CAPSTONE PROJECT

AGENTIC AI HEALTH SYMPTOM CHECKER

Presented By:
Varima Dudeja
Graphic Era (Deemed to be) University
CSE Department

edunet foundation

OUTLINE

- Problem Statement
- Proposed System/Solution
- System Development Approach
- Algorithm & Deployment
- Result
- Conclusion
- Future Scope
- References

edunet foundation

PROBLEM STATEMENT

An Agentic AI Health Symptom Checker helps users understand their health conditions by analyzing symptoms and providing probable causes, preventive advice, and care recommendations. It retrieves verified medical data, symptom databases, and guidelines from trusted sources like WHO, government health portals, and medical journals.

PROPOSED SOLUTION

- **The proposed system aims to help users understand their symptoms and receive early, reliable health guidance using generative AI. It uses symptom analysis, verified medical data, and language understanding to provide educational and actionable insights. The solution will consist of the following components:**
- **Data Collection:**
  - **Gather datasets of medical symptoms, conditions, care guidelines from trusted sources (e.g., WHO, CDC, government health portals).**
  - **Leverage multilingual input support and access symptom-checking APIs or structured datasets.**
- **Data Preprocessing:**
  - **Clean and normalize data to remove inconsistencies and duplicate symptoms.**
  - **Perform labeling or mapping of symptoms to likely causes using NLP techniques.**
- **AI Model & Reasoning:**
  - **Use foundation model (mistral-large in Watsonx.ai) in Prompt Lab to interpret symptoms and provide relevant advice.**
  - **Structure outputs into condition probabilities, urgency levels, home remedies, and when to consult a doctor.**
- **Deployment:**
  - **Deploy through Prompt Lab or build an interface that enables users to input symptoms in natural language.**
  - **Ensure secure and privacy-conscious handling of inputs with clear disclaimers and referral suggestions.**
- **Evaluation:**
  - **Measure model helpfulness, accuracy, and safety through user feedback and expert review.**
  - **Continuously improve prompt instructions, model tuning, and support additional languages.**
  - **Result:** Users receive accurate, AI-powered health symptom guidance in real-time, helping them make informed decisions and seek timely care.

edunet foundation

SYSTEM APPROACH

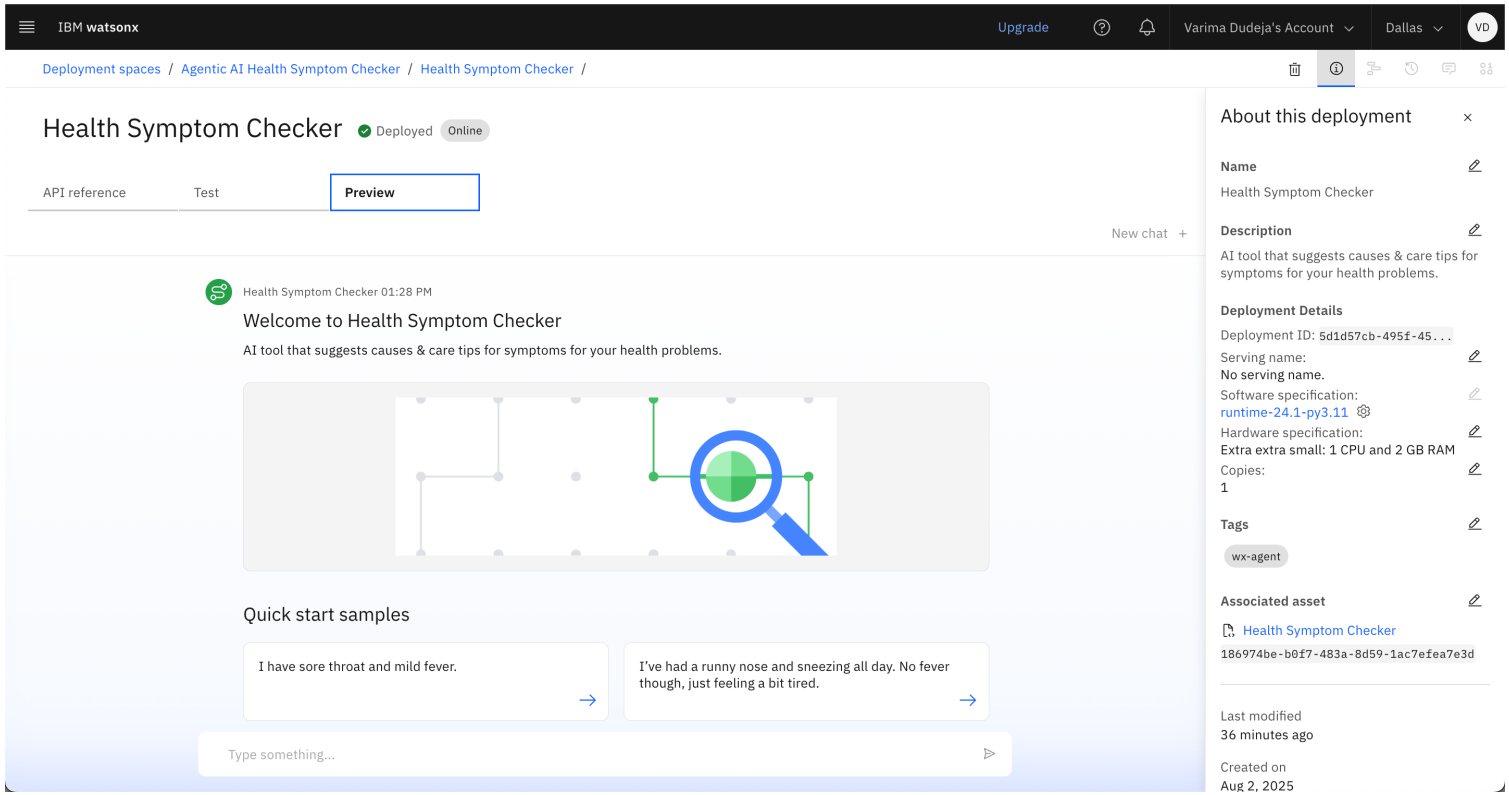
The "System Approach" section outlines the overall strategy and methodology for developing and implementing the Agentic AI Health Symptom Checker.

- **System requirements:** The AI Symptom Checker runs on IBM Watsonx.ai Studio, requiring only a web browser and cloud access. No local GPU or heavy processing power is needed. A stable internet connection and an IBM Cloud account with access to foundation models (e.g., Granite) are sufficient for development and deployment.
- **Library required to build the model:** Since Watsonx handles the heavy lifting through pre-trained foundation models and prompt-based development, traditional Python libraries like transformers, pandas, or scikit-learn are not mandatory unless integrating external scripts. Prompt Lab is used to craft, test, and deploy the model. For any additional UI integration or API-based deployment, optional tools like Flask, Streamlit, or Watson Assistant may be used.

ALGORITHM & DEPLOYMENT

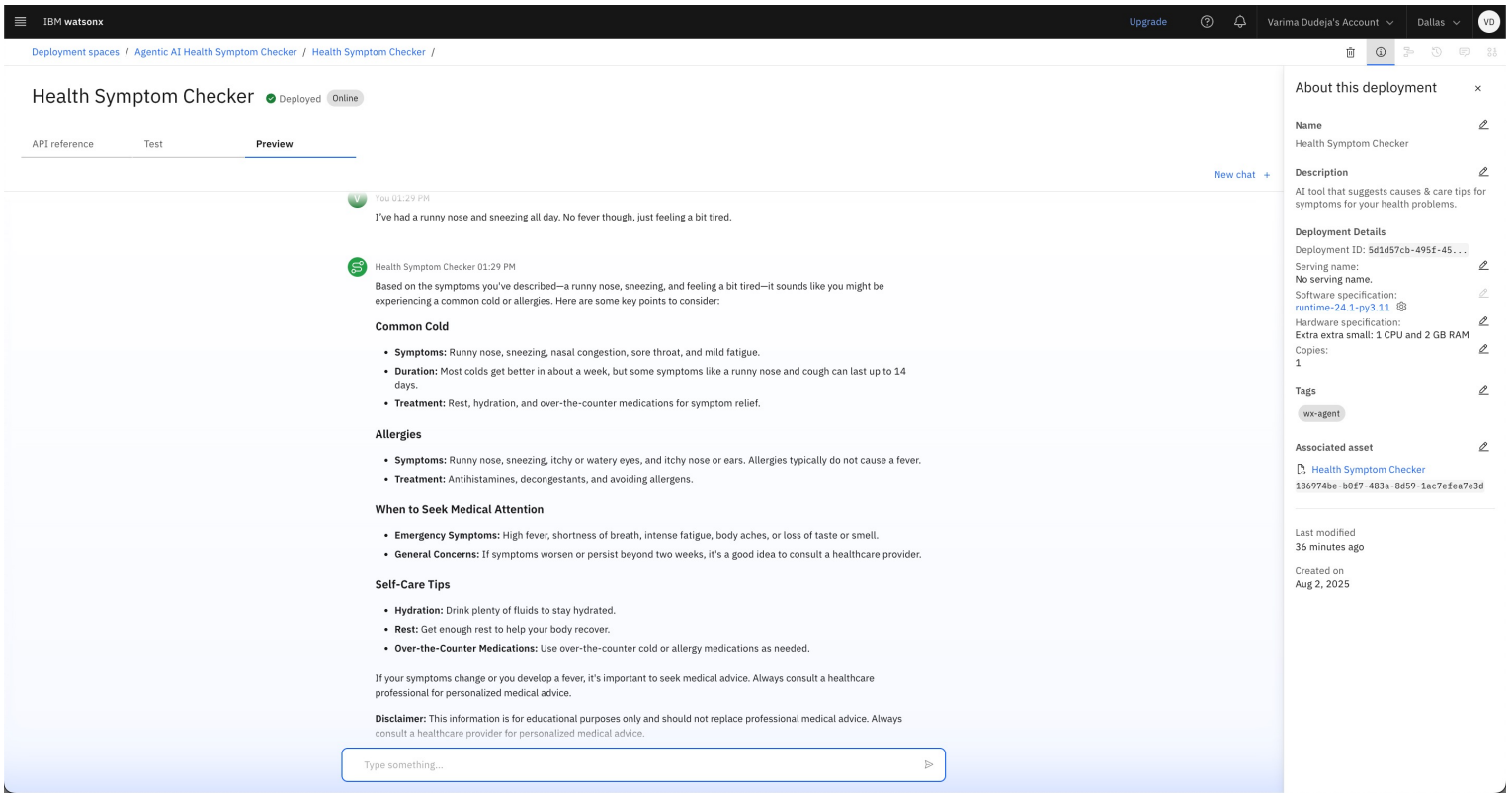
- Algorithm Selection:
  - The system uses a large language model (LLM), such as IBM's Granite series (e.g., granite-3-2b-instruct), for natural language understanding and symptom analysis. This model is chosen for its strong performance in processing human-like text and providing relevant, context-aware responses to health-related inputs.
- Data Input:
  - Inputs are provided by users in natural language, such as “I have a sore throat and fever.” The model interprets these symptoms using a prompt-based approach and retrieves relevant insights from trusted medical data (e.g., WHO guidelines, symptom databases).
- Training Process:
  - The foundation model is pre-trained by IBM. Further customization is done using prompt engineering within Watsonx Prompt Lab to align outputs with medical use-cases and user-friendly responses. No manual training is required in this phase.
- Prediction Process:
  - When a user inputs symptoms, the model identifies possible conditions, urgency level, and care tips in real time. It also suggests whether professional consultation is needed, aiming to educate rather than diagnose. Multilingual support and medical guardrails can be enabled to enhance reliability and safety.

RESULT



edunet foundation

RESULT



edunet foundation

CONCLUSION

- This Agentic AI Health Symptom Checker leverages natural language processing and verified symptom data to offer personalized health insights in a conversational format. It is designed to be accessible, multilingual, and user-friendly—making healthcare guidance more approachable for users from all backgrounds. By reducing reliance on misleading internet sources, the agent promotes informed decision-making and encourages timely medical consultation. This project demonstrates the power of AI to bridge gaps in healthcare access, empower users, and build a more health-aware society.

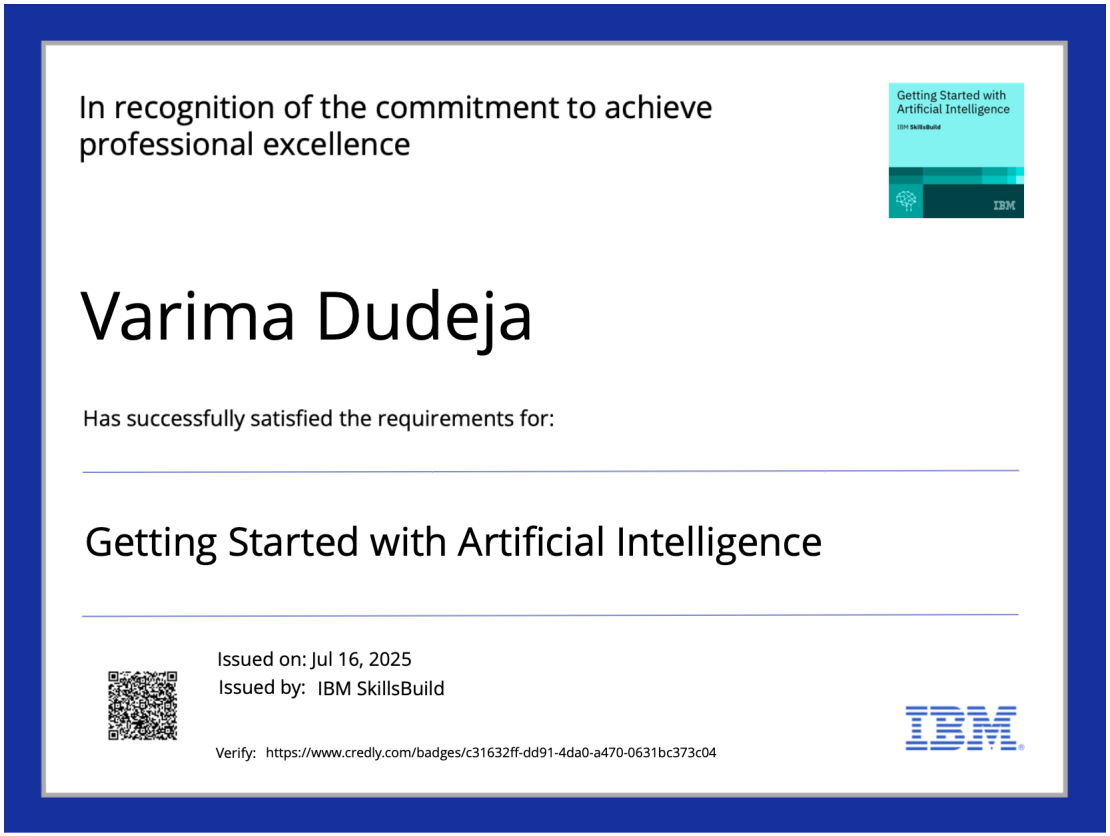
FUTURE SCOPE

- In the future, the AI Health Symptom Checker can be enhanced with personalized health tracking, wearable device integration, and support for telemedicine consultations. Expanding the symptom database with region-specific health trends and rare diseases will improve accuracy. The system can also incorporate voice interaction, deeper emotional context recognition, and AI-driven mental health assessments. Continuous learning from user feedback and expert validations will make the agent more adaptive, reliable, and accessible for diverse populations.

REFERENCES

- The development of the Agentic AI Health Symptom Checker was guided by reliable sources including WebMD and Mayo Clinic symptom checkers, WHO health guidelines, and general medical symptom databases. Additional support came from MedlinePlus health resources and OpenAI's documentation on prompt engineering, ensuring the system’s responses are both medically grounded and conversationally accurate.

IBM CERTIFICATIONS



In recognition of the commitment to achieve professional excellence

Getting Started with Artificial Intelligence
IBM SkillsBuild

IBM

Varima Dudeja

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence

Issued on: Jul 16, 2025
Issued by: IBM SkillsBuild

Verify: https://www.credly.com/badges/c31632ff-dd91-4da0-a470-0631bc373c04

IBM

edunet foundation

IBM CERTIFICATIONS

edunet foundation

IBM CERTIFICATIONS

IBM **SkillsBuild** Completion Certificate

This certificate is presented to

Varima Dudeja

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

edunet foundation

THANK YOU

edunet
foundation