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# CAPSTONE PROJECT

## Agentic AI Health Symptom Checker

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# OUTLINE

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# Problem Statement

Individuals often struggle to understand their health symptoms due to a lack of medical knowledge, limited access to reliable healthcare resources, or language barriers. Searching online can lead to misinformation, panic, or unsafe self-diagnosis. With growing health concerns and increasing pressure on healthcare systems, there's a need for a trusted digital assistant that can provide reliable, accessible, and language-inclusive health guidance.

## Proposed Solution:

An AI-powered Health Symptom Checker that uses Natural Language Processing (NLP) and Retrieval-Augmented Generation (RAG) to help users understand their symptoms, suggest possible conditions, provide home remedies, assess urgency, and recommend when to see a doctor — all using trusted medical sources and supporting multi-language interaction while avoiding self-diagnosis risks.

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# Technology used

- ◆ AI & Language Models
  - IBM watsonx.ai with IBM Granite LLMs
  - Retrieval-Augmented Generation (RAG) for fact-based responses
  - Natural Language Processing (NLP) for symptom extraction and classification
- ◆ Cloud Services
  - IBM Cloud Lite (Free-tier hosting and services)

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# IBM cloud services used

## IBM watsonx.ai Studio

- A collaborative environment to build, prompt, and evaluate AI models
- Used for designing and managing the AI health assistant

## IBM watsonx.ai Runtime

- Executes deployed foundation models in real-time
- Powers the backend logic to analyze user symptoms and generate safe, contextual responses

## IBM Agent Lab

- Enables the creation of modular, task-based AI agents
- Manages orchestration between symptom analysis, knowledge retrieval, and structured output generation

## IBM Granite Foundation Models

- Large language models trained on trusted data
- Used for natural language understanding, Retrieval-Augmented Generation (RAG), and safe health guidance

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# Wow factors

The AI Health Symptom Checker reduces misinformation, promotes early detection, and empowers users to make informed health decisions in their native language. It enhances access to reliable health guidance and reduces unnecessary healthcare visits.

## Unique Features

- Natural language symptom input
- Multi-language support via IBM Language Translator
- Symptom-to-condition mapping using trusted sources
- Urgency level and doctor referral suggestions
- Home remedies and preventive care tips
- Safe, non-diagnostic, educational responses

## End users

- General Public  
Individuals seeking quick, reliable guidance for common symptoms
- Rural and Underserved Communities  
Users with limited access to healthcare facilities or professionals
- Non-English Speakers  
People who prefer health information in their native language
- Health Awareness Campaigns  
NGOs or government agencies promoting preventive healthcare
- First-Time Symptom Checkers  
Users unsure whether to visit a doctor or manage symptoms at home

# Results

IBM watsonx

Upgrade

?

🔔

Prasad Zoman's Account

Dallas

PZ

[Deployment spaces](#) / [med\\_agent](#) / [Medical Advisor](#) /

🗑️

ℹ️

🔗

🕒

💬

⚙️

Medical Advisor

✔️ Deployed

Online

API reference

Test

Preview

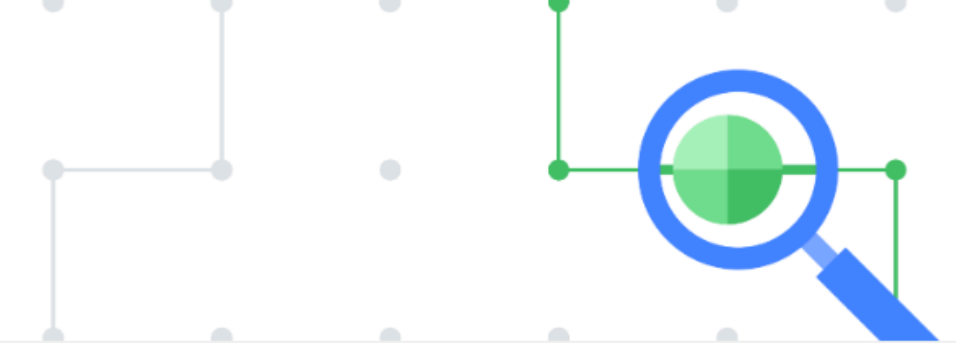
New chat +

🤖

Medical Advisor 01:37 AM

Welcome to Medical Advisor

An AI-powered health assistant that analyzes symptoms, detects urgency, and offers trusted guidance in multiple languages



Type something...

➤



# Results

IBM watsonx

Upgrade ⓘ 🔔

Prasad Zoman's Account ▾ Dallas ▾ PZ

Projects / Agentic\_ai / Agent Lab

Share feedback β Unsaved 📁 ▾ New agent + Deploy 🚀

Build

AI Model: granite-3-3-8b-instruct ⌵ ⚙️ ⏪

Vector index

Clear chat

Select or create vector index ▾

If you want to add a vector index to the agent, clear the agent preview chat.

Tools

⌵

Add a tool

Create custom tool

Added tools (3)

Google search

Retrieve information from the internet with the Google search engine.

⚙️ 🗑️

DuckDuckGo search

Retrieve information from the internet with the DuckDuckGo search engine.

🗑️

Wikipedia search

Retrieve information from Wikipedia articles.

⚙️ 🗑️

Agent preview

PZ

You: 12:08 AM

I've had a sore throat and mild fever for the past two days, and now I'm starting to feel tired. What could this be?

🤖 watsonx Agent 12:08 AM

I understand you've been experiencing a sore throat, mild fever, and fatigue for the past couple of days. These symptoms could be indicative of several common conditions, such as a viral infection (like the flu or a common cold), strep throat, or even allergies. However, it's important to note that I can't provide a definitive diagnosis.

The urgency level for these symptoms is typically moderate. If your symptoms worsen, or if you experience difficulty breathing, chest pain, persistent high fever, or severe headache, you should seek medical attention immediately as these could be signs of a more serious condition.

In the meantime, here are some home remedies that might help alleviate your discomfort:

1. Stay hydrated: Drink plenty of fluids like water, herbal tea, or clear broths to soothe your throat and prevent dehydration.

2. Rest: Your body needs energy to fight off the infection, so make sure to get plenty of sleep.

3. Warm liquids: Warm liquids can help reduce throat swelling and relieve discomfort.

4. Soothe your throat: You can use lozenges or hard candies to help soothe a sore throat.

Type something...

🗑️ ➡️

edunet

foundation

# Results

## Agent preview



You: 12:33 AM

I'm experiencing chest pain and shortness of breath. It gets worse when I lie down.



Medical Advisor 12:33 AM

I understand that you're experiencing chest pain and shortness of breath, which worsen when you lie down. These symptoms could be indicative of several conditions, including heart-related issues, respiratory problems, or even anxiety. However, I must stress that I am not a doctor, and this is not a diagnosis.

The symptoms you're describing could be associated with conditions such as:

1. Angina (chest pain due to reduced blood flow to the heart)
2. Heart attack
3. Pericarditis (inflammation of the sac around the heart)
4. Pulmonary embolism (blockage in the lung's artery)
5. Panic attack or severe anxiety

Given the nature of these symptoms, it's crucial to seek immediate medical attention.

In the meantime, while waiting for medical help, try to stay as calm as possible. Avoid strenuous activities. If you suspect it might be a heart-related issue, get in a comfortable position, preferably seated, to reduce the workload on your heart.

|Type something...



# Results

## Deployed AI Agent

IBM watsonx

Upgrade

Prasad Zoman's Account

Dallas

PZ

Deployment spaces / med\_agent / Medical Advisor

Medical Advisor

Deployed

Online

API reference

Test

Preview

New chat +

P

You 12:43 AM

I've developed an itchy rash on my arms and legs. It started after I used a new soap

Medical Advisor 12:43 AM

I understand you've developed an itchy rash on your arms and legs, which started after using a new soap. This could potentially be a contact dermatitis, a skin reaction caused by exposure to a particular substance.

Here are some possible conditions and information:

1. **Contact Dermatitis:** This is a common skin reaction caused by contact with a certain substance. It can present as redness, swelling, and itching, often localized to the area of contact.

Urgency Level: Low (unless there's a severe reaction like widespread body rash, fever, or difficulty breathing)

Home Remedies and Preventive Tips:

\* Discontinue use of the new soap immediately

Type something...

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## Conclusion

- The Agentic AI Health Symptom Checker is a powerful and accessible tool designed to assist users in understanding their health conditions through natural language interaction. By leveraging IBM Watsonx, Granite models, and cloud-native services, the system delivers safe, reliable, and multilingual health guidance while avoiding self-diagnosis risks.
- This AI-driven solution promotes early symptom awareness, supports underserved communities, and empowers individuals to take informed health actions — making healthcare guidance more accessible, responsible, and intelligent.

## Future scope

- Multilingual Symptom Expansion  
Support for more regional and global languages
- Voice-Activated Health Assistant  
Hands-free interaction for elderly and low-literacy users
- Wearable Device Integration  
Use data from fitness bands/smartwatches for context-aware responses.
- Mental Health & Wellness Module  
Early detection of stress, anxiety, or sleep disorders
- Offline Mobile Support



# IBM Certifications

In recognition of the commitment to achieve  
professional excellence



Prasad Zoman

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



Issued on: Sep 17, 2024  
Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/302d9210-3db7-49bb-a849-3c213fc1b312>



IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Prasad Zoman

for the completion of

**Lab: Retrieval Augmented Generation with  
LangChain**

(ALM-COURSE\_3824998)

According to the Adobe Learning Manager system of record

**Completion date:** 19 Jul 2025 (GMT)

**Learning hours:** 20 mins

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## GitHub Link

<https://github.com/Prasadzoman/IBM-Project>



**THANK YOU**