
IBM HACKATHON PROJECT

NUTRITION AGENT

Presented By:

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OUTLINE

- Problem Statement
- Technology used
- Wow factor
- End users
- Result
- Conclusion
- Git-hub Link
- Future scope
- IBM Certifications

PROBLEM STATEMENT

Objective:

Design and develop a smart nutrition assistant that:

- Understands input via text, voice, or image (food photos, labels)
- Provides personalized meal plans based on health goals, conditions, preferences
- Suggests smart food swaps and offers clear nutritional explanations
- Adapts continuously based on user feedback and lifestyle
- Promotes better choices with AI-driven insights

Proposed Solution:

Build an intelligent AI Nutrition Agent using IBM Cloud Lite and IBM Granite, integrated with Watson Assistant for a conversational interface.

This assistant will deliver real-time, personalized dietary advice, making nutrition support scalable, adaptive, and user-centric—like a real expert.

TECHNOLOGY USED

IBM cloud lite services

Natural Language Processing (NLP)

Retrieval Augmented Generation (RAG)

IBM Granite model

IBM CLOUD SERVICES USED

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

WOW FACTORS

Wow Factor: Why Our Nutrition Agent Stands Out

- **Multimodal Understanding:** Accepts text, voice, and food image inputs for personalized interaction.
- **Dynamic Meal Plans:** Adapts to user's goals, health conditions, allergies, and preferences in real-time.
- **Smart Food Swaps:** Suggests healthier alternatives while preserving cultural and taste preferences.
- **Contextual Justifications:** Explains *why* a meal or food item is suitable, promoting informed choices.
- **Feedback Learning:** Continuously refines suggestions based on user reactions and history.
- **Nutritional Intelligence:** Backed by large-scale food and health databases, fitness data, and LLM-powered insights.
- **Anywhere, Anytime Access:** Deployable on IBM Cloud Lite with low-latency responses for on-the-go usage.

Not just a diet planner—this is your AI-powered, always-available nutritionist that learns, adapts, and truly cares.

END USERS


- Individuals focused on health and wellness
- Patients managing medical conditions (e.g., diabetes, obesity, hypertension)
- Dieticians and nutritionists seeking intelligent assistance
- Fitness enthusiasts and personal trainers
- Healthcare providers offering dietary support
- Parents planning balanced meals for children
- Elderly individuals requiring tailored nutrition
- Wellness centers and rehabilitation clinics

RESULTS

[Upgrade](#) [?](#) [🔔](#) Nitin Rawat's Account [Dallas](#) [NR](#)

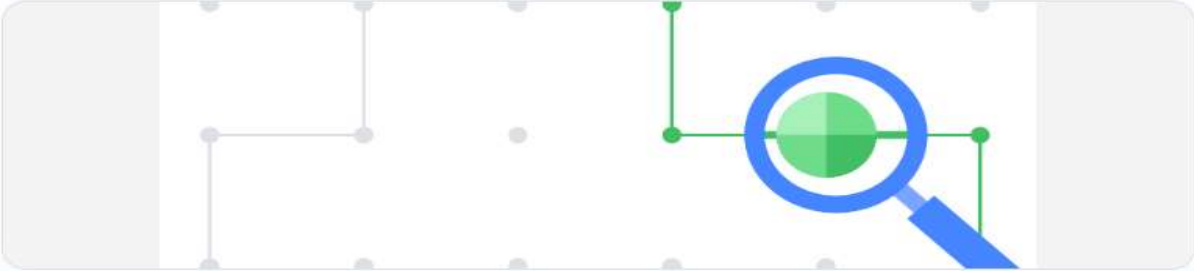
[Share feedback](#) [β](#) [Autosave on](#) [📁](#) [New agent +](#) [Deploy](#) [🚀](#) [🔒](#) [👤](#)

Agent preview

 Nutrition_Agent 06:57 PM

Welcome to Nutrition_Agent

AI assistant for healthy eating, diet tips, and smart meal planning



Sample questions

What should I eat to lose weight?
→

Suggest a healthy meal plan for today.
→

What foods are good for diabetics?
→

How much protein do I need daily?
→

[🗨](#) [▶](#)

RESULTS

IBM watsonx

Upgrade ⓘ 🔔 Nitin Rawat's Account ▾ Dallas ▾ NR

Projects / Nutrition_Agent / Agent Lab

Share feedback ⓘ β Unsaved 📁 ▾ New agent + Deploy 🚀

Build

AI Model: granite-3-3-8b-instruct ▾ ⚙️ <

How much protein do I need daily? 🗑️

Configuration

Framework: Architecture

LangGraph ▾ ReAct ▾

Instructions [Advanced configuration](#)

You are a helpful and knowledgeable AI nutrition assistant. Provide users with personalized and general nutritional advice based on their inputs. Suggest balanced diets, healthy eating habits, and suitable food options for different goals (e.g., weight loss, muscle gain, diabetic-friendly). Avoid giving medical diagnoses, and do not provide treatment recommendations for medical conditions. Always encourage users to consult healthcare professionals for medical

Knowledge ▾

Tools ▾

Agent preview

NR You: 03:07 AM

What foods are good for diabetics?

👤 Nutrition_Agent 03:07 AM

Diabetics should focus on a balanced diet that is low in sugar and refined carbohydrates, while being relatively high in dietary fiber, especially soluble fiber. Foods that are recommended include:

1. **Non-starchy vegetables:** These are low in carbohydrates and high in fiber, vitamins, and minerals. Examples include spinach, broccoli, bell peppers, and tomatoes.

2. **Whole grains:** Foods like brown rice, quinoa, whole wheat bread, and oatmeal are high in fiber and can help regulate blood sugar levels.

3. **Lean proteins:** Chicken, turkey, fish, eggs, tofu, and low-fat dairy products are good sources of protein that have minimal impact on blood sugar.

4. **Healthy fats:** Avocados, nuts, seeds, and olive oil can help reduce the risk of heart disease, which is more prevalent in people with diabetes.

5. **Fruits:** While fruits contain natural sugars, they also provide essential vitamins, minerals, and fiber. Opt for fruits with lower glycemic index like berries, apples, and pears.

Type something...

English (India)
English (India)

To switch input methods, press Windows key + space.

RESULTS

Agent preview



You: 03:41 AM

I'm trying to gain weight, but I'm lactose intolerant. Suggest a meal plan



Nutrition_Agent 03:41 AM

Given your lactose intolerance, you might also want to consider histamine intolerance as a potential issue, as some dairy products can contain histamine. Histamine intolerance is a condition where certain foods trigger symptoms due to the body's inability to break down histamine effectively.

Here's a suggested meal plan focusing on high-calorie, histamine-low foods:

Breakfast:

- Scrambled eggs with avocado on whole grain toast
- A glass of freshly squeezed orange juice

Mid-Morning Snack:

- A handful of almonds or walnuts

Lunch:

- Grilled chicken breast with quinoa and steamed vegetables (carrots, zucchini, bell peppers)
- A small apple for dessert

Afternoon Snack:

- Greek yogurt (lactose-free if needed) with fresh berries

Dinner:

- Baked salmon with sweet potato and a side salad (spinach, tomatoes, cucumber, olive oil, and vinegar dressing)
- A small pear for dessert

Type something...



RESULTS

Deployed AI Agent

IBM watsonx

Upgrade ? 🔔

Nitin Rawat's Account ▾ Dallas ▾ NR

Deployment spaces / Nutrition_Agent / Nutrition_Agent /

Nutrition_Agent 🟢 Deployed Online

API reference Test **Preview**

New chat +

N

You 03:43 AM

I have a peanut allergy. Suggest a protein-rich breakfast

🤖

Nutrition_Agent 03:43 AM

I'm sorry to hear about your peanut allergy. It's important to ensure that your breakfast is both protein-rich and free from peanuts. Here are a few suggestions:

1. **Eggs:** A classic source of protein. You can have them boiled, scrambled, or as an omelette.

2. **Greek Yogurt:** This dairy product is high in protein and can be eaten with fruits or nuts (if you're not allergic to them).

3. **Tofu:** Made from soybeans, tofu is a great source of protein for those following a vegan diet.

4. **Protein Smoothie:** Blend your favorite fruits with a scoop of whey protein (ensure it's not manufactured in a facility that also processes peanuts).

5. **Quinoa:** This grain is a complete protein and can be used in various breakfast dishes.

6. **Chia Seed Pudding:** Chia seeds are packed with protein and fiber. You can soak them overnight in milk (like almond or oat milk) and top with fresh fruits.

7. **Turkey or Chicken Breast:** These meats are high in protein and can be prepared in a variety of ways for breakfast.

Type something... 🔍

About this deployment ×

Name

Nutrition_Agent

Description

AI assistant for healthy eating, diet tips, and smart meal planning

Deployment Details

Deployment ID: aa50edac-990f-43...

Serving name: No serving name.

Software specification: runtime-24.1-py3.11 ⚙️

Hardware specification: Extra extra small: 1 CPU and 2 GB RAM

Copies: 1

Tags

wx-agent

Associated asset

Nutrition_Agent

12526754-5ac2-4e0e-93cd-27b39f31120e

Last modified

7 minutes ago

Created on

Aug 3, 2025



CONCLUSION

- The AI Nutrition Agent revolutionizes personal health management by delivering smart, adaptive, and personalized dietary guidance.
- It saves time by automating complex tasks such as nutritional analysis, meal planning, and health goal tracking.
- From individuals to healthcare providers, the agent serves a wide spectrum of users—enhancing accuracy, accessibility, and decision-making.
- By leveraging IBM's generative AI and cloud capabilities, this solution bridges the gap between traditional nutrition counseling and modern digital innovation.
- Ultimately, the agent promotes healthier lifestyles, supports chronic disease management, and empowers informed food choices—making nutrition smarter, scalable, and more personalized than ever.

GITHUB LINK

- <https://github.com/Nitin-Rawat314/Nutrition-Agent>

FUTURE SCOPE

- **Multilingual Support** – Help users in their native languages.
- **Mobile App Integration** – Enable on-the-go access.
- **Wearables & Health App Sync** – Real-time health tracking and recommendations.
- **Advanced Image Recognition** – Identify food items from photos.
- **Healthcare System Collaboration** – Share insights with doctors/nutritionists.
- **AI Learning & Personalization** – Improve suggestions based on usage.
- **Grocery List & Delivery Integration** – Auto-generate and order healthy food.

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



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Has successfully satisfied the requirements for:

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7/24/25, 11:15 AM

Completion Certificate | SkillsBuild

IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Nitin Rawat

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