

# WellBot Global Multilingual Wellness Assistant

AI-powered conversational assistant delivering accessible health information worldwide

Team Details:

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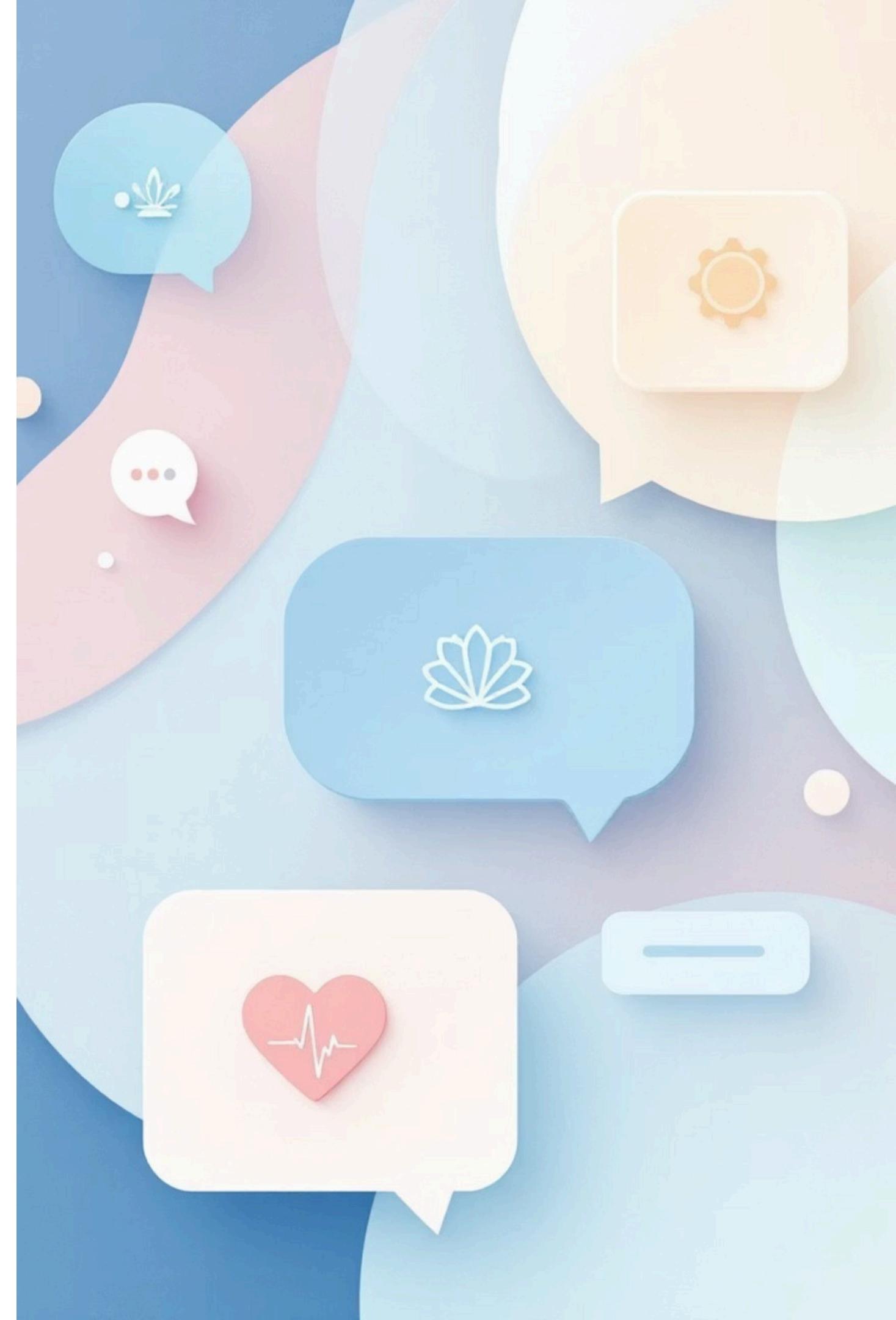
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Under the guidance of:

Dr.K.Santhyia



# 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



## User Interface

Browser interactions: login, chat requests with JWT validation



## Rasa NLU/Core

Intent detection, entity extraction, multilingual processing

## Integrated 3-Component Model

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

## Flask Gateway

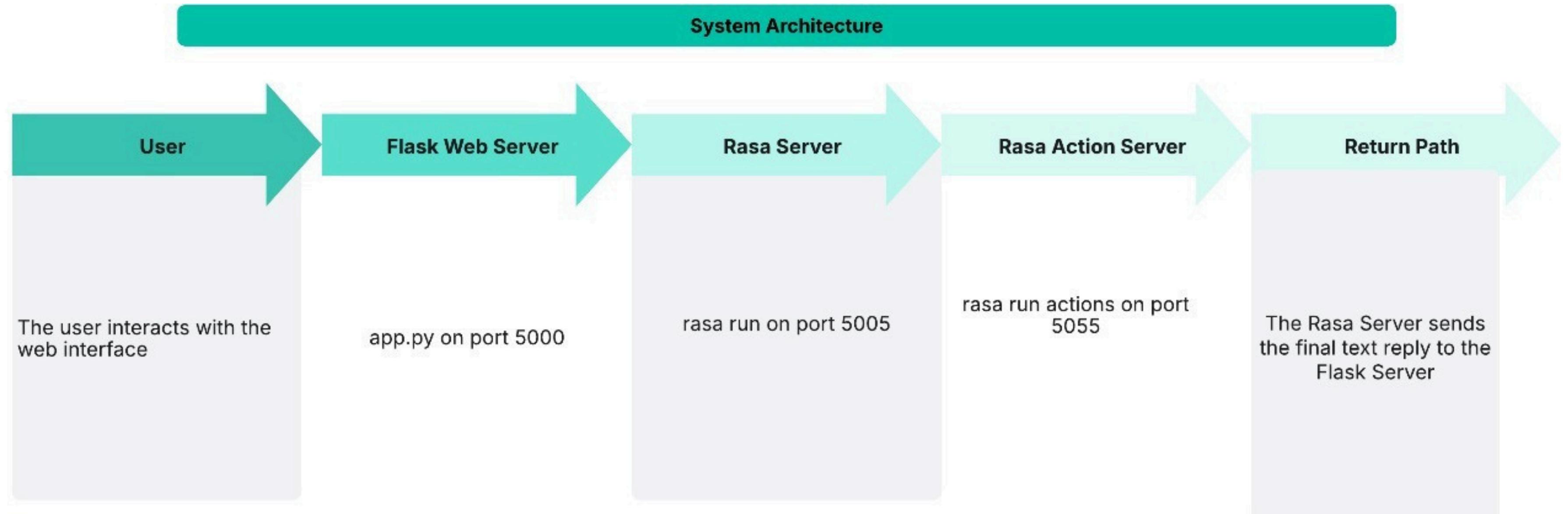
Authentication, security layer, routes messages to Rasa

## Action Server

Database queries, response formatting, returns data

## Secure Data Flow

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



# 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

SQLite health\_knowledge table storing intent-entity-response mappings for English and Hindi



### Custom Actions

Action Query Knowledge Base connects to database, queries based on intent/entity, formats responses

### Full-Stack UI

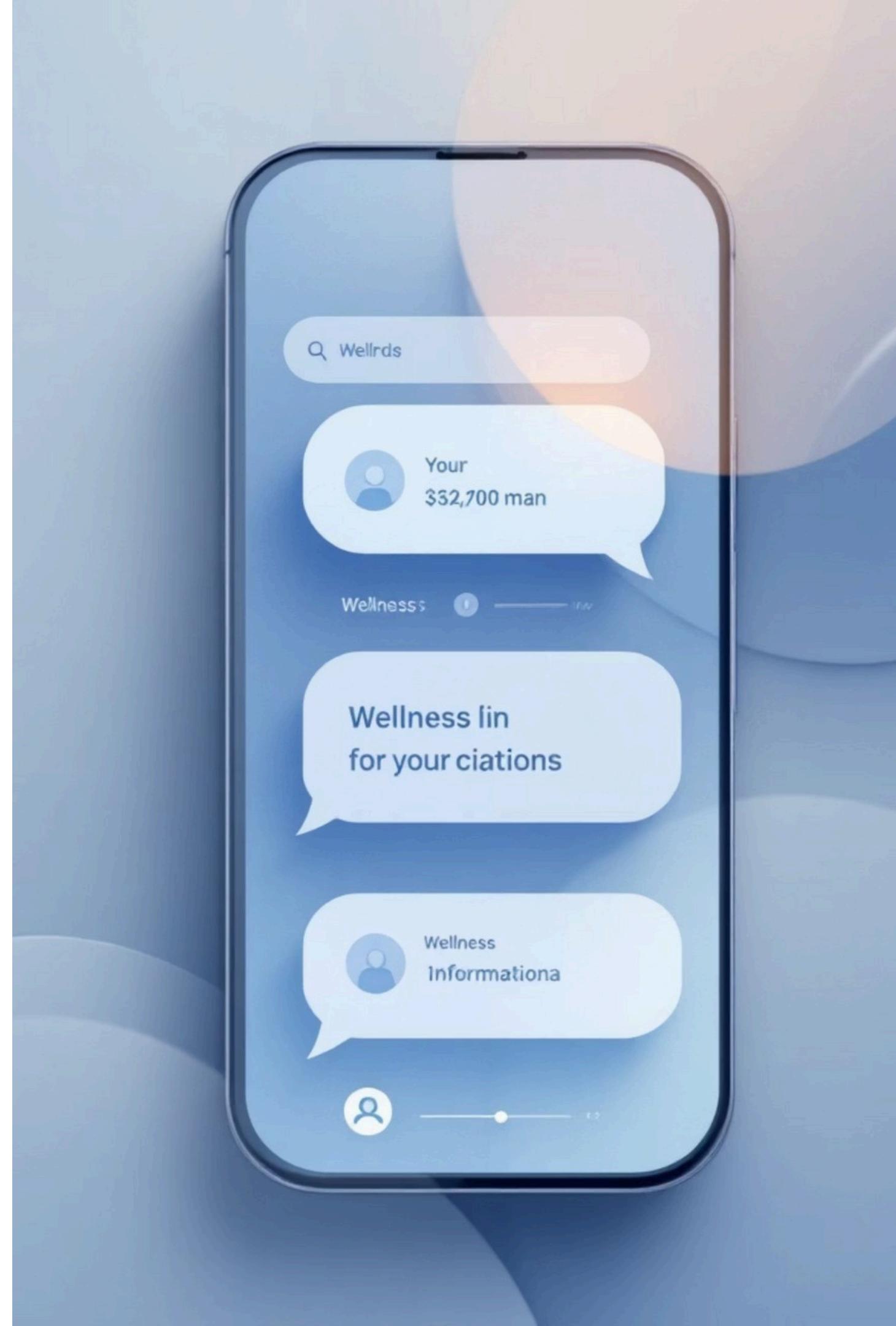
- Flask templates
- Professional CSS
- Dynamic JavaScript

### 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 meta data 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

## User Feedback Loop

### Rating System

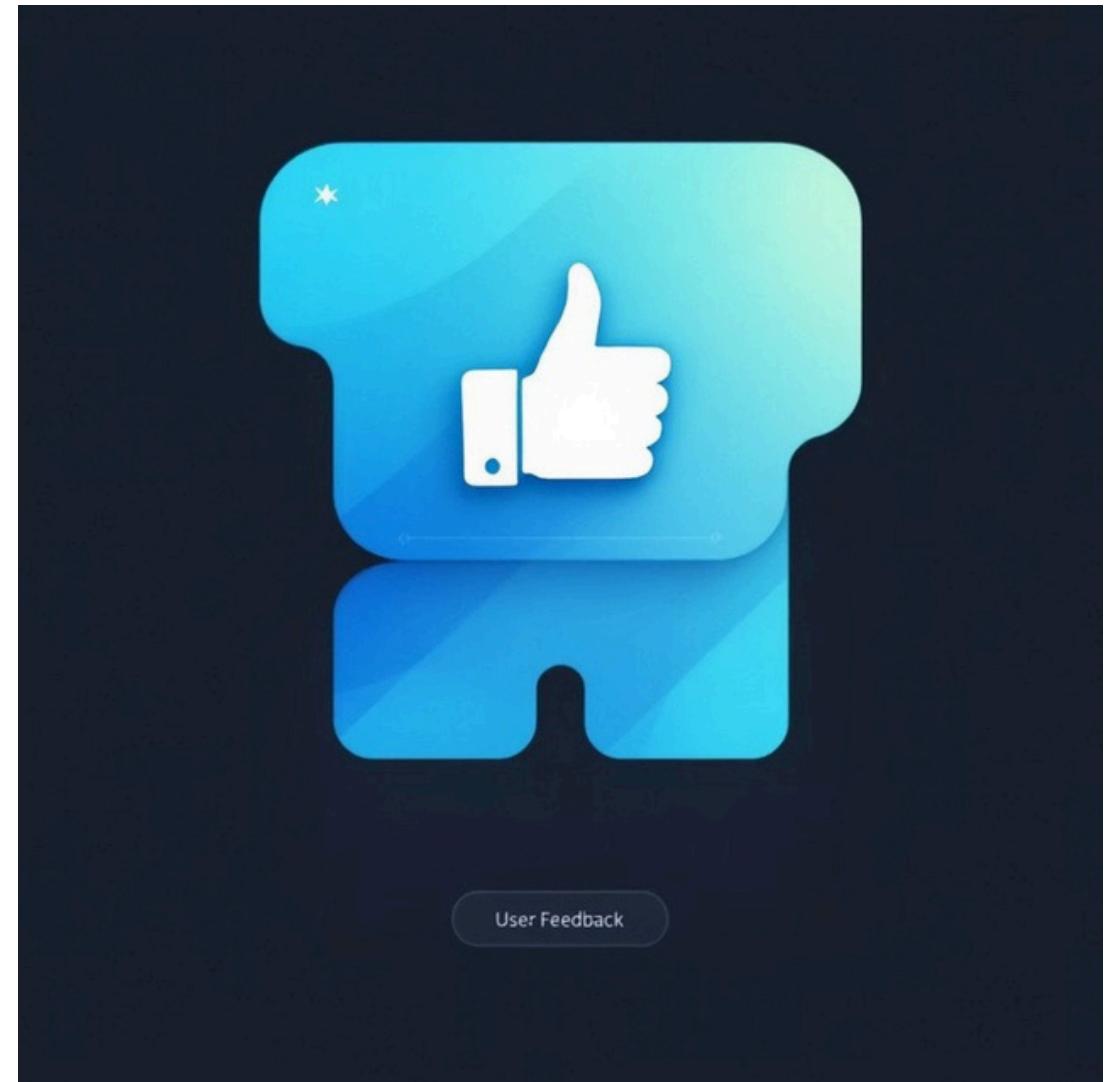
Thumbs up/down on every bot response

### Comment Box

Qualitative feedback with timestamps

### Feedback API

Secure/feedback end point with user ID tracking



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

cold symptoms

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



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

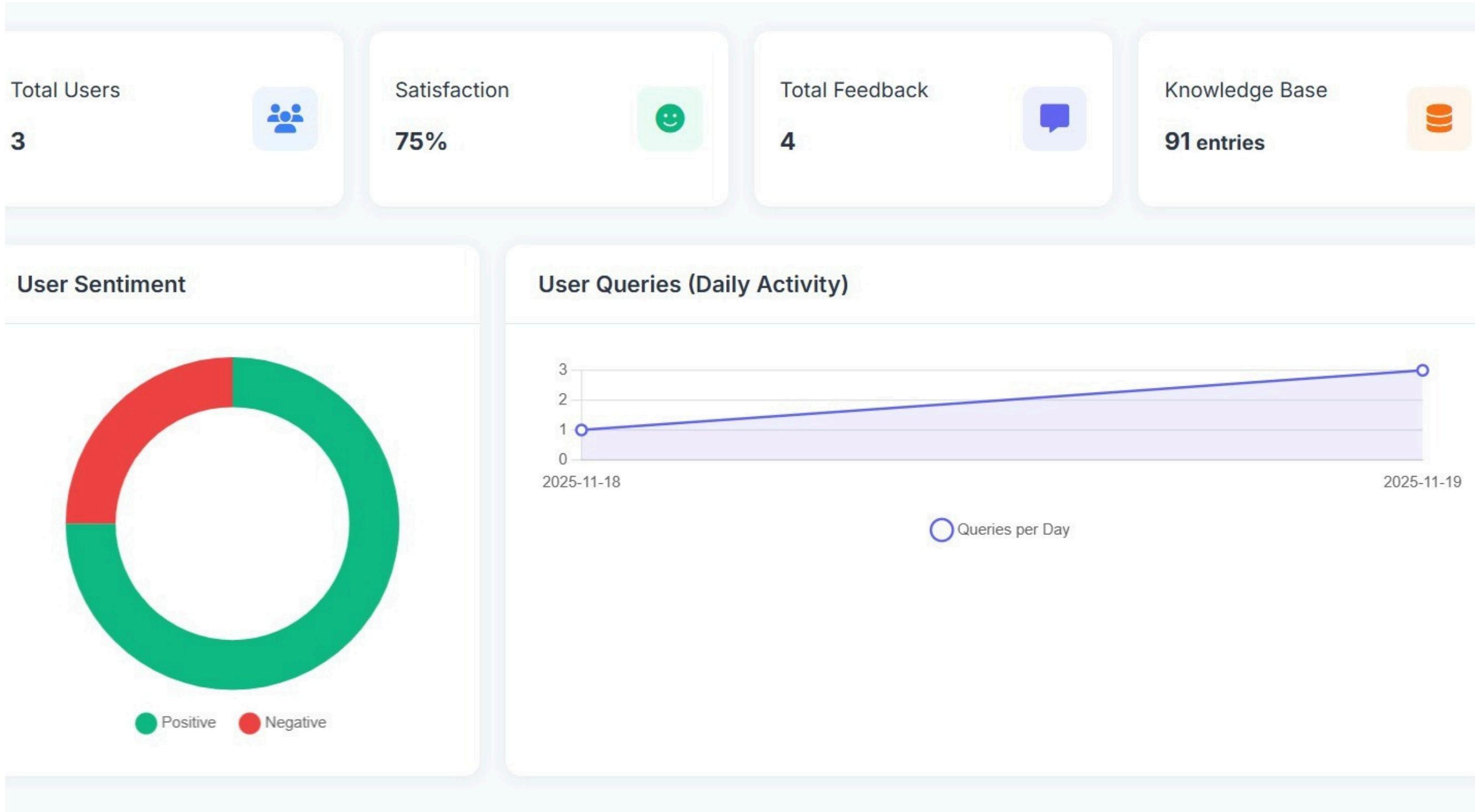
cold symptoms

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

Optional comment...

Submit

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.

			emergency....	स्थानें...	
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 पैंतरेबाजी (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

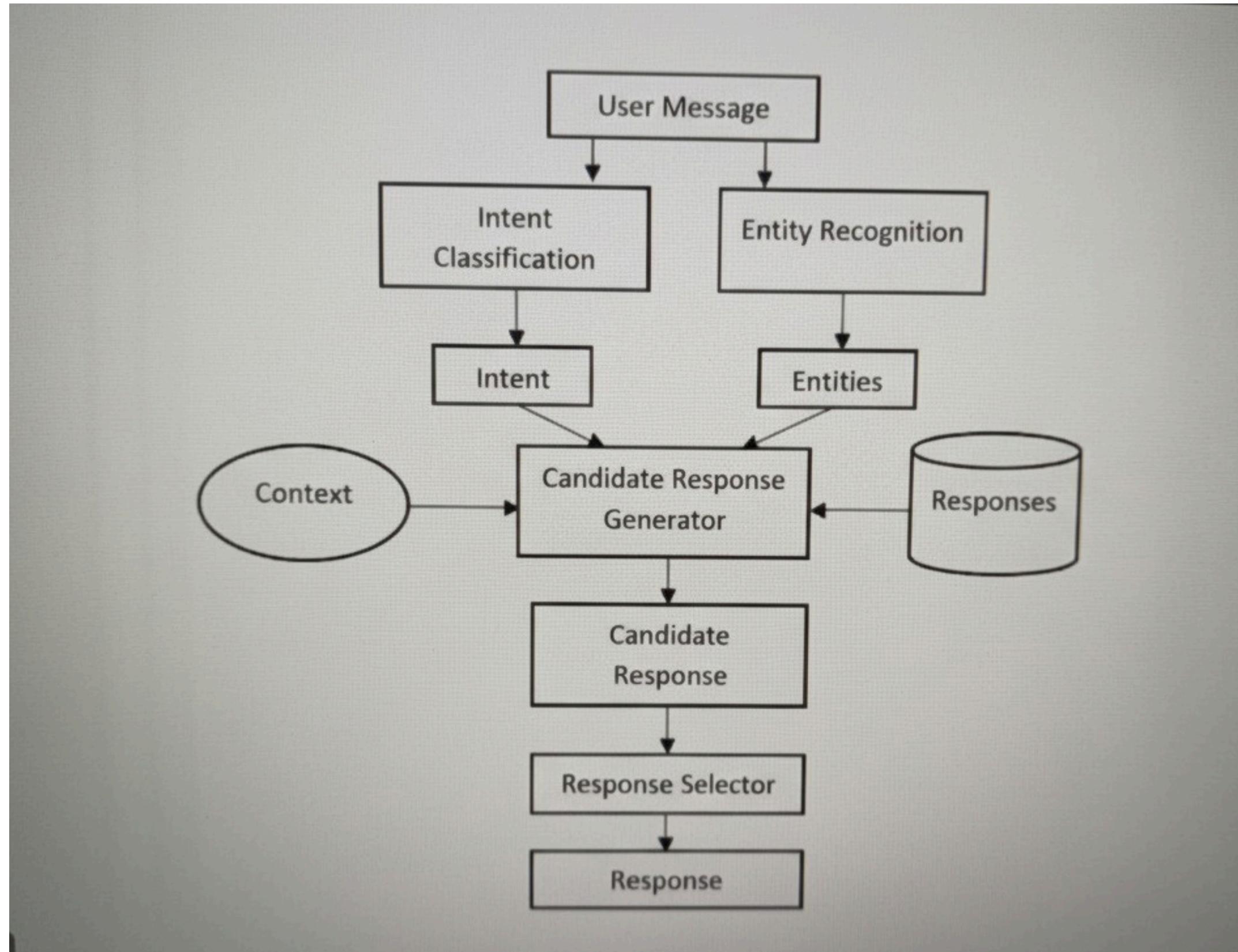
Languages

4

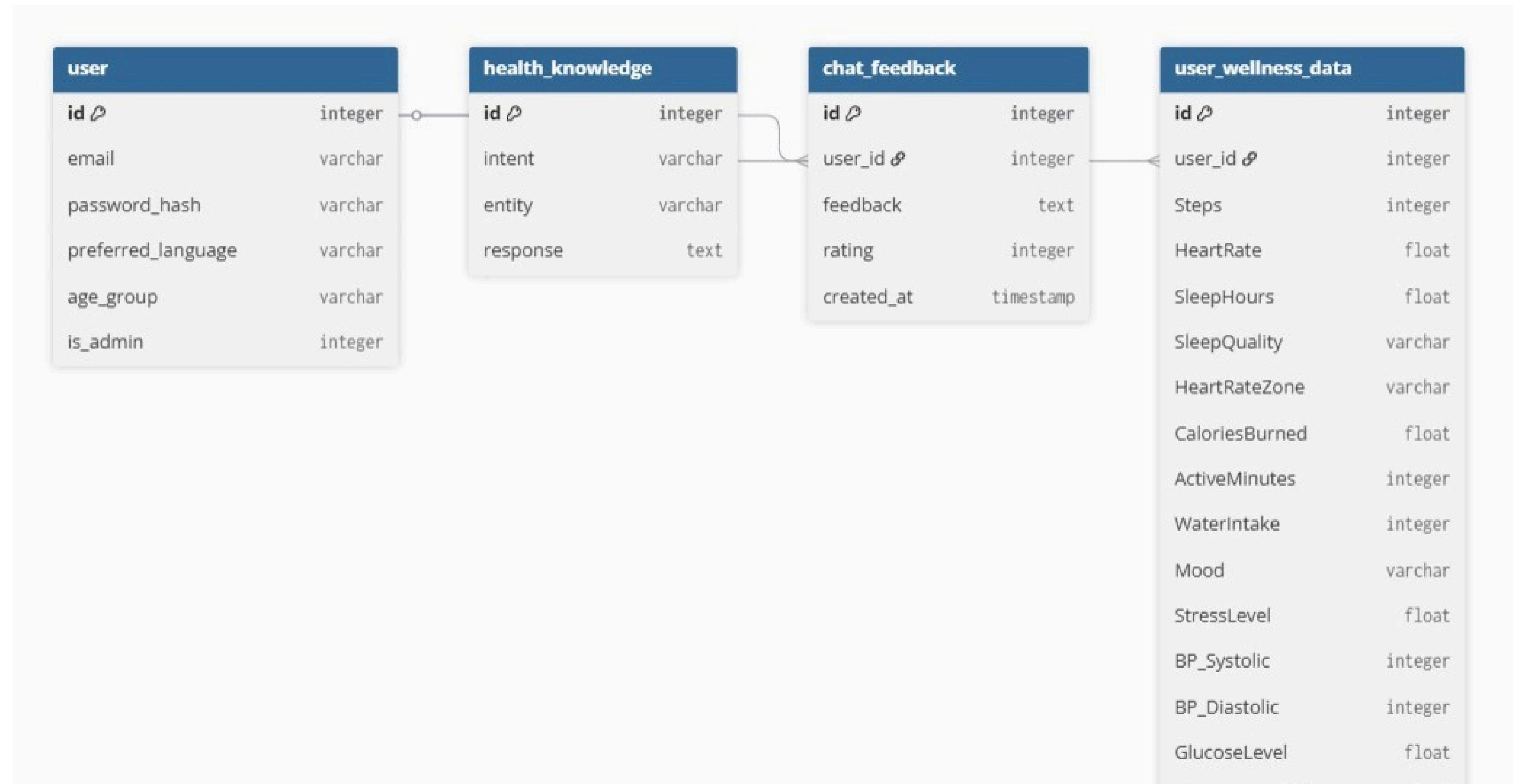
Major Milestones



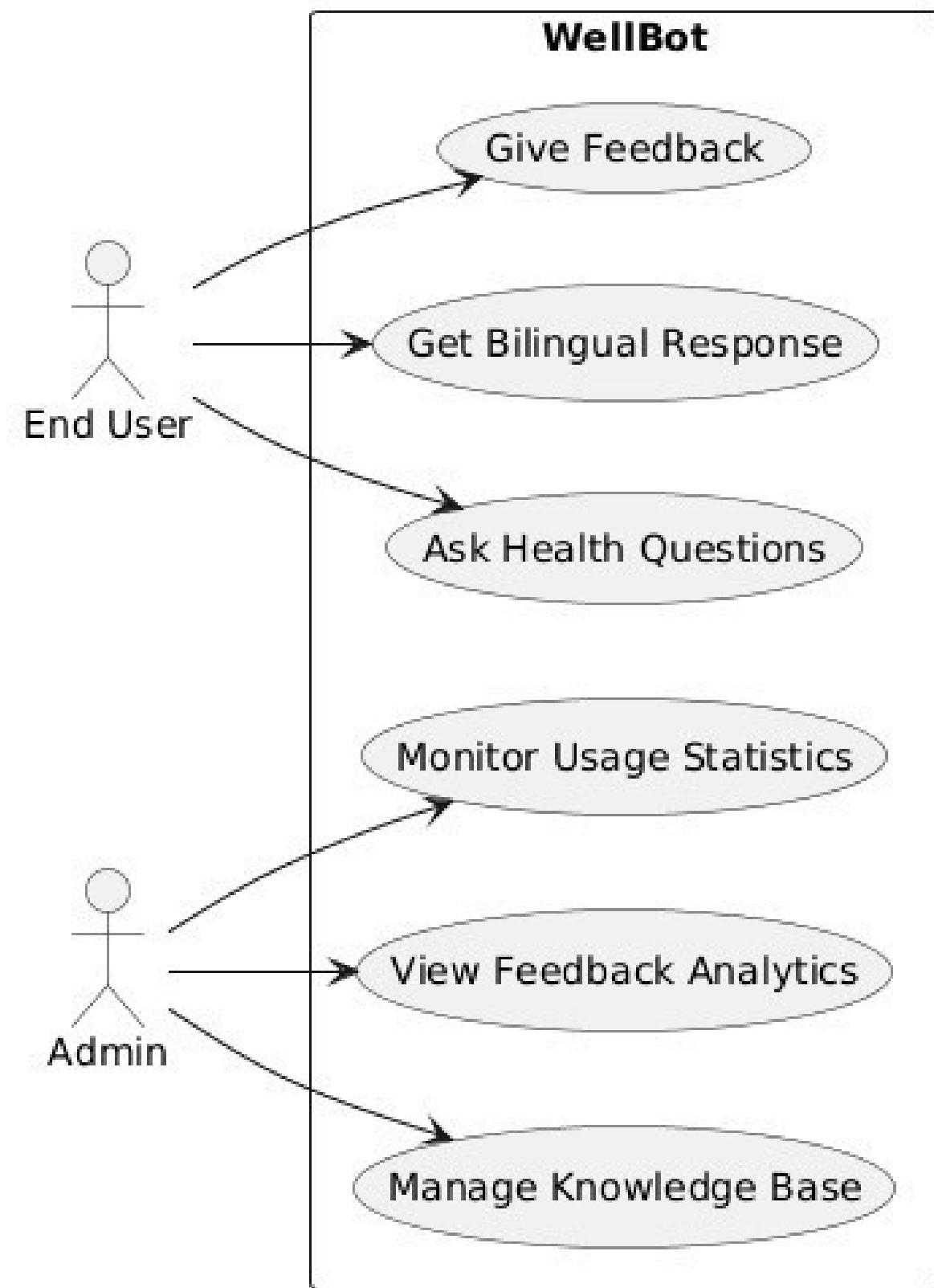
# User Workflow



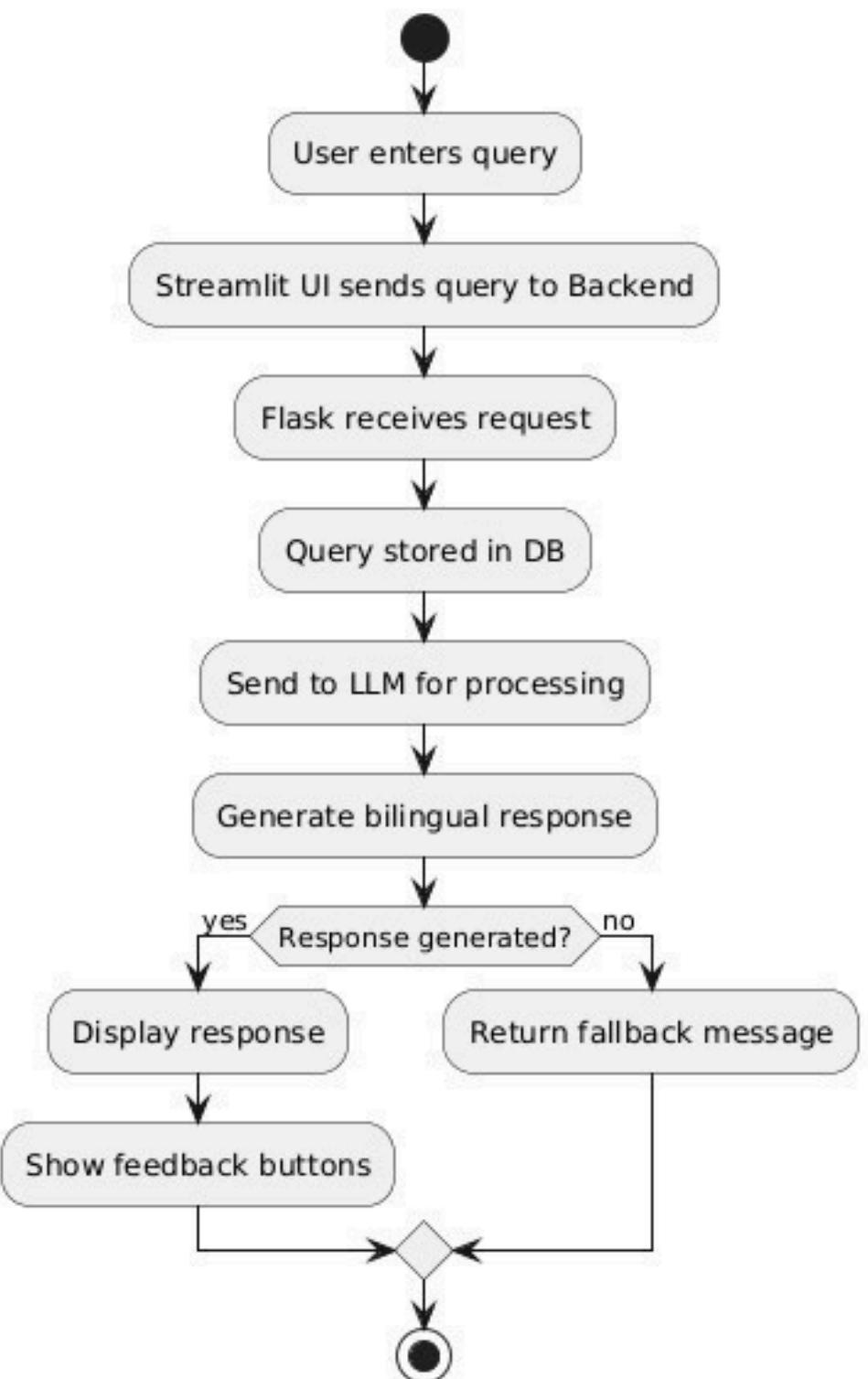
# Database Schema



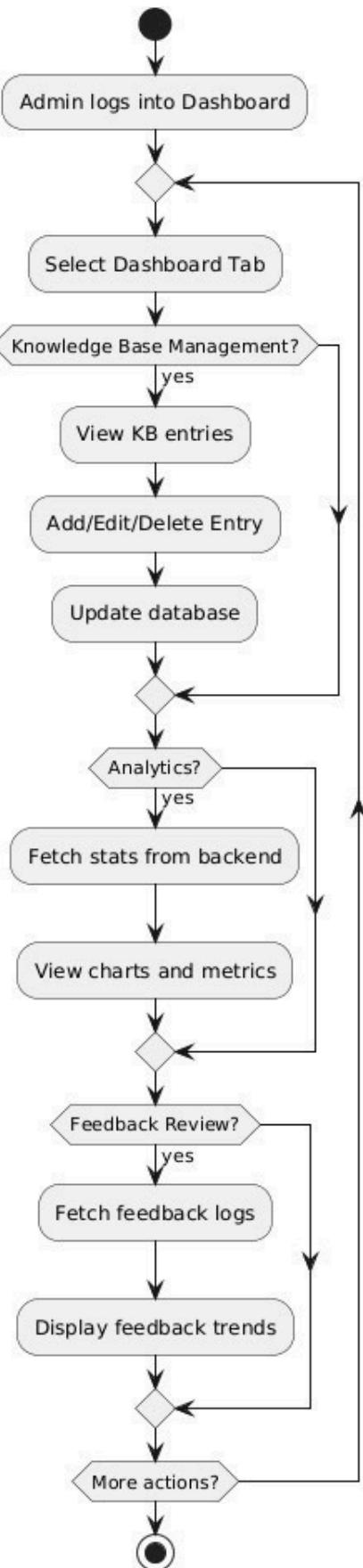
## Usecase Diagram



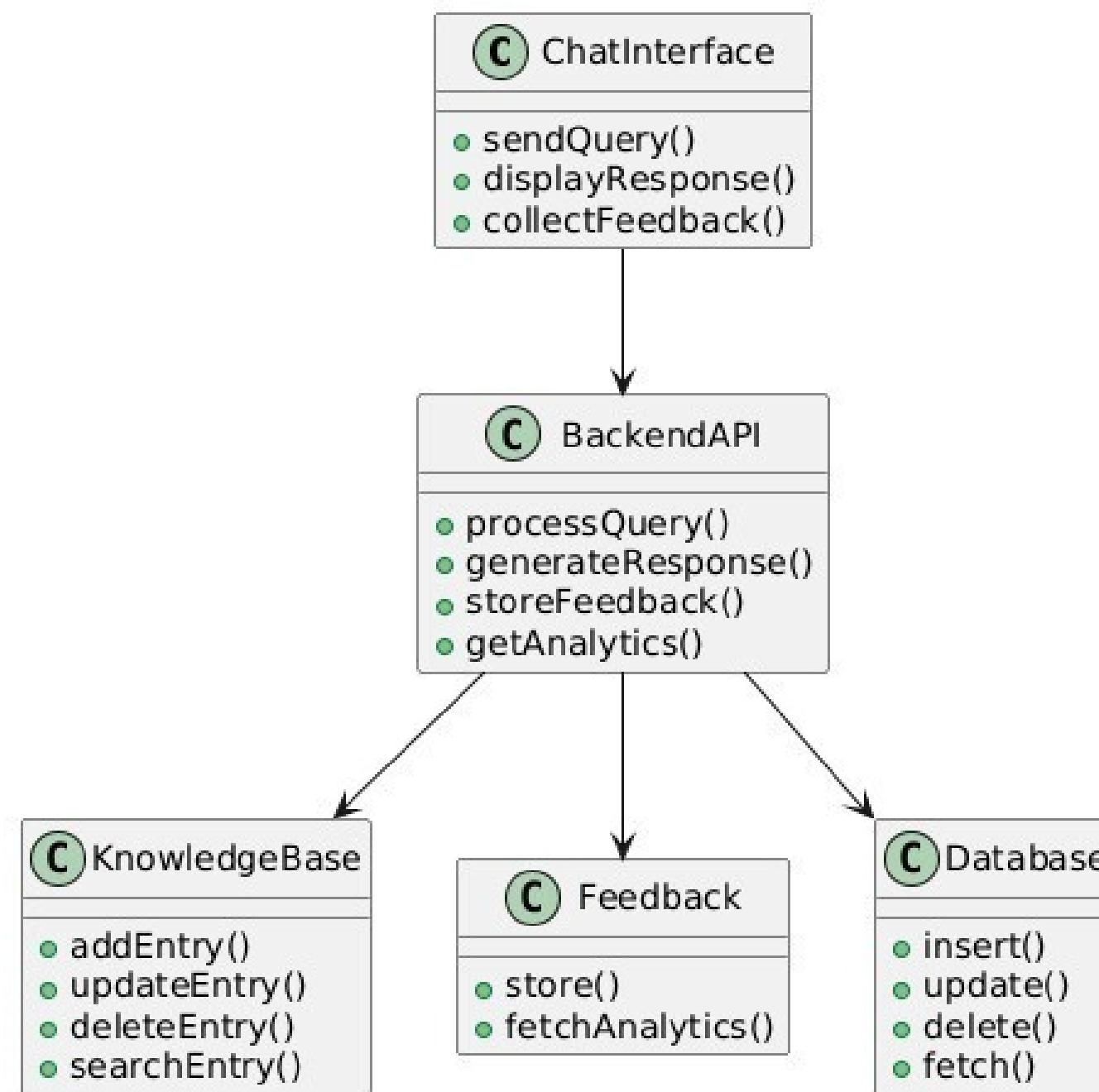
# Chatbot Activity Diagram



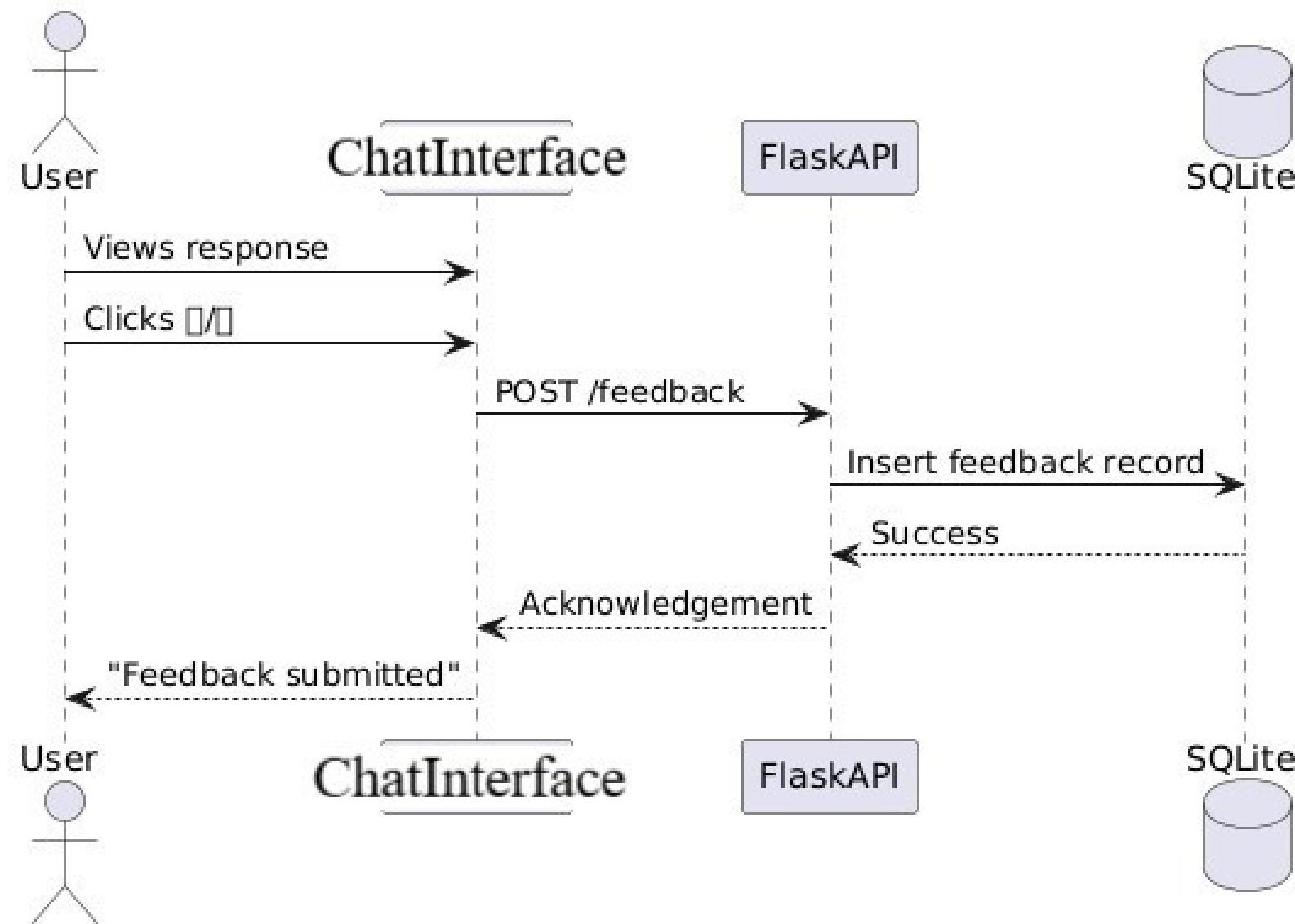
# Admin Dashboard Activity Diagram



# Class Diagram



## Sequence Diagram

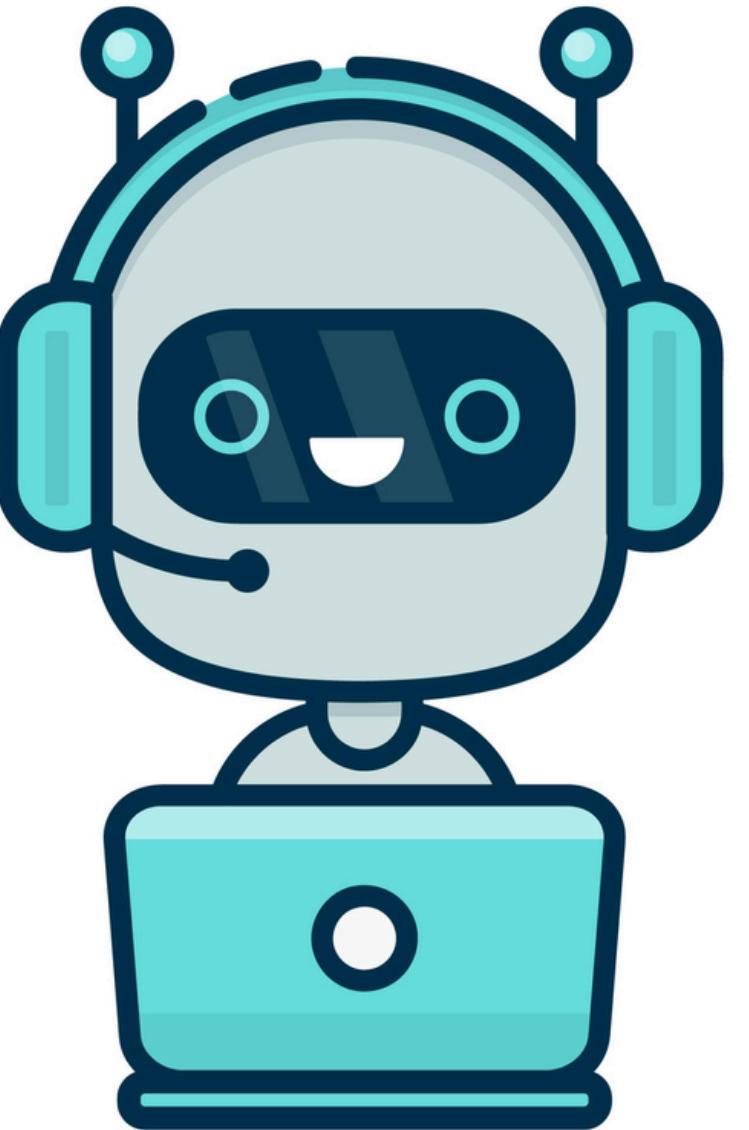


## **Expected Outcomes:**

- 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

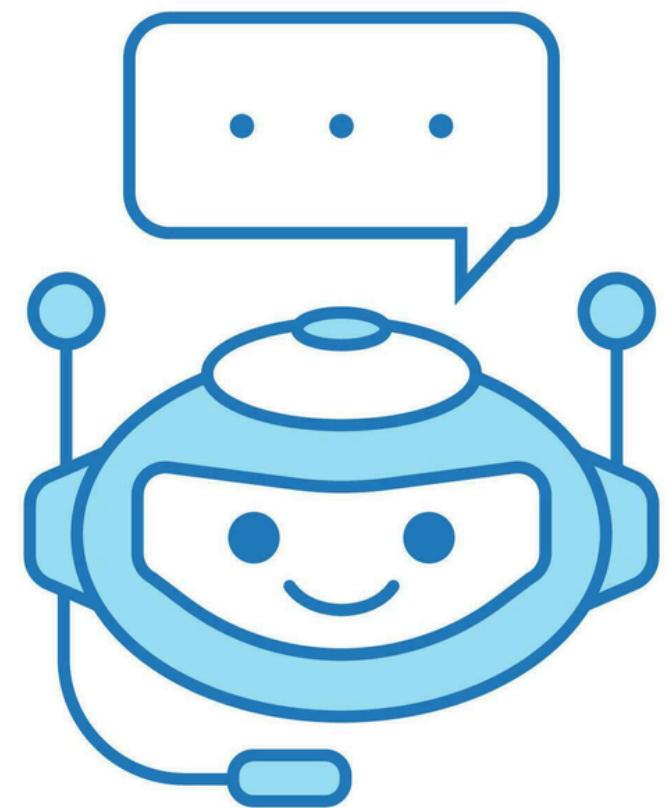
- Voice-Enabled Interaction (Speech-to-Text & Text-to-Speech)
- Health Insights & Predictive Analytics Integration with
- External Health APIs & Telemedicine Enhanced NLU with
- Large Language Models (LLMs) Expansion to Mobile
- Application



## 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!

