CAPSTONE PROJECT

AGENTIC AI HEALTH SYMPTOM CHECKER

Presented By:

1. Anirban Pal- Bankura Unnayani Institute of Engineering-Computer Science & Engineering



OUTLINE

- Problem Statement (Should not include solution)
- Proposed System/Solution
- System Development Approach (Technology Used)
- Algorithm & Deployment
- Result (Output Image)
- Conclusion
- Future Scope
- References



PROBLEM STATEMENT

Example: Millions of people experience health symptoms daily but often lack access to immediate, reliable, and understandable medical guidance. They may turn to unverified internet sources or social media for answers, leading to misinformation, self-diagnosis, anxiety, or delayed treatment. Furthermore, many users face language barriers, limited access to healthcare professionals, or uncertainty about when to seek medical attention. There is a critical need for an accessible, Alpowered health assistant that can interpret natural language symptom descriptions, provide evidence-based information, suggest preventive care or home remedies, and indicate when professional medical attention is necessary.



PROPOSED SOLUTION

• To address the need for accessible and trustworthy health information, we propose the development of an Agentic AI Health Symptom Checker—a multilingual, intelligent assistant that allows users to input their symptoms in natural language (e.g., "I have a sore throat and a mild fever") and receive reliable, non-diagnostic guidance. Data Collection:

Natural Language Symptom Input:

- Users can describe symptoms in everyday language.
- Al processes and interprets input using NLP techniques.

Medical Knowledge Integration:

- Retrieves symptom and condition data from verified sources like WHO, CDC, government health portals, and peer-reviewed journals.
- Continuously updated with current medical guidelines. and disease trends.

Symptom Analysis and Output:

- Provides a list of possible conditions with a probability score or confidence level.
- Suggests urgency levels (e.g., self-care, see a doctor, emergency).
- Recommends preventive measures, home remedies, and follow-up actions.

Multi-language Support:

- Enables interaction in multiple regional and international languages.
- Enhances accessibility for users across different demographics.



SYSTEM APPROACH

Layer	Tool
Frontend	React.js
NLP	IBM Watson NLU
Al Core	Watsonx.ai with Agentic Al Agents
Knowledge Retrieval	APIs
Multilingual	IBM Watson Language Translator
Output Interface	custom agent
Security	IBM Cloud IAM, Key Protect, Data Shield



ALGORITHM & DEPLOYMENT

In the Algorithm section, describe the machine learning algorithm chosen for predicting Symptoms. Here's an example structure for this section:

Algorithm Selection:

- We use an Agentic AI model integrated with Retrieval-Augmented Generation (RAG) and rule-based symptom triage, deployed via Watsonx.ai on IBM Cloud.
 - Unlike traditional ML classifiers, this system relies on goal-driven Al agents that dynamically use knowledge retrieval tools and reasoning skills to analyze natural language symptom descriptions.

Data Input:

Uses symptoms description, Duration, vital sign

Training Process:

The core Agentic Al system uses a foundation model (LLM) such as those available in Watsonx.ai, fine-tuned with health-related prompts and symptom patterns.

Prediction Process:

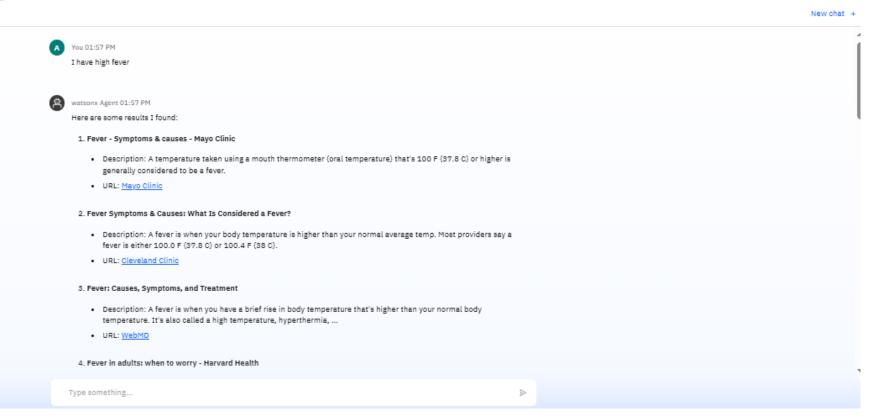
NLU Layer (Watson NLU) processes user input and extracts symptom entities, duration, and emotion cues.



RESULT

watsonx Agent openloyed online

API reference Test **Preview**





CONCLUSION

- The Agentic AI Health Symptom Checker demonstrates strong potential as a reliable, user-friendly, and scalable solution for preliminary health guidance. By leveraging IBM Watsonx.ai's agentic AI capabilities, along with retrieval-augmented generation (RAG) and verified medical data sources, the system provides accurate, context-aware recommendations without engaging in risky self-diagnosis.
- In conclusion, this model offers a balanced, ethical, and intelligent approach to symptom checking—empowering users to make informed decisions, promoting early detection, and bridging gaps in health literacy and access. With further fine-tuning and localization, it can serve as a valuable digital front line for preventive healthcare globally.



FUTURE SCOPE

- The current Agentic AI Health Symptom Checker lays a strong foundation for accessible and intelligent health guidance. However, its capabilities can be significantly expanded in the future to improve accuracy, inclusivity, and integration with real-world healthcare ecosystems.
- Examples:-
 - Integration with Wearable and IoT Devices
 - Personalized Health Profiling
 - Mental Health and Lifestyle Support



REFERENCES

Academic & Research References

Park, S., et al. (2023).

Generative Agents: Interactive Simulacra of Human Behavior

Proceedings of CHI 2023.

https://arxiv.org/abs/2304.03442

- ➤ Introduces foundational architecture for agentic AI with autonomous reasoning and memory.
- Yao, S., et al. (2023).

ReAct: Synergizing Reasoning and Acting in Language Models

https://arxiv.org/abs/2210.03629

➤ Basis for agentic task-solving where the Al reasons, retrieves data, and acts in steps.

Al in Healthcare and Symptom Checkers

Esteva, A., et al. (2019).

A guide to deep learning in healthcare

Nature Medicine, 25(1), 24-29.

https://doi.org/10.1038/s41591-018-0316-z

- ➤ Surveys medical applications of AI, including clinical triage and diagnostics.
- Semigran, H. L., et al. (2016).

Evaluation of symptom checkers for self diagnosis and triage BMJ, 353, i2359.

https://doi.org/10.1136/bmj.i2359

➤ Comparative analysis of symptom checkers, useful for benchmarking.



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This certificate is presented to

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for the completion of

Lab: Retrieval Augmented Generation with LangChain

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 24 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU

