
IBM Cloud PROJECT

AGENTIC AI HEALTH SYMPTOM CHECKER

Presented By:

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OUTLINE

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- System Development Approach
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PROBLEM STATEMENT

In today's digital age, individuals increasingly seek health information online, often leading to misinformation, anxiety, or self-diagnosis based on unverified sources. There is a pressing need for a reliable, intelligent, and user-friendly solution that assists users in understanding their health conditions based on symptoms they describe, while avoiding the risks of self-diagnosis.

PROPOSED SOLUTION

- Train an AI-powered Health Symptom Checker agent capable of understanding user-reported symptoms in natural language and offering educational, non-diagnostic health guidance.
- User Input & Multi-language Support:
 - System lets users talk about symptoms in many languages.
 - Uses NLP to understand and standardize user input for accurate, inclusive results.
- Symptom-to-Condition Mapping:
 - Maps symptoms to clinical terms using trusted sources like ICD-10, WHO, journals.
 - Uses APIs (public/private) for real-time medical updates.
- Risk Stratification & Triage:
 - ML ranks conditions by severity and probability, flags urgent symptoms.
 - If critical signs found, system urges immediate emergency care.
- Personalized Recommendations:
 - AI lists likely causes and gives home care tips for mild issues.
 - Guides users on when/where to get professional help or tests.

PROPOSED SOLUTION

- Preventive Advice & Education:
 - Gives health tips and warns against self-diagnosis.
 - Promotes trusted info over guesses or user-made advice.
- Referral System:
 - Guides users to nearby clinics, telehealth, or specialists.
 - Connects with provider directories when available.
- Continuous Learning & Feedback Loop:
 - Learns from anonymous feedback, outcomes, and new data.
 - Follows strict privacy rules while adapting over time.
- Data Privacy & Security Compliance:
 - All interactions are encrypted.
 - The system meets regulatory standards (such as HIPAA, GDPR) for medical data security and consent.

SYSTEM APPROACH

- **System requirements**

- Compute Units - 1-2 vCPUs, 2-4 GB RAM (for testing)
- Language Model - granite-3-3-8b instruct
- Granite Model Access - Watsonx.ai account
- API Hosting - IBM API Gateway
- Storage - IBM Cloud Object Storage
- Storage Needs - 2 GB ram for logs and configs (lite)
- Billing Plan - Lite

- **Library required to build the model**

- flask
- ibm_watsonx_ai
- ibm_watsonx.Runtime
- python-dotenv
- langchain
- sentence-transformers

ALGORITHM & DEPLOYMENT

- Algorithms -
 - Transformer-based Large Language Model (LLM)
 - Rule-based mapping or cosine similarity with embeddings
 - LLM-based translation or language detection
 - Prompt-based generation using IBM Granite Instruct Model
- Deployment on IBM Cloud
 - Tool used Watsonx.ai Studio
 - Model used Granite Foundation Model (e.g., granite-13b-instruct)
 - Interface used Deploy model as a managed endpoint with API key
 - IBM Cloud Functions
 - IBM Cloud Object Storage (static site hosting)

RESULT

IBM watsonx

Upgrade ?

Mohammad Fazal's Account

Dallas

MF

Deployment spaces / Health_symptom_checker_deploy / Health Symptom Checker /

Health Symptom Checker Deployed Online

API reference Test **Preview**

You 11:47 AM

I have a sore throat and fever

Health Symptom Checker 11:47 AM

I understand you're experiencing a sore throat and fever. These symptoms can be associated with several common conditions, such as the flu, strep throat, tonsillitis, or even COVID-19. However, I must emphasize that I am an AI and cannot provide a definitive diagnosis.

The urgency level for these symptoms can vary. If your fever is high (above 101°F or 38.3°C), or if you're having difficulty swallowing, breathing, or are dehydrated, it could be considered moderate to severe and you should seek medical attention promptly. For milder cases, home care can be implemented.

Here are some home care tips:

1. Stay hydrated: Drink plenty of fluids like water, clear broths, and herbal teas to soothe your throat and prevent dehydration.
2. Rest: Ensure you get plenty of sleep to help your body fight off the infection.
3. Over-the-counter remedies: Consider using over-the-counter pain relievers like acetaminophen or ibuprofen to reduce fever and alleviate pain, and throat lozenges or gargles to soothe a sore throat.

It's essential to consult a doctor if:

Type something...

About this deployment

Name

Health Symptom Checker

Description

Welcome! Describe your symptoms and get safe, helpful health guidance in your language—no diagnosis.

Deployment Details

Deployment ID: 87bddd5f5-74ae-45...

Serving name: No serving name.

Software specification: runtime-24.1-py3.11

Hardware specification: Extra extra small: 1 CPU and 2 GB RAM

Copies: 1

Tags

wx-agent

Associated asset

Health Symptom Checker

6aedf8ea-4d3f-497b-b9f6-14e2e14494f7

Last modified

1 minute ago

Created on

Jul 31, 2025

RESULT

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Projects / Health Symptom Checker / Agent Lab

Share feedback β Unsaved ⏏ New agent + Deploy 🚀

Build

AI Model: granite-3-3-8b-instruct

Setup

Configuration

Framework Architecture

LangGraph ReAct

Instructions

Advanced configuration

You are an AI Health Symptom Checker designed to help users understand their symptoms and guide them with educational, non-diagnostic information.

When a user describes their health issue, your response should include:

Knowledge

Tools

Add a tool Create custom tool

Added tools (5)

Agent preview

MF You: 11:27 AM

hi

watsonx Agent 11:27 AM

Hello! How can I assist you with health-related information today? Please describe your symptoms or concerns.

► How did I get this answer?

MF You: 11:27 AM

I am having 101 degree fever

watsonx Agent 11:27 AM

Based on the symptom you've described, you have a fever. A fever is a body temperature that's higher than normal. The normal body temperature range is typically between 97°F (36.1°C) and 99°F (37.2°C).

Possible conditions: This could be due to a variety of causes, including infections (like the flu, common cold, or COVID-19), inflammatory conditions, or other underlying health issues.

Urgency level: A fever of 101°F (38.3°C) is considered moderate to high and usually warrants further investigation.

Type something...

CONCLUSION

- The AI Health Symptom Checker built on IBM Cloud with the Granite Foundation Model successfully interprets user-reported symptoms in natural language, supports multiple languages, and provides educational guidance—including probable causes, urgency levels, home care suggestions, and doctor consultation advice.
- It effectively promotes early awareness, reduces misinformation, and helps users take informed health actions—without attempting self-diagnosis. The use of trusted sources (WHO, CDC) enhances the reliability of responses, while the integration of Watsonx.ai ensures strong language understanding and contextual accuracy.
- Challenges Faced
 - Ensuring the AI avoids medical advice or diagnosis required careful prompt design and response filtering.
 - Multi-language Support: Handling symptom input in non-English languages required fallback translation or multilingual model tuning.
 - Latency: Real-time response performance was sometimes impacted by model size and cloud function cold starts.
 - Symptom Ambiguity: Interpreting vague or overlapping symptoms (e.g., “feeling weak”) posed difficulties without more context.
- AI symptom checkers offer a scalable, accessible, and educational tool to bridge the gap between symptom awareness and professional care—especially in areas with limited medical access. They encourage early health action, reduce panic from misinformation, and support users in managing basic health issues more confidently.

FUTURE SCOPE

- Voice and Chatbot Interface
 - Introduce voice input and conversational UI (via WhatsApp, Telegram, or web chatbots) for better accessibility and real-time interaction, especially for elderly or less tech-savvy users.
- User Personalization
 - Enable optional user profiles that consider factors like age, gender, location, and known medical conditions—leading to more tailored health suggestions while maintaining privacy.
- Mobile Application
 - Develop a cross-platform mobile app (using Flutter or React Native) for wider adoption, offline access to basic health info, and push notifications for health tips.
- Integration with Wearables and Health APIs
 - Connect with devices like smartwatches or fitness bands to monitor vitals (e.g., heart rate, temperature) and enrich symptom analysis in real-time.
- Emergency Detection and Auto-Referral
 - Automatically detect emergency symptoms (like chest pain, difficulty breathing) and redirect users to nearby healthcare providers or emergency services.

REFERENCES

- Edunet Foundation – SkillsBuild for Students
 - <https://edunetfoundation.org/>
- IBM Watsonx.ai Documentation
 - <https://www.ibm.com/docs/en/watsonx>
- IBM Granite Foundation Models
 - <https://www.ibm.com/blog/announcements/granite-model-series>
- WHO – International Classification of Diseases (ICD-11)
 - <https://icd.who.int/>
- Centers for Disease Control and Prevention (CDC) – Symptoms and Self-Care
 - <https://www.cdc.gov/>
- National Institutes of Health – MedlinePlus: Symptoms
 - <https://medlineplus.gov/symptoms.html>
- OpenAI – ChatGPT
 - <https://chat.openai.com>

IBM CERTIFICATIONS



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7/23/25, 9:45 PM

Completion Certificate | SkillsBuild

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Completion Certificate



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for the completion of

**Lab: Retrieval Augmented Generation with
LangChain**

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According to the Adobe Learning Manager system of record

Completion date: 23 Jul 2025 (GMT)

Learning hours: 20 mins

THANK YOU