CAPSTONE PROJECT

NUTRIGENIE – THE SMARTEST AI NUTRITION ASSISTANT

Presented By:

Student Name - Rudrani

College Name - Gurugram University

Department - BTech-CSE(AI)

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OUTLINE

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PROBLEM STATEMENT

Individuals increasingly seek personalized nutrition guidance tailored to their health goals, lifestyle, and dietary restrictions. Existing apps offer generic plans and lack dynamic adaptability. There is a need for an intelligent assistant that can understand user needs via natural inputs and generate tailored meal suggestions that adapt over time.

PROPOSED SOLUTION

NutriGenie is an AI-powered virtual nutrition assistant that:

- Accepts text, voice, or image input from users
- Understands health goals, allergies, and dietary needs
- Generates personalized meal plans using IBM Granite
- Explains food choices and tracks user preferences over time
- Uses adaptive logic to improve recommendations through feedback

TECHNOLOGY USED

- IBM Cloud Lite
- IBM Watsonx.ai Studio
- IBM Granite (LLM)
- IBM Cloudant (NoSQL DB for user data & feedback)
- IBM Watson Speech-to-Text (optional)
- React.js for frontend interface
- Flask (Python) for backend API

WOW FACTORS

- Generates personalized meal plans using IBM Granite based on real user goals and preferences.
- Accepts multimodal input including text, voice, and food images for flexible user interaction.
- Learns from user feedback to continuously improve future diet suggestions.
- Explains nutritional choices like a real dietician using LLM-powered reasoning.
- Visualizes calorie and macro intake with an interactive analytics dashboard.
- Supports diverse dietary needs including diabetic, vegan, and Indian meal patterns.
- Built on IBM Watsonx and Cloudant, ensuring enterprise-grade scalability and reliability.
- Bridges the gap between generic diet apps and expert nutrition counseling.
- Adaptable and inclusive design with potential for multilingual and regional expansion.
- Empowers users to make smarter, healthier food decisions with AI-driven guidance.

END USERS

- Health-conscious individuals seeking personalized diets
- Patients managing conditions like diabetes or hypertension
- Fitness enthusiasts and gym-goers needing goal-based meal plans
- Dietitians and nutritionists looking to scale their services
- Wellness startups integrating smart nutrition tools
- Elderly users or busy professionals needing quick guidance
- Students and beginners learning healthy eating habits

ALGORITHM & DEPLOYMENT

Prompt-based generative response using IBM Granite model.

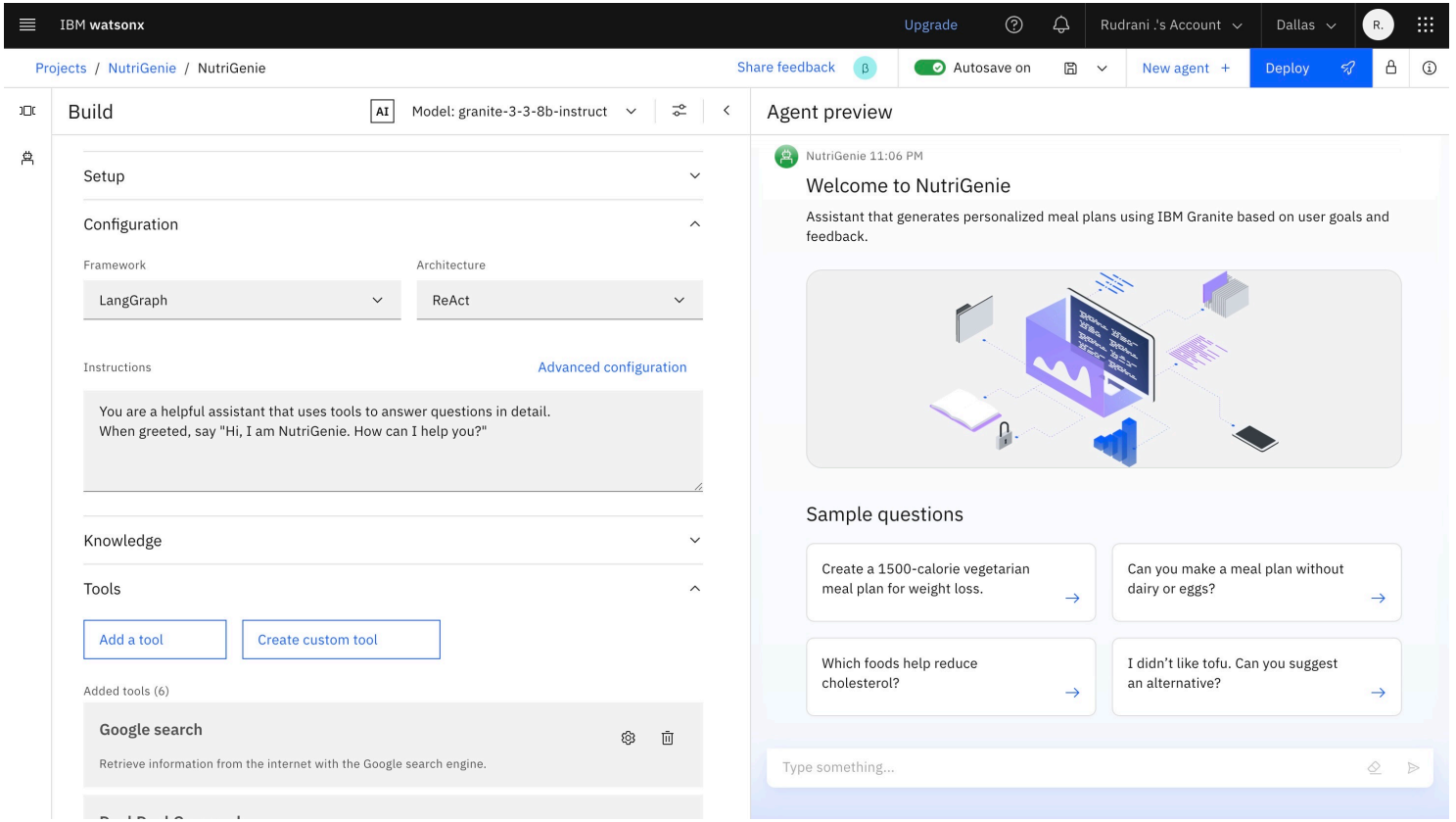
Prompt Example:

"Create a 2000-calorie vegetarian meal plan for a diabetic Indian male. Exclude sugar and fried food."

Deployment Steps:

1. Built and tested in Watsonx Prompt Lab
2. Integrated with backend via Watsonx API
3. Deployed agent via Watsonx.ai Studio & IBM Cloud

RESULT



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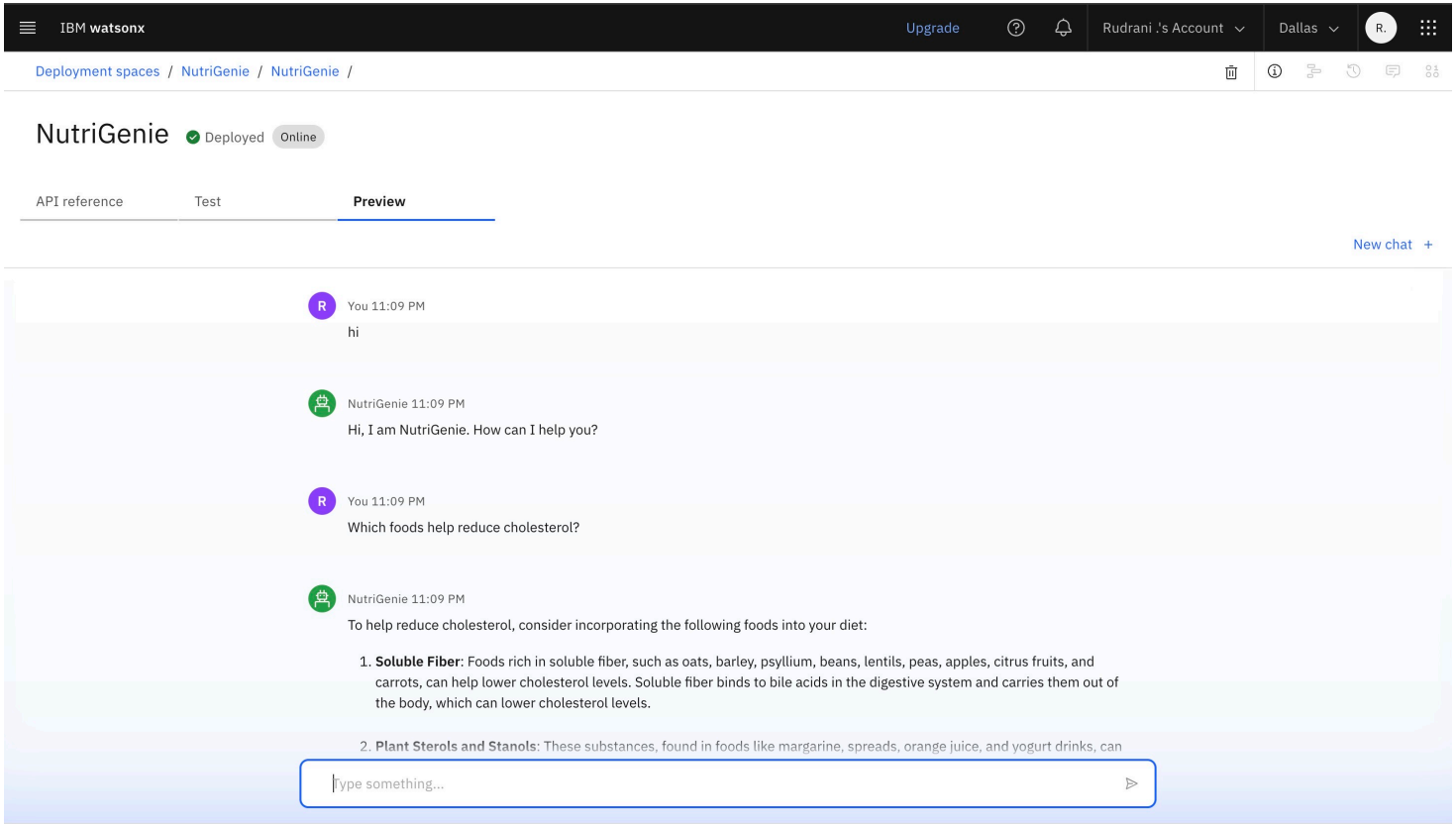
RESULT



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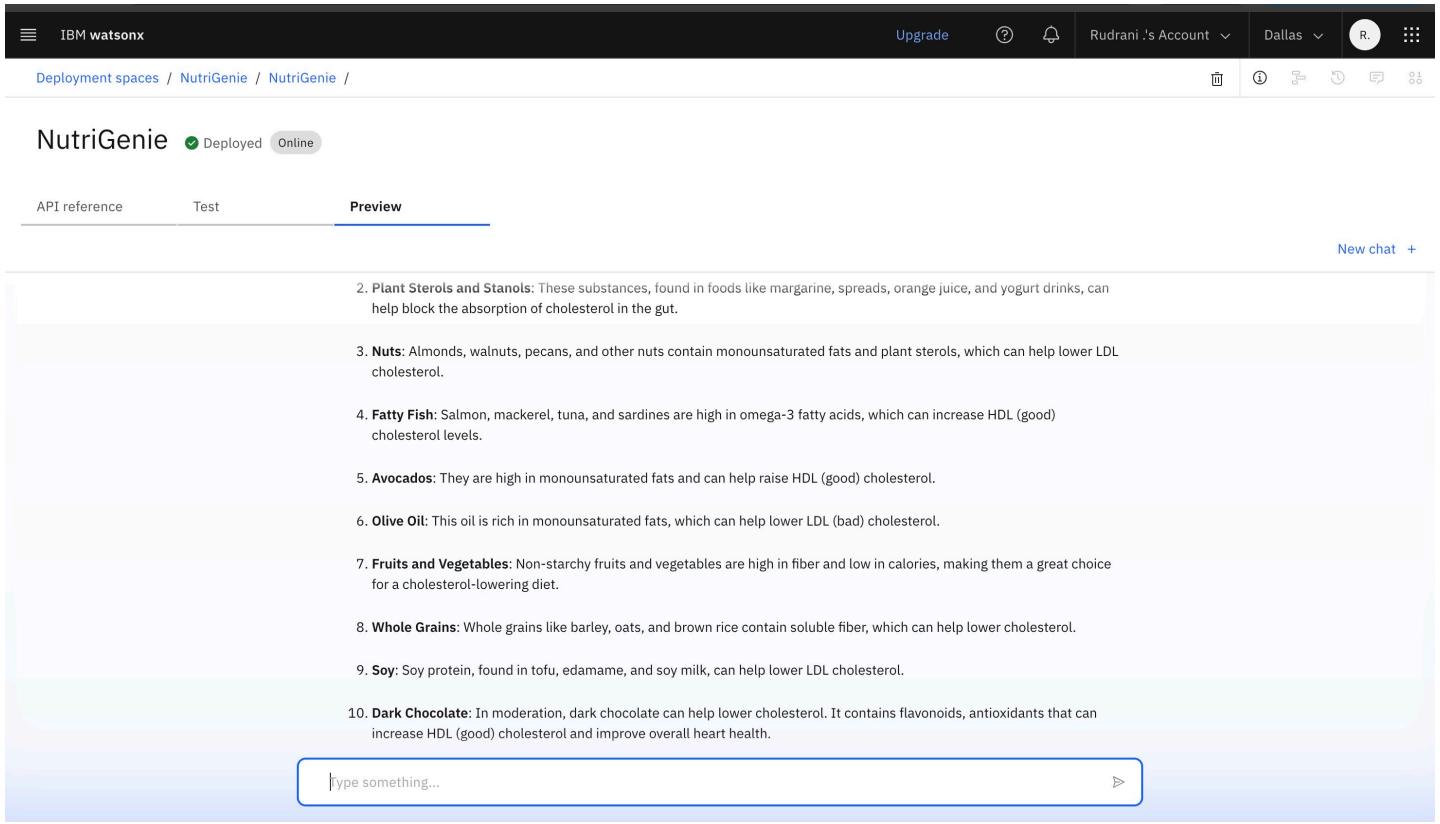
RESULT



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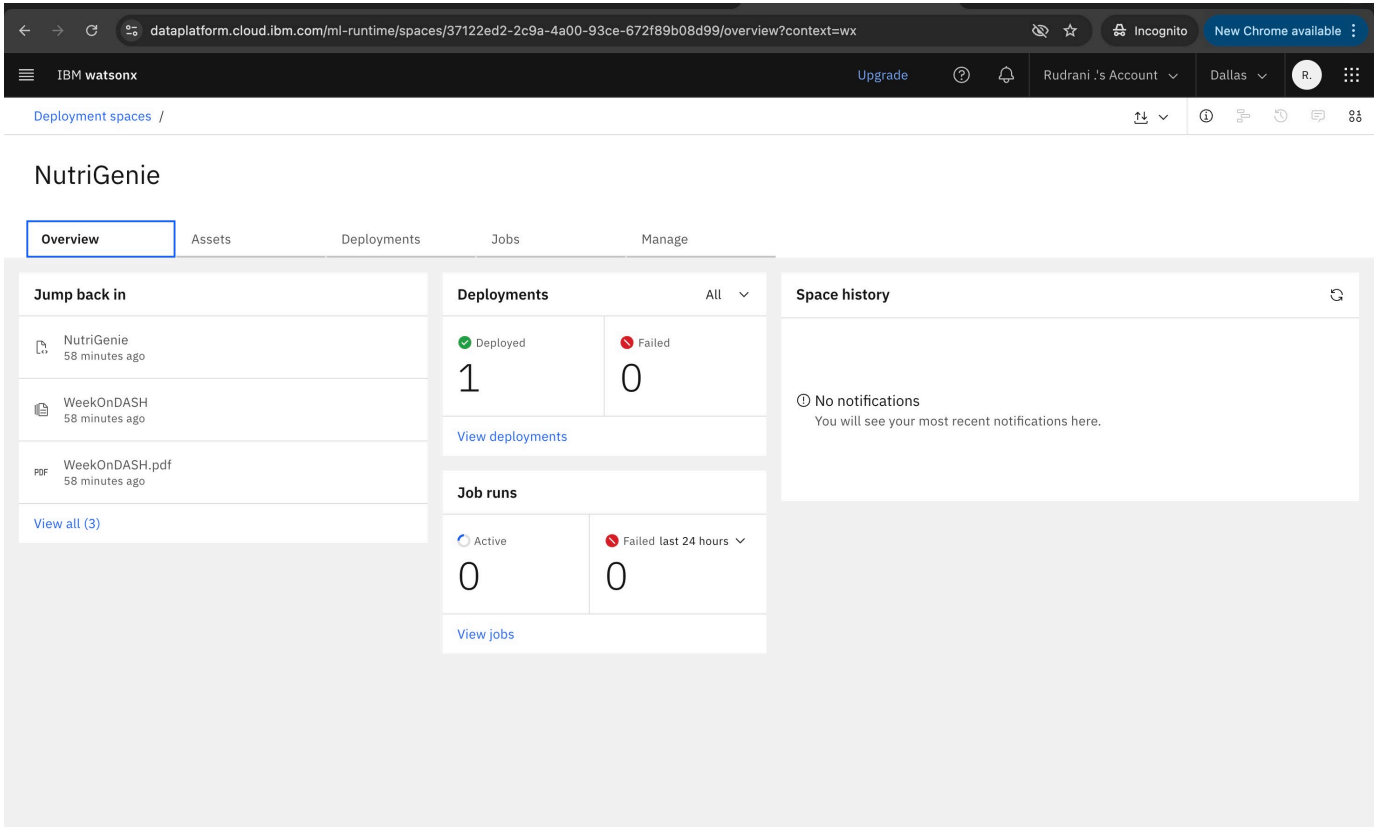
RESULT



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CONCLUSION

- NutriGenie bridges the gap between static diet apps and personalized nutrition counseling.
- It delivers customized meal plans using AI, improving user engagement and dietary compliance.
- The system adapts to individual needs, evolving with continuous user feedback.
- IBM Granite enables intelligent, context-aware responses with human-like reasoning.
- The project demonstrates real-world use of Agentic AI for health and wellness.

GITHUB LINK

https://github.com/RudraniSingh100/Nutrigenie-AI-Nutrition-Assistant

FUTURE SCOPE

- Integration with wearable health trackers (Fitbit, Apple Health)
- Multilingual input/output support
- Real-time nutrition tracking and goal alerts
- Doctor/dietitian collaboration interface

IBM CERTIFICATIONS

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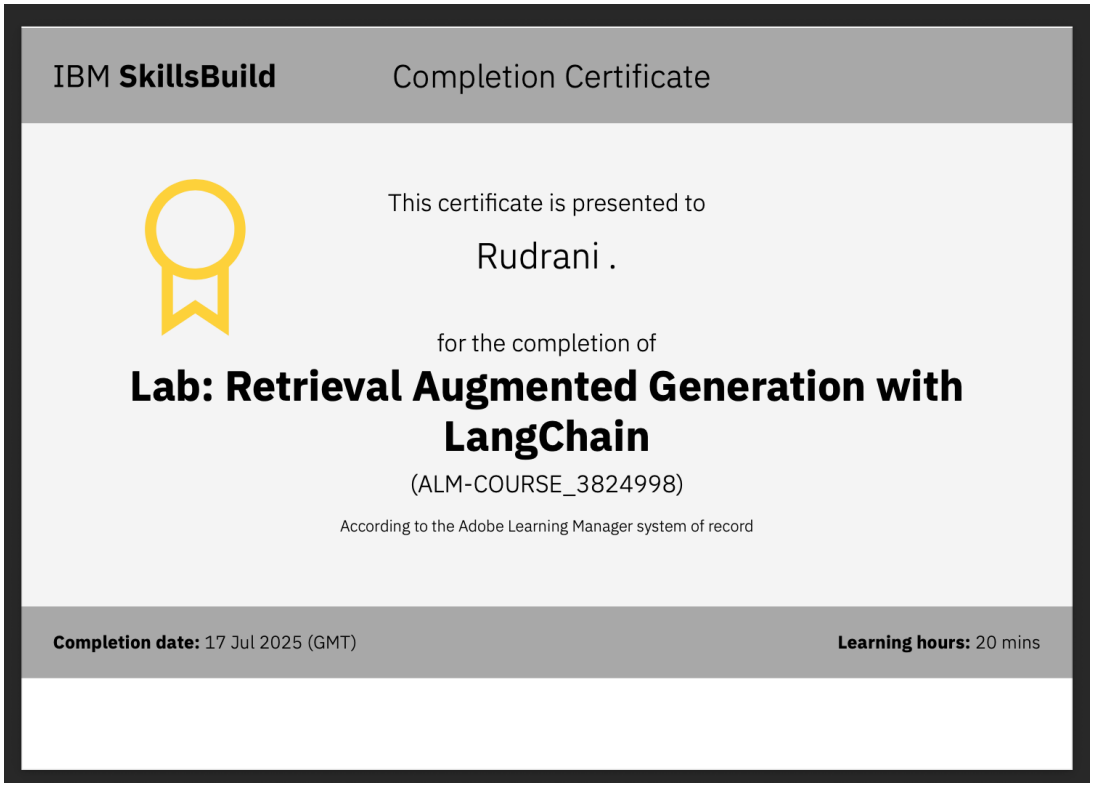

IBM **SkillsBuild** Completion Certificate

This certificate is presented to

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Completion date: 17 Jul 2025 (GMT) **Learning hours:** 20 mins

THANK YOU

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