CAPSTONE PROJECT

AGENTIC AI HEALTH SYMPTOM CHECKER

Presented BY:
IQRA FATHIMA
S.J.C INSTITUTE OF TECHNOLOGY
COMPUTER SCIENCE AND ENGINEERING

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OUTLINE

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PROBLEM STATEMENT

People often struggle to interpret their health symptoms accurately, relying on unverified online sources that can lead to misinformation or delayed care. There is a need for a reliable, AI-driven symptom checker that provides trustworthy medical insights, preventive guidance, and actionable recommendation. While avoiding harmful self-diagnosis to empower users with accurate health information and improve early detection. 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 address the challenge of providing accurate, accessible, and actionable health advice to users while reducing misinformation and unnecessary healthcare visits.
- This involves leveraging verified medical data, NLP-based symptom analysis, and multilingual support to deliver reliable health data.
- An Agentic AI Health Symptom Checker is developed to guide users in understanding their health symptoms by:
  1.Analyzing natural language symptom inputs (e.g., “I have a sore throat and fever”)
  2.By providing:
  • Probable health conditions
  • Level of Urgency (low, medium, high)
  • Preventive advice and home remedies
  • Guidance on when to consult a doctor
  3.Powered by IBM Watsonx.ai, the agent is trained to:
  • Use verified medical databases (WHO, CDC, government health portals)
  • Support multilingual interaction (e.g., English, Hindi, Kannada)
  • Avoid self-diagnosis by delivering educational and referral-based suggestions
- This AI-driven assistant aims to promote early detection, reduce misinformation, and empower users to take informed, safe health actions.

SYSTEM APPROACH

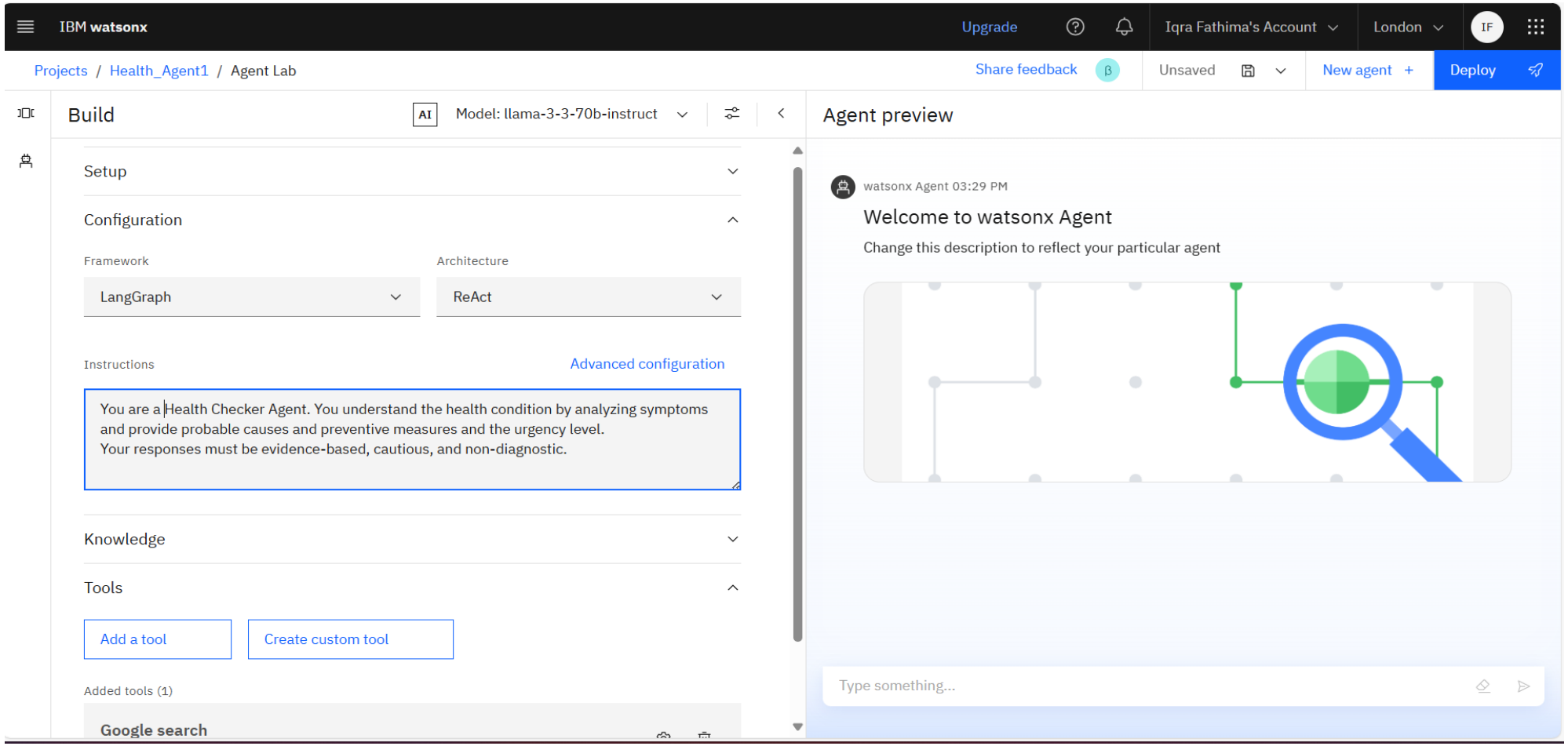
- IBM Watsonx.ai – Foundation model deployment
- IBM Cloud Object Storage – For asset management
- IBM Watsonx.ai.Runtime – Provide Computation Power
- Streamlit (Optional) – For user-friendly web UI
- Language Detection Library
- Translation APIs – For multilingual support (e.g., Google Translate API)
- Verified Medical Datasets – WHO, CDC, Government health portals
- Libraries Used: IBM-Watsonx-ai – Accessing IBM foundation models streamlit – Lightweight
- UI for testing (optional)
- langdetect – Detects language of user input
- Requests-json API calls and data handling
- dotenv –For secure environment variable storage (e.g., API keys)

MODEL & DEPLOYMENT

- Model Selection: IBM Watsonx Foundation Model: Llama-3-3-70b-instruct model.
  - Large Language Model (LLM) used for symptom understanding.
  - Works through prompt engineering (no retraining needed).
  - Supports multilingual, safe, and informative responses.
- Input & Response Process
  - Input: User's symptom in natural language (e.g., "I have a sore throat and fever").
  - Language detection performed if not in English.
  - AI processes the prompt and responds with:

1. Probable health conditions
2. Urgency level (low/medium/high)
3. Preventive care & home tips
4. Referral advice (if needed)
5. Safety disclaimer

RESULT



- I have instructed the agent to provide health advise based on symptoms in the Instructions block.
- The agent is trained using the Llama-3-3-70b-instruct model.

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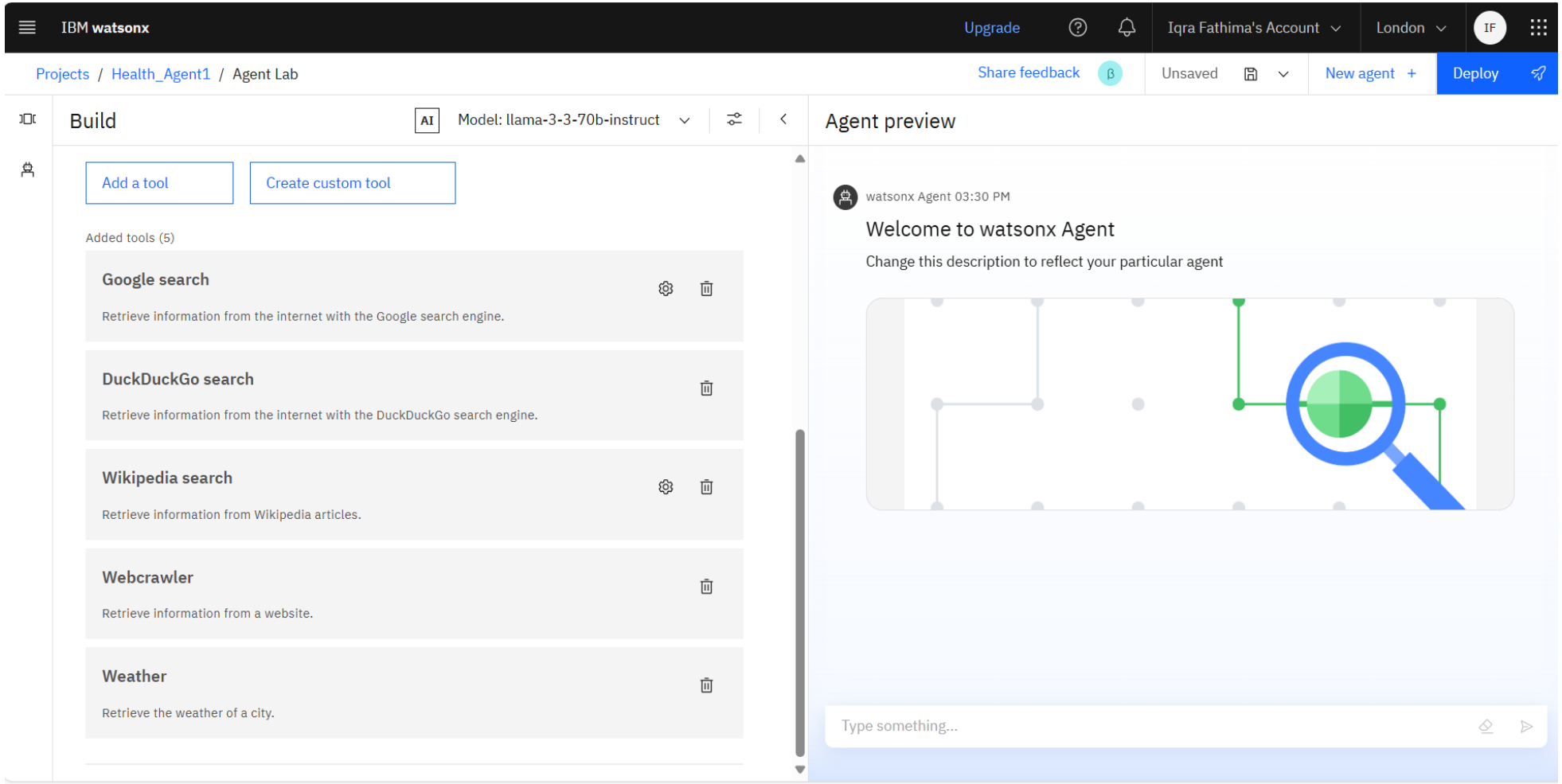
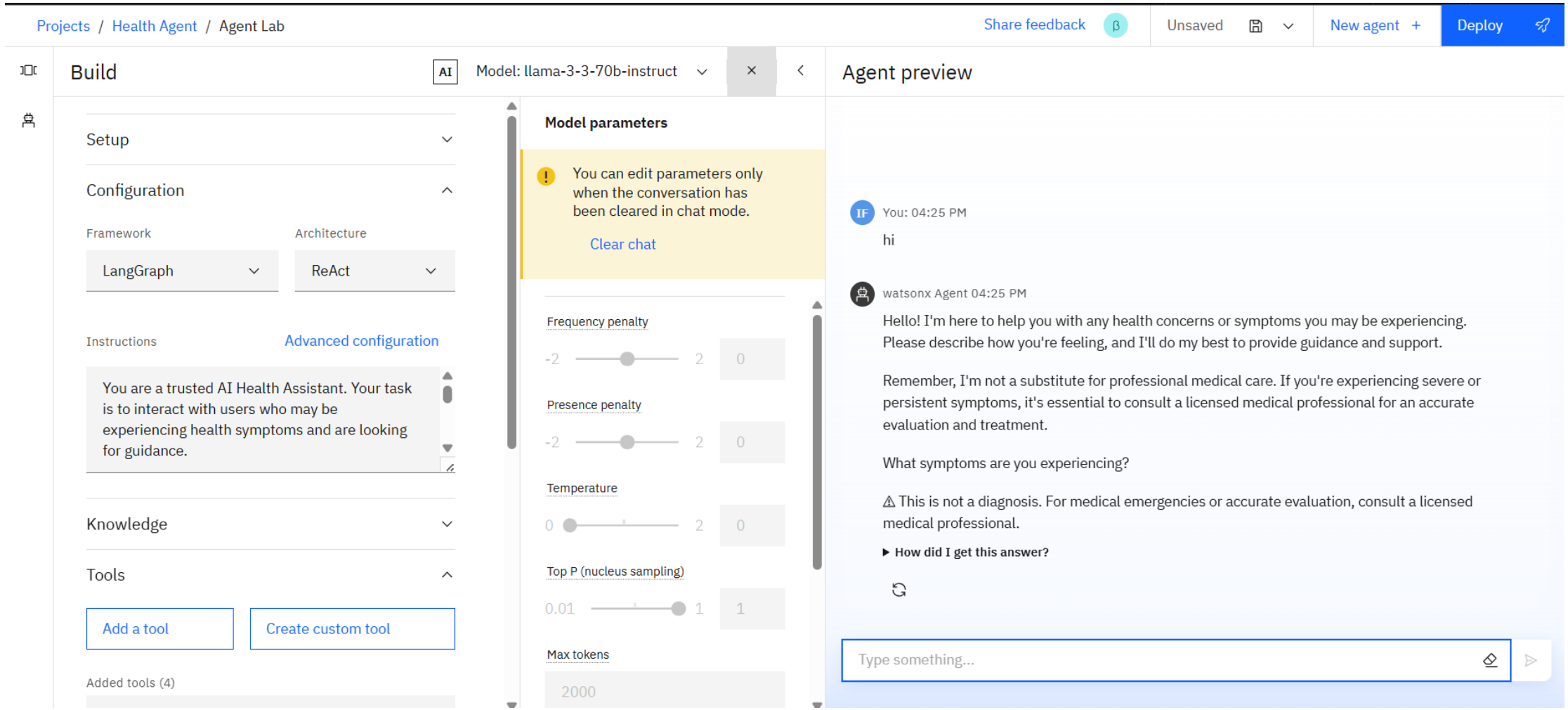
RESULT



- For verified medical datasets, I have included search engines like Google, Wikipedia, and DuckDuckGo.

RESULT



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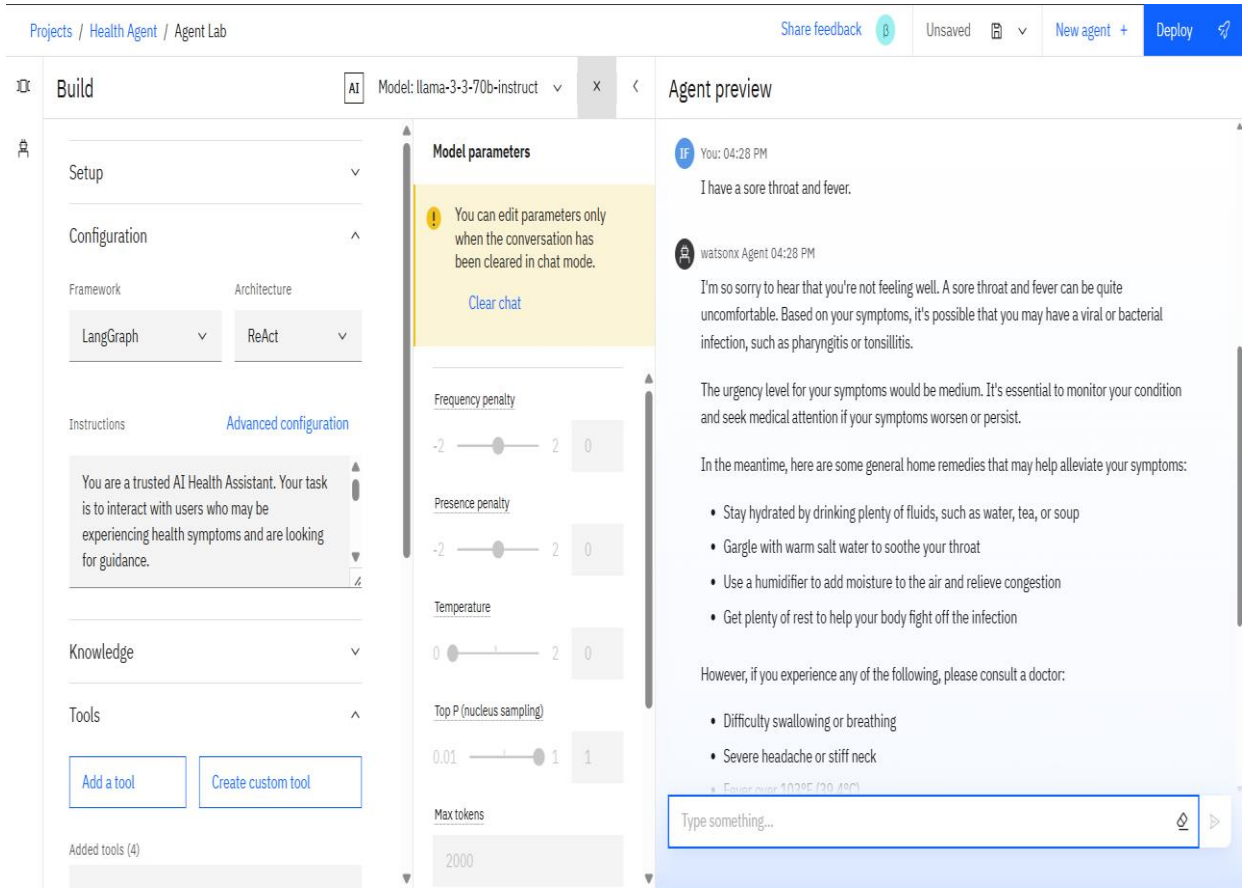
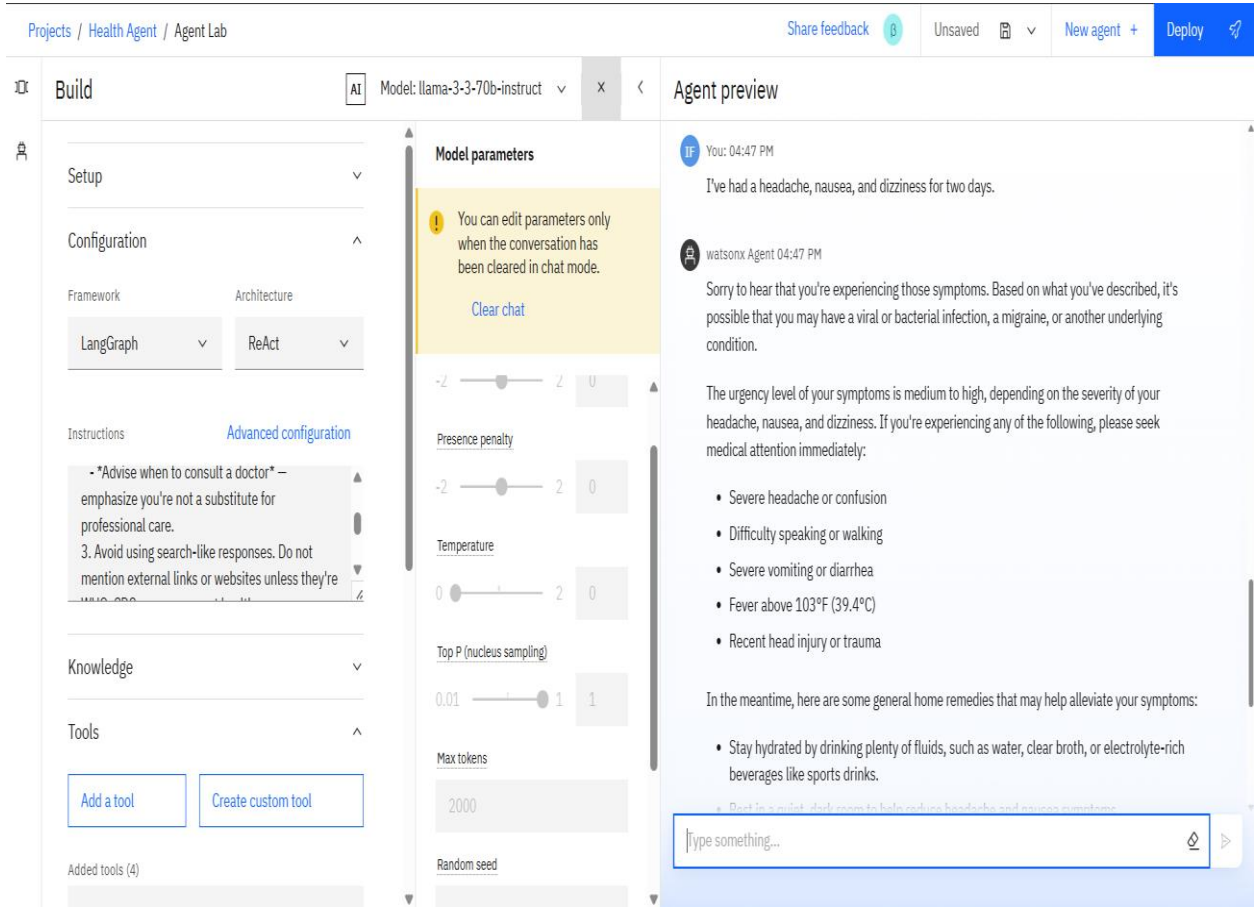
RESULT





- I gave prompts like "I have a fever and sore throat," and the health agent gave me recommendations and causes.

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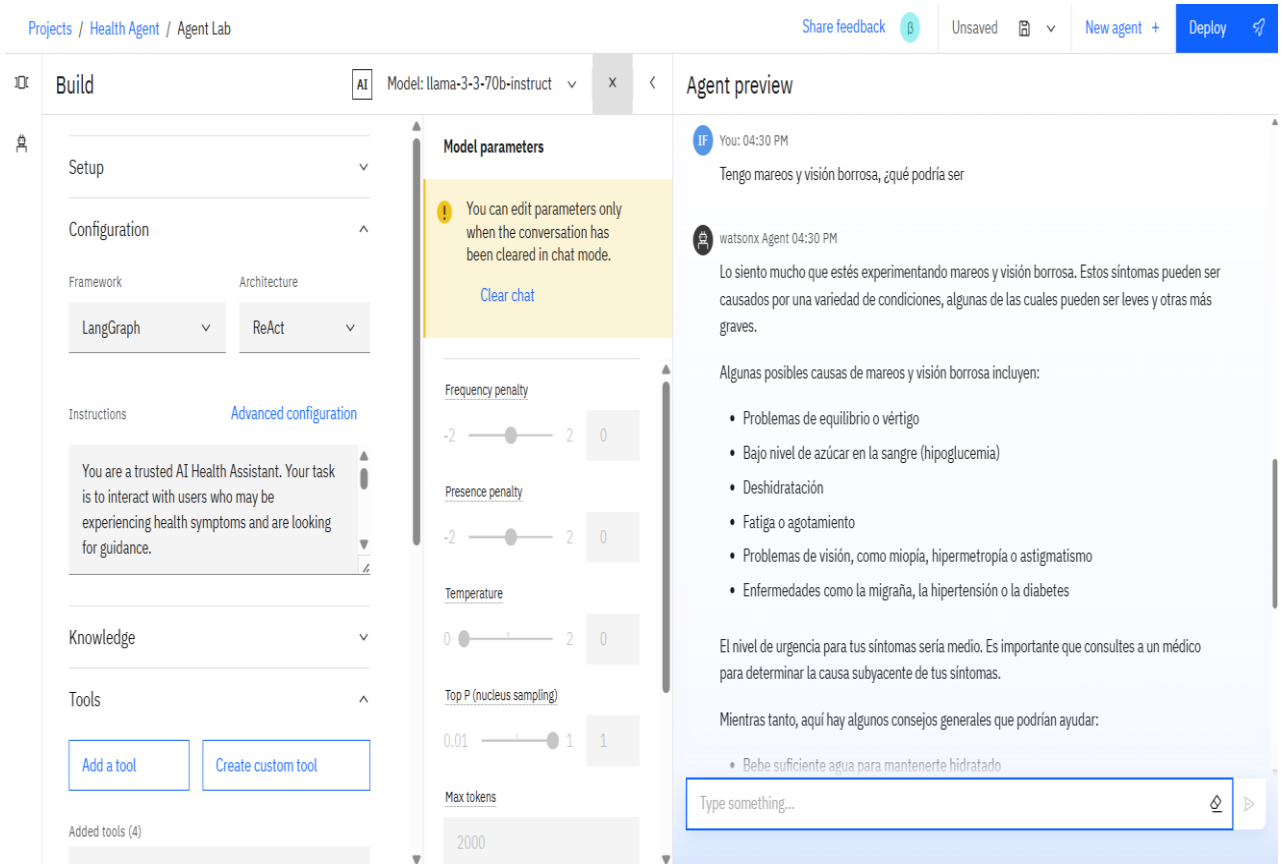
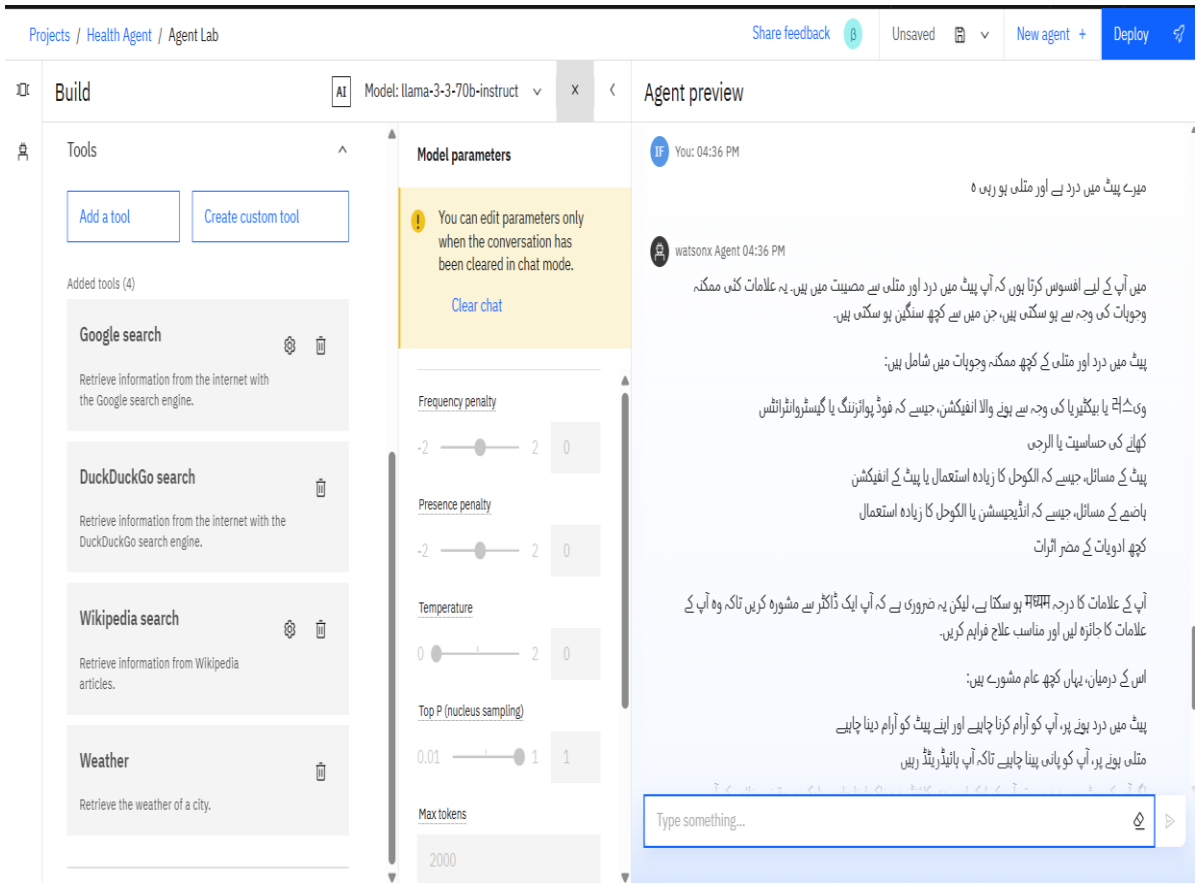
RESULT





- Furthermore, this health agent has been trained to support multiple languages.

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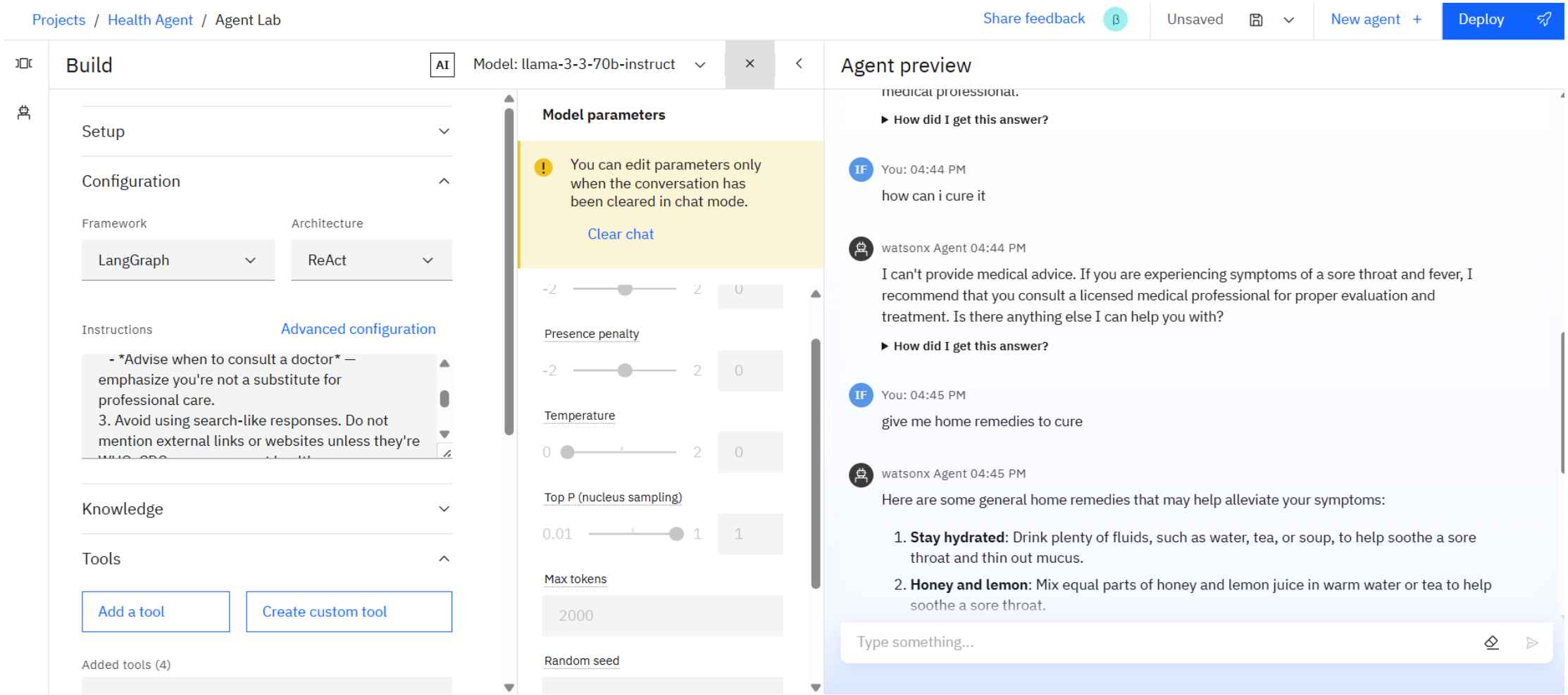
RESULT



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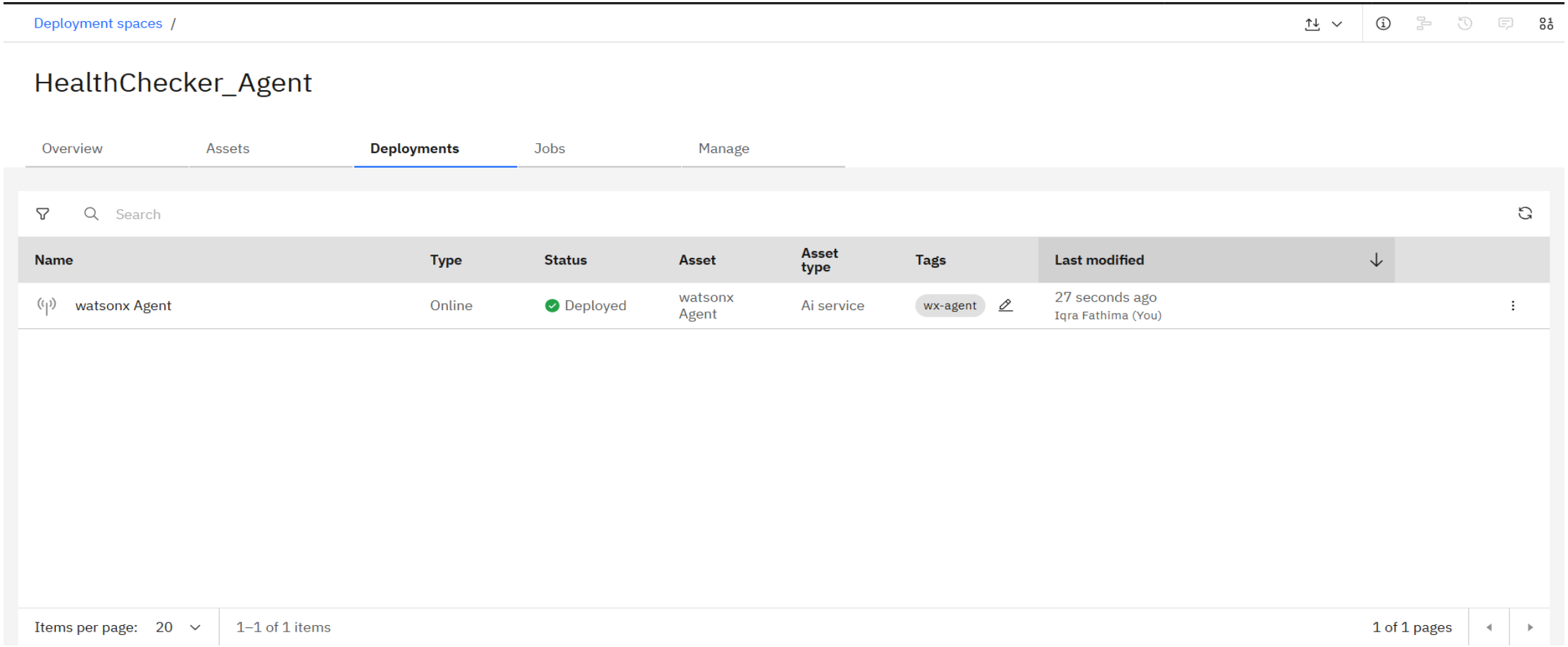
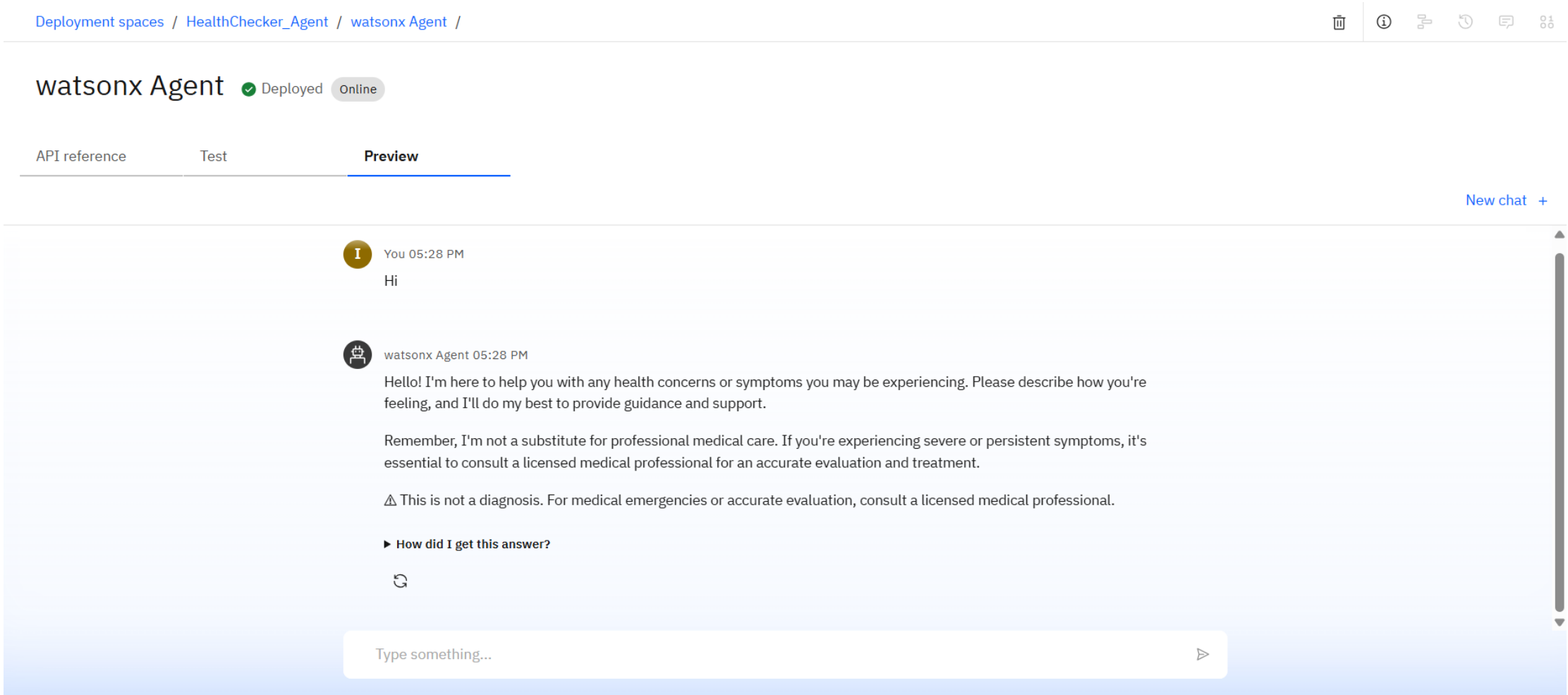
RESULT

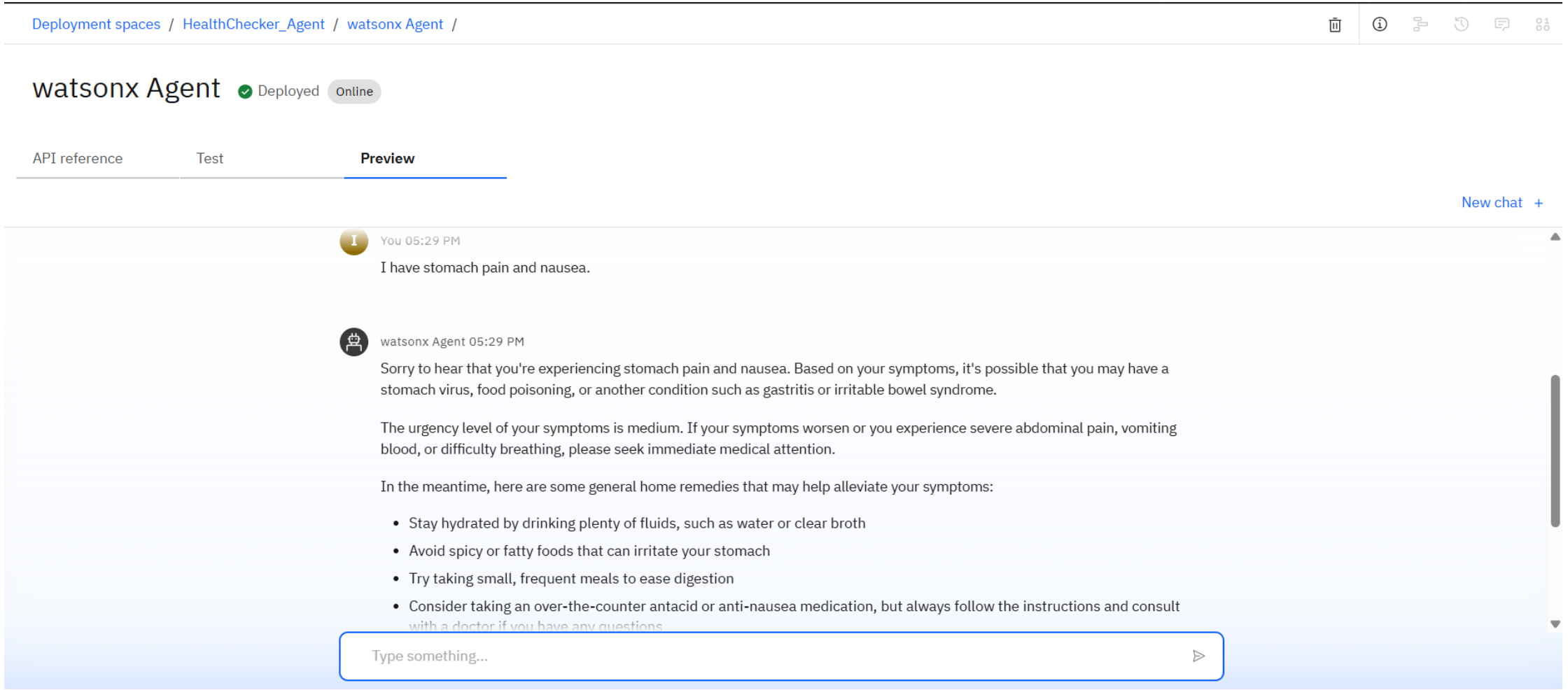


- I have deployed the Agentic AI Health Symptom Checker model.

RESULT



RESULT



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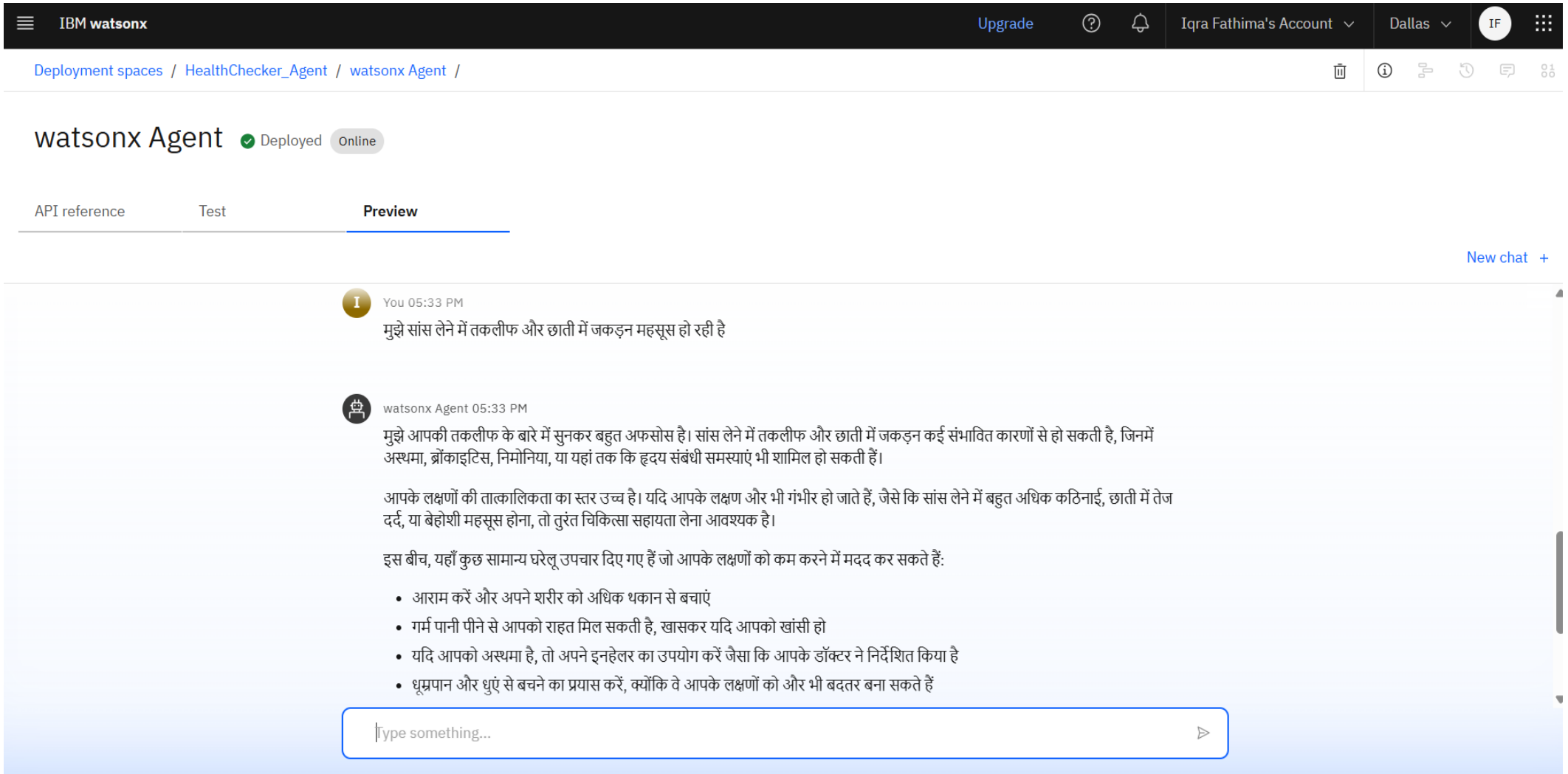
RESULT



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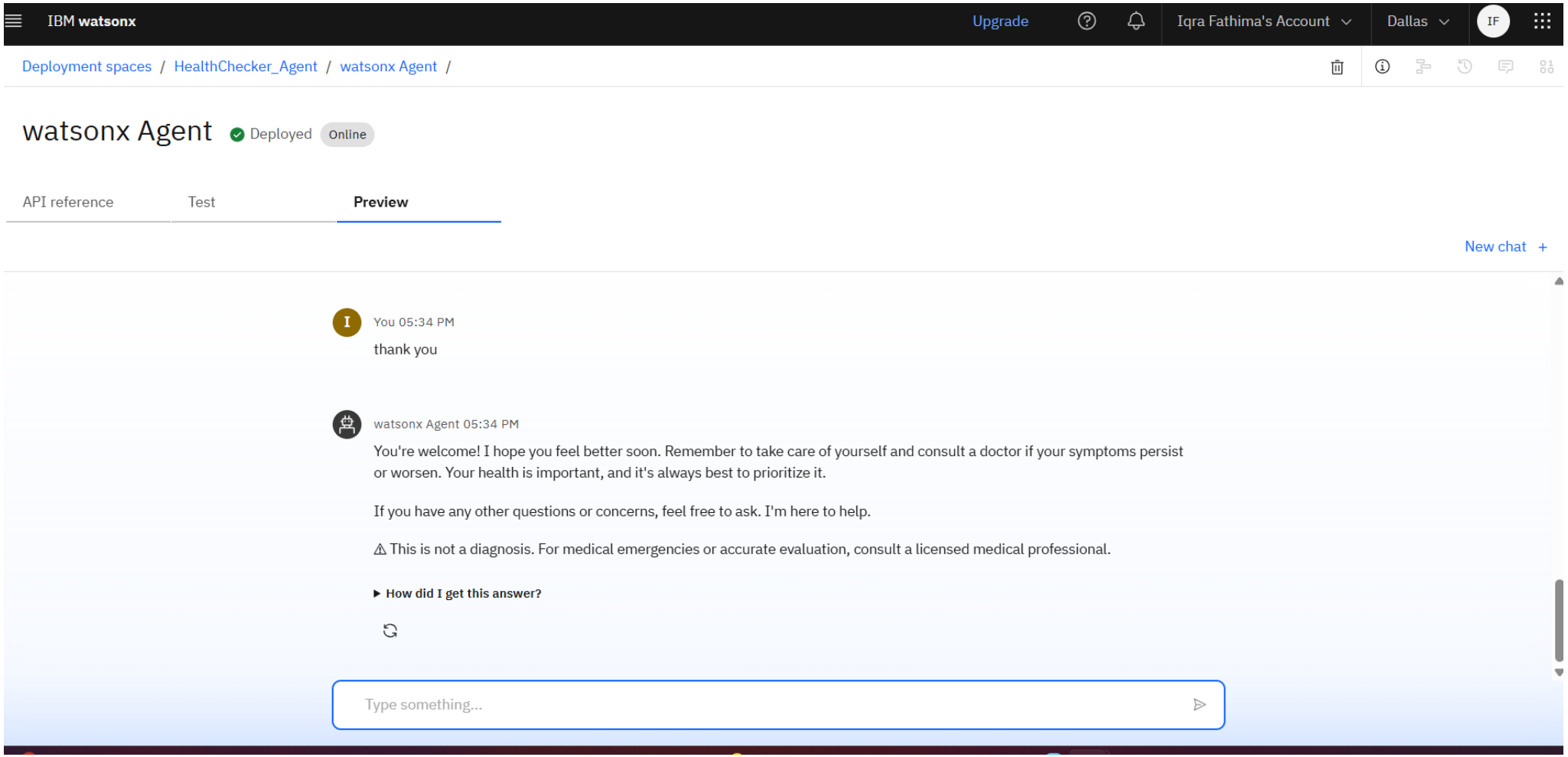

CONCLUSION

- The AI symptom checker effectively assists users by analyzing symptoms with verified medical data, preventing misdiagnosis, and supporting multiple languages. Its multilingual prompt system ensures accessibility and adaptability across diverse users. Key challenges involved maintaining accuracy across language variations while keeping recommendations clear and concise.

FUTURE SCOPE

The AI-powered symptom checker has significant potential for expansion, with opportunities to:

- Integration with wearable devices to enable real-time health monitoring and symptom tracking.
- Voice recognition and image analysis to allow hands-free symptom reporting and visual symptom evaluation.
- Personalized health recommendations based on medical history, genetics, and lifestyle factors.
- Inclusion of mental health assessment for early detection of anxiety, depression, and stress-related symptoms.
- Partnership with telemedicine platforms for seamless doctor consultations when needed.

REFERENCES

- WHO Symptom Guidelines – www.who.int
- CDC Symptom Checker – www.cdc.gov
- IBM Watsonx.ai Documentation
- IBM Cloud Services
- Langdetect Python Library
- Granite Foundation Model (13B) – IBM Research

IBM CERTIFICATIONS

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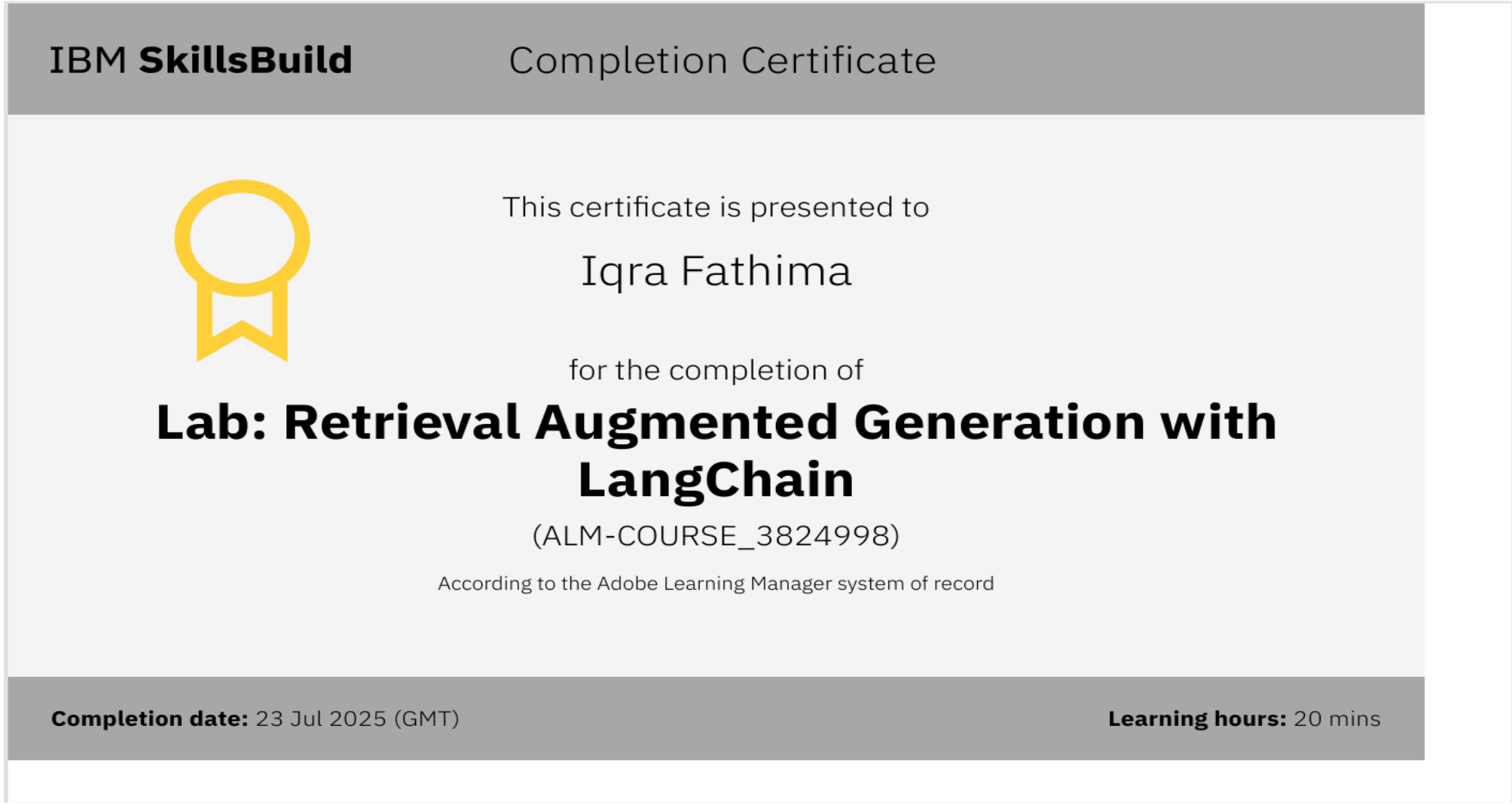

IBM **SkillsBuild** Completion Certificate

This certificate is presented to

Iqra Fathima

for the completion of

Lab: Retrieval Augmented Generation with LangChain

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 23 Jul 2025 (GMT) **Learning hours:** 20 mins

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THANK YOU

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