CAPSTONE PROJECT

NUTRITION AGENT

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OUTLINE

- Problem Statement
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- Wow factor
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PROBLEM STATEMENT

The Challenge - In an era where health awareness is growing, individuals increasingly seek personalized nutrition guidance. However, most existing tools provide generic diet plans, lack real-time adaptability, and fail to consider a person's holistic lifestyle, cultural preferences, allergies, and evolving health conditions. Furthermore, dieticians and nutritionists face limitations in scaling personalized consultations due to time and resource constraints.

Proposed Solution:Generative AI presents a groundbreaking opportunity to revolutionize this space by enabling an intelligent, interactive, and adaptive virtual nutrition assistant. By leveraging natural language processing (NLP), multimodal understanding, and large-scale dietary databases, an AI-powered assistant can generate dynamic meal plans, recommend smart food swaps, and explain nutritional choices—all tailored to the individual.



TECHNOLOGY USED

IBM cloud lite services

Natural Language Processing (NLP)

Retrieval Augmented Generation (RAG)

IBM Granite model



IBM CLOUD SERVICES USED

- IBM Cloud Watsonx Al Studio
- IBM Cloud Watsonx Al runtime
- IBM Cloud Agent Lab
- IBM Granite foundation model



WOW FACTORS

This agent involves involves emphasizing unique, futuristic, or highly valuable capabilities that differentiate it from standard applications.

Unique features:

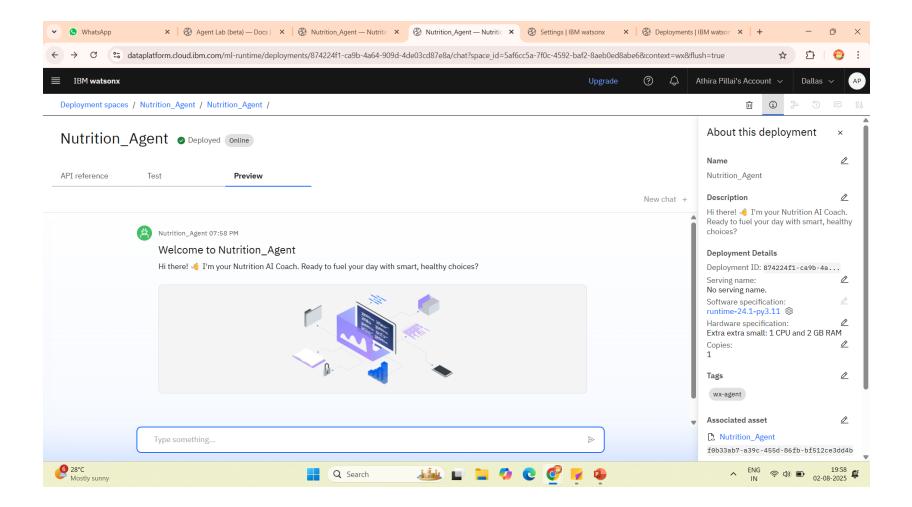
- Built on IBM Cloud for Enterprise-Grade Trust
- 2. Agentic Behavior with Autonomy
- 3. Seamless Integration with Enterprise and Consumer Apps
- 4. Agentic Personalization at Scale
- Dynamic Nutrient Forecasting
- 6. Explainable AI Recommendations



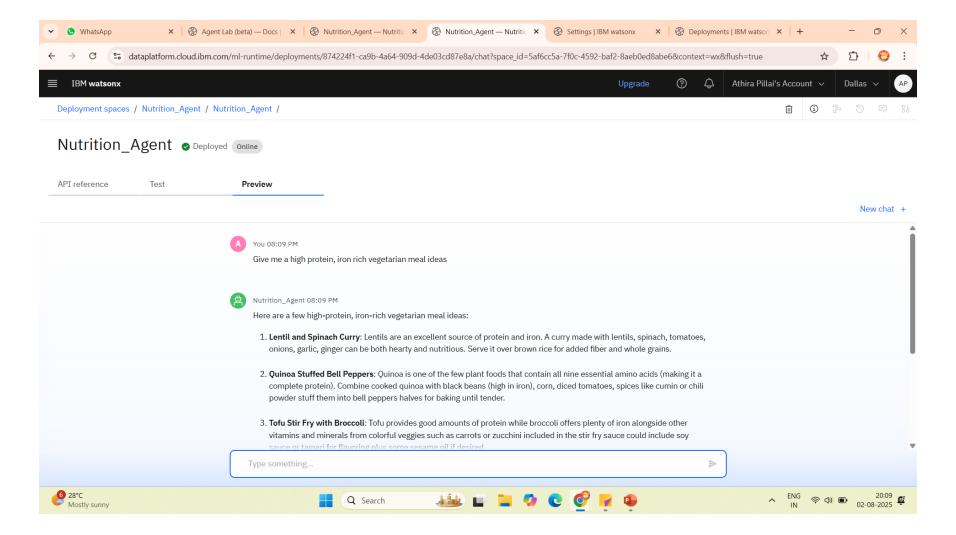
END USERS

- Individual consumers
- Health care sector
- Fitness and Lifestyle Platforms
- Wellness Programs

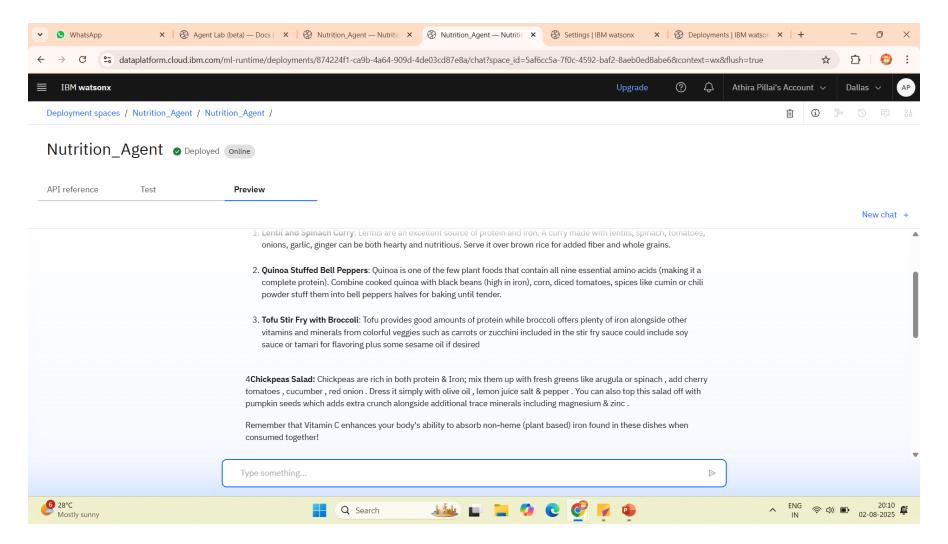




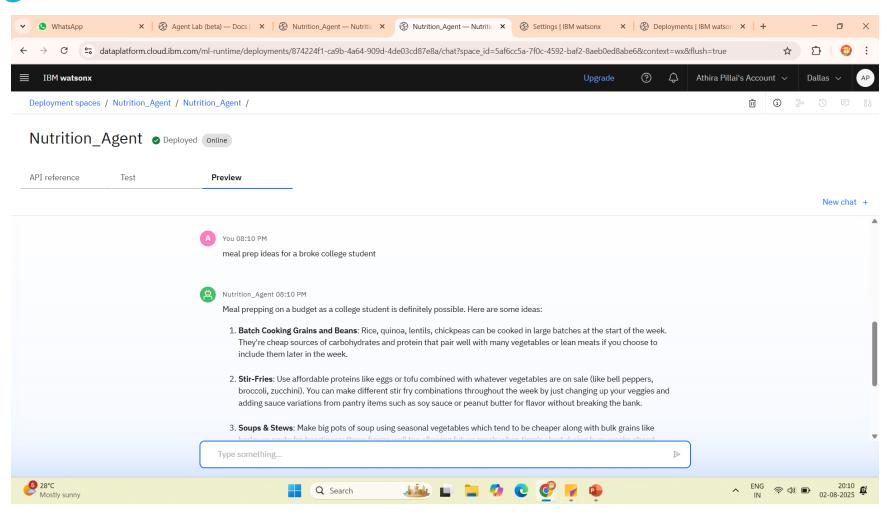




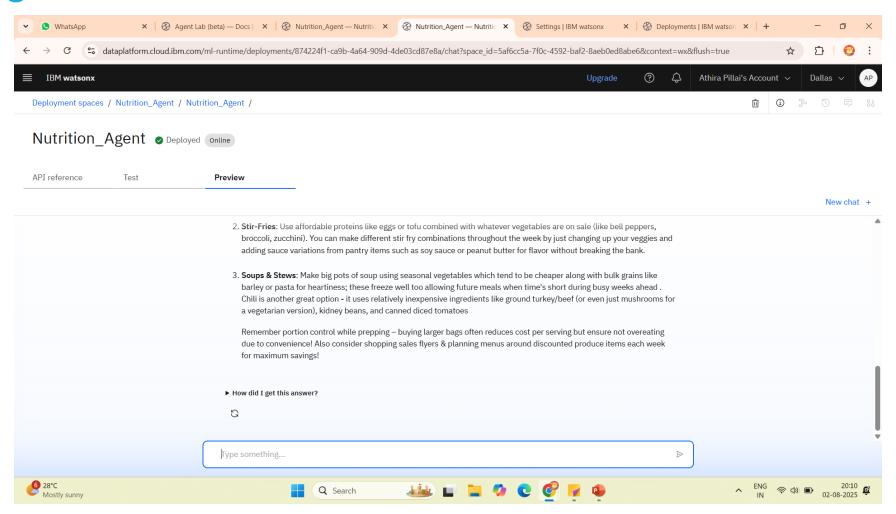








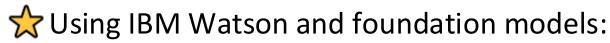








The Al gathers user data from multiple sources



- Natural Language Processing (NLP): Interprets medical texts, user queries
- Predictive modeling: Forecasts health risks and nutritional deficiencies
- Optimization engine: Matches dietary needs to best foods/meals
- Agent logic: Uses planning and memory (like LangChain-style agents) to act on behalf of the use



The Al generates:

Custom daily meal plans

Grocery shopping lists (linked to local stores)

Supplement suggestions

Calorie/macronutrient breakdowns



CONCLUSION

- The agent delivers highly tailored meal plans, grocery lists, and lifestyle nudges that adapt in real time to each user's habits, goals, and preferences.
- The AI handles the "what, when, and how" of daily nutrition.
- It intelligently using inputs like habits, preferences, and activity, the agent transforms raw data into meaningful food choices, without user overwhelm.



FUTURE SCOPE

- Integration with smart kitchens
- Voice-first nutrition assistants on devices like Alexa, Siri, or in cars
- Augmented reality (AR) meal planning
- Emotion-aware food recommendations based on mood or stress levels
- Al-guided food discovery personalized by taste, culture, and location
- Sustainability tracking Al suggests eco-friendly or low-waste diets
- Social + gamified wellness ecosystems with shared meal plans and AI coaching



IBM CERTIFICATIONS

In recognition of the commitment to achieve professional excellence



Athira Pillai

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



Issued on: Feb 21, 2025 Issued by: IBM SkillsBuild

Verify: https://www.credly.com/badges/bfa6bc59-a27b-4239-963c-cb50a8a60b8e





IBM SkillsBuild

Completion Certificate



This certificate is presented to

Athira Pillai

for the completion of

Lab: Retrieval Augmented Generation with LangChain

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 25 Jul 2025 (GMT)

Learning hours: 20 mins



Git hub link: https://github.com/Athira-pillai/Nutrition-Agent.git



GITHUB LINK

https://github.com/Athira-pillai/Nutrition-Agent/blob/main/README.md



THANK YOU

