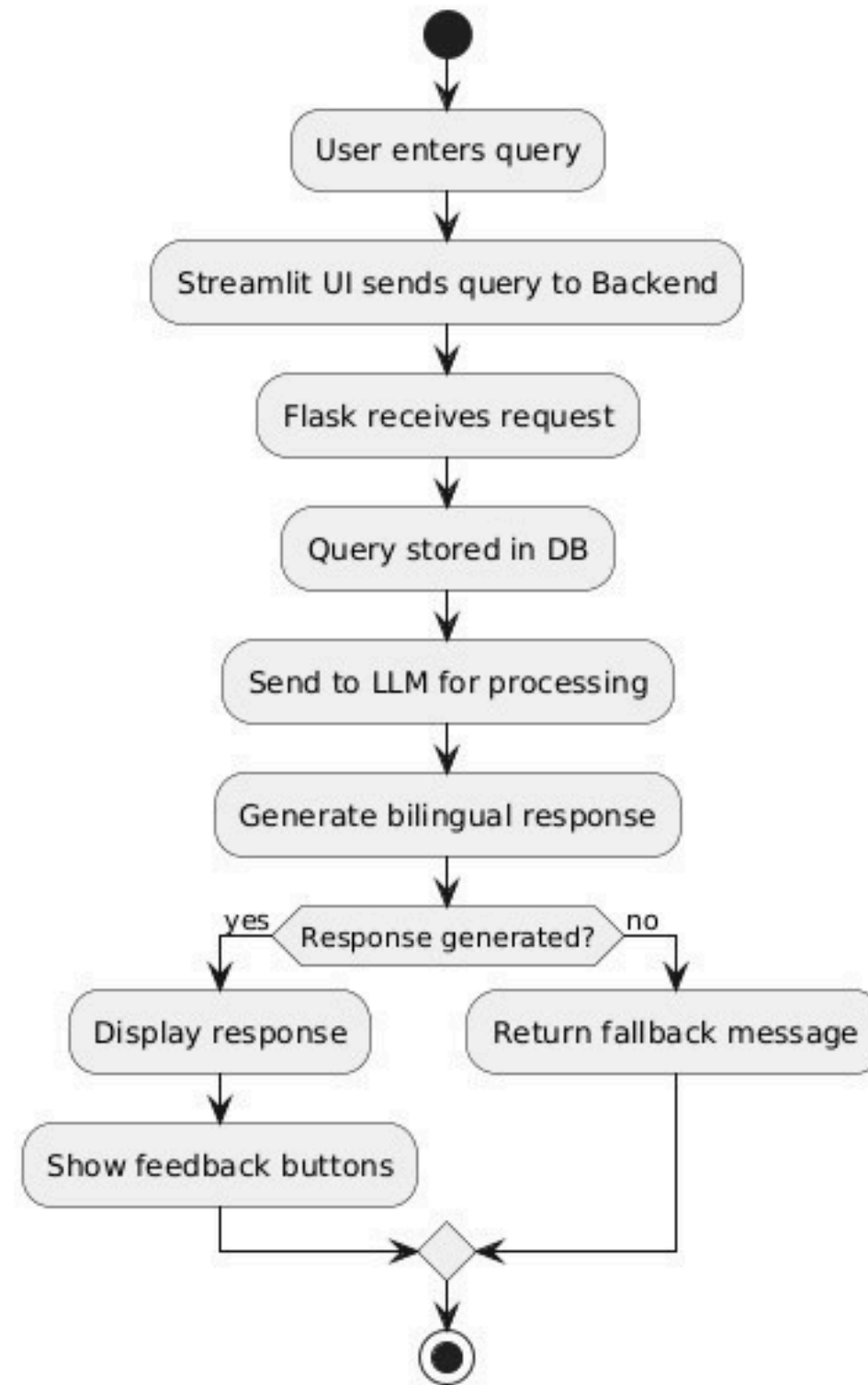
Database Schema



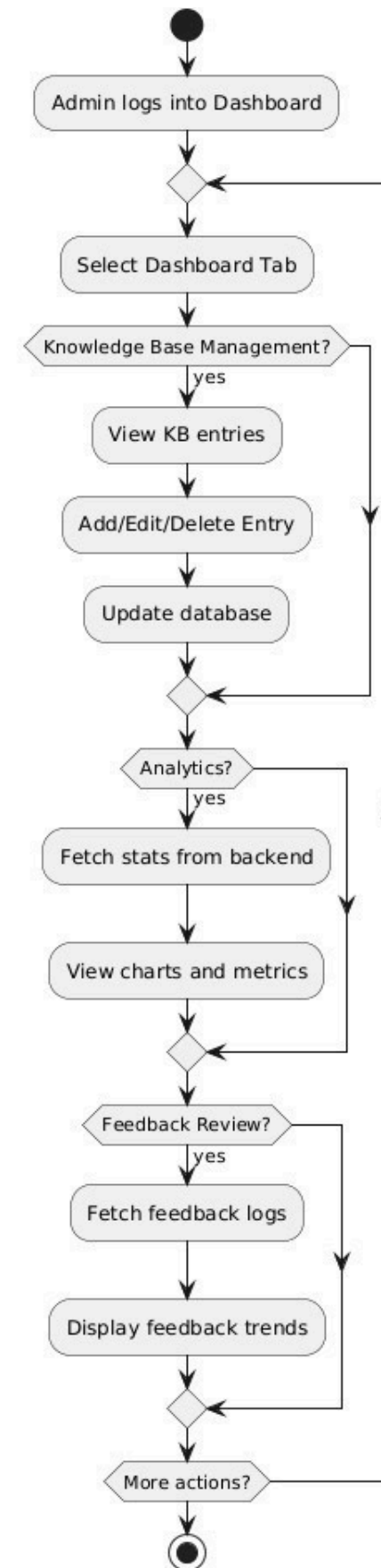
Usecase Diagram



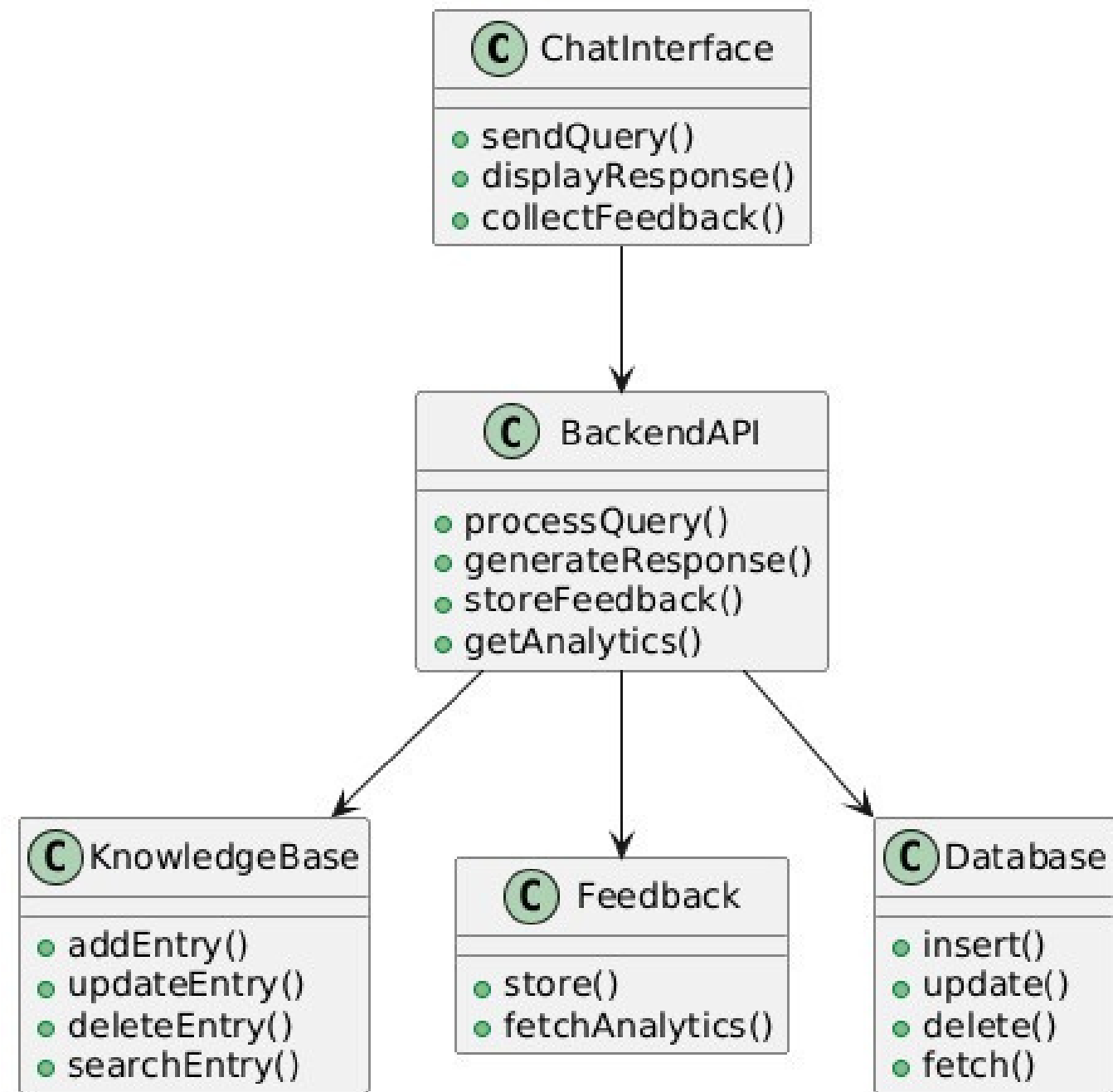
Chatbot Activity Diagram



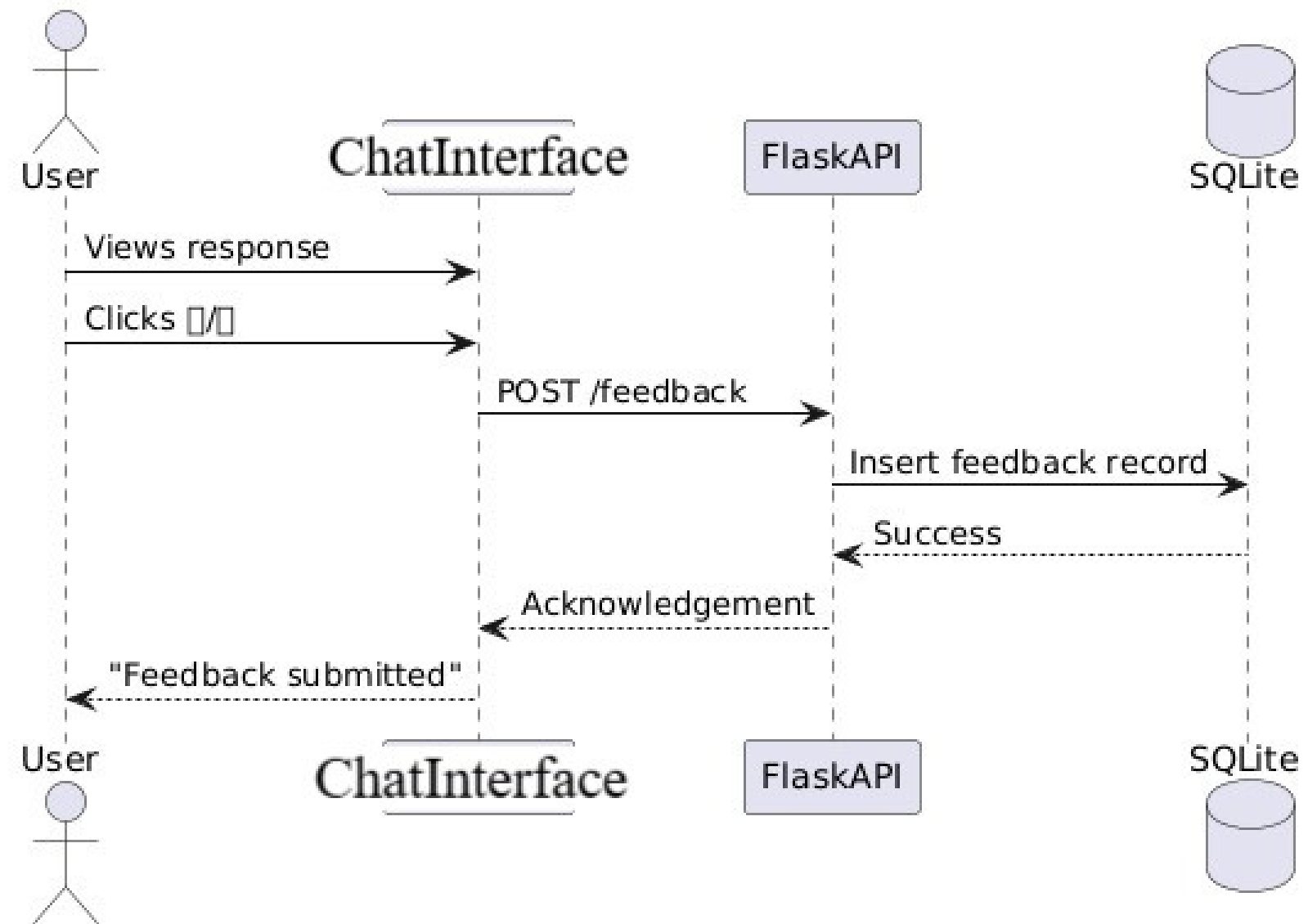
Admin Dashborad Activity Diagram



Class Diagram



Sequence Diagram



Expected Outcomes:

- WellBot successfully provides simplified, multilingual (English & Hindi) health information to
- users while maintaining privacy and clarity.
- Developed a complete AI-powered chatbot system with real-time, user-friendly interaction.
- Designed and implemented a fully functional Admin Dashboard for analytics, knowledge base management, and monitoring chatbot usage.
- Integrated an effective User Feedback Mechanism (thumbs up/down + comments) that
- supports iterative system improvement.
- Established a strong backend analytics pipeline to track queries, trends, categories, and
- feedback statistics.
- Ensured scalable architecture with modular frontend, backend, and database components.
- Created a system that is maintainable, extensible, and user-centric, supporting future
- upgrades.
- Overall, WellBot represents a robust and accessible solution for delivering simplified digital health education.

Future Scope

- Voice-Enabled Interaction (Speech-to-Text & Text-to-Speech)
- Health Insights & Predictive Analytics Integration with
- External Health APIs & Telemedicine Enhanced NLU with
- Large Language Models (LLMs) Expansion to Mobile
- Application

Conclusion

The Wellness Guide Bot successfully makes trustworthy wellness information easy for users to access. Built using Flask, SQLite, and Rasa, it provides a smooth and intelligent user experience. The bot stays within ethical limits by offering only general guidance and always showing a disclaimer to ensure user safety.

One of its strongest features is bilingual support, allowing both English and Hindi users to interact naturally and receive accurate responses. Overall, the system is secure, user-friendly, and inclusive, effectively bridging the gap between complex medical data and everyday users.

**THANK
YOU**

