
IBM HACKATHON PROJECT

NUTRIBUDDY – AI NUTRITION ASSISTANT

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OUTLINE

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

PROBLEM STATEMENT

Modern diets lack personalization. People often consume meals without understanding their nutritional value, impacting health, fitness goals, and medical conditions. People often lack access to real-time, personalized nutrition advice that is easy to understand and act upon. Traditional diet plans are static, non-interactive, and rarely integrate cultural preferences or live data sources.

TECHNOLOGY USED

IBM cloud lite services

Natural Language Processing (NLP)

IBM Granite model

Google Search Tool

LangGraph + ReAct

IBM CLOUD SERVICES USED

- IBM Cloud Watsonx AI Studio
- IBM Cloud Watsonx AI runtime
- IBM Cloud Agent Lab
- IBM Granite foundation model
- Agent Lab (LangGraph + ReAct)
- Cloud Object Storage
- IBM Deployment Spaces

WOW FACTORS

Real-time Meal Analysis using Natural Language

AI-Powered Personalized Nutrition Assistant

Integrated Google Search Tool for Dynamic Recommendations

Uses IBM Granite Foundation Model with ReAct Architecture

Fully Deployable via Watsonx Agent Lab – No Code Required

Supports Diet Planning, Calorie Estimation, and Healthy Recipes

END USERS

- Health-conscious Individuals
- Fitness Enthusiasts and Athletes
- Nutritionists and Dietitians
- Healthcare Providers and Wellness Coaches
- Educational Institutions for Diet & Nutrition Programs
- Startups and Developers in Health Tech Domain

RESULTS

IBM watsonx

Upgrade ?

Sai Charan Naidu's Account

Dallas

SN

Projects / Travel_agent / Agent Lab

Share feedback β Unsaved 📁 New agent + Deploy 🚀

Build

AI Model: granite-3-3-8b-instruct

1. Answer food-related questions.

2. Suggest healthy recipes.

3. Provide nutritional breakdowns when asked.

4. Adapt your suggestions to dietary preferences (e.g., vegan, gluten-free).

Use the tools if needed (e.g., Google Search or APIs).

Knowledge

Vector index

Select or create vector index

Clear chat

If you want to add a vector index to the agent, clear the agent preview chat.

Tools

Add a tool Create custom tool

Added tools (1)

Google search

Retrieve information from the internet with the Google search engine.

Agent preview

SN You: 01:46 AM

What's a high protein meal in chicken recipes that's tasty?

NutriBuddy AI 01:46 AM

Here's a high-protein chicken recipe that's both tasty and satisfying: Baked Lemon Garlic Parmesan Chicken.

Ingredients:

- 4 boneless, skinless chicken breasts
- 2 tablespoons olive oil
- 3 cloves garlic, minced
- Zest and juice of 1 lemon
- 1/2 cup grated Parmesan cheese
- 1 teaspoon dried oregano
- Salt and pepper to taste

Instructions:

1. Preheat your oven to 400°F (200°C).

Type something... 🔍 ➤

RESULTS

IBM watsonx

Upgrade ?

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Projects / Travel_agent / Agent Lab

Share feedback β Unsaved 📁 ▼ New agent + Deploy 🚀

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AI

Model: granite-3-3-8b-instruct ▼

⚙️ ◀

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Agent preview

Day 2:

- Breakfast:** Protein-packed smoothie (1 scoop plant-based protein powder, 1 cup almond milk, 1/2 cup spinach, 1/2 banana) - Approximately 30g protein
- Snack:** Edamame (1 cup) - Approximately 18g protein
- Lunch:** Chickpea Salad (1 cup cooked chickpeas, mixed greens, tomatoes, cucumber, and a lemon-olive oil dressing) - Approximately 15g protein
- Snack:** 1 oz mixed nuts (almonds, walnuts, etc.) - Approximately 6g protein
- Dinner:** Stir-fried tempeh (100g) with mixed veggies (broccoli, bell peppers, snap peas) over 1 cup brown rice - Approximately 30g protein
- Evening Snack:** Protein pancake made with oat flour and topped with 1/4 cup berries - Approximately 20g protein

This plan totals approximately 150g of protein and is designed to support fat loss when combined with a calorie deficit. Remember to drink plenty of water and adjust portion sizes to fit your specific dietary needs and activity level.

For more personalized advice, consider consulting a registered dietitian or nutritionist.

► How did I get this answer?

🔄

Type something... 🔍 ▶

RESULTS

IBM watsonx

Upgrade ? Bell Sai Charan Naidu's Account Dallas SN

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Build

AI Model: granite-3-3-8b-instruct ⌵

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Agent preview

I want a 150g protein vegetarian diet plan for fat loss.

NutriBuddy AI 01:43 AM

Here's a sample 150g protein vegetarian meal plan for fat loss. Please note that individual caloric needs can vary, so adjust portion sizes accordingly.

Day 1:

• **Breakfast:** Tofu Scramble (1 cup firm tofu, 1/2 cup spinach, 1/4 cup bell pepper, seasoned with turmeric, nutritional yeast, salt, and pepper) - Approximately 30g protein

• **Snack:** Greek yogurt (1 cup, non-fat) with 1/4 cup mixed berries - Approximately 20g protein

• **Lunch:** Quinoa Salad (1 cup cooked quinoa, mixed veggies, chickpeas, and a lemon-tahini dressing) - Approximately 15g protein

• **Snack:** Hummus (1/4 cup) with carrot and cucumber sticks - Approximately 5g protein

• **Dinner:** Lentil Curry (1.5 cups cooked lentils, mixed veggies, and spices) served with 1 cup brown rice - Approximately 30g protein

• **Evening Snack:** Cottage cheese (1/2 cup, 2% fat) with 1/4 cup diced pineapple - Approximately 25g protein

Day 2:

Type something... 🔍 ➤

edunet
foundation

RESULTS

Deployed AI Agent

The screenshot displays the IBM Watsonx interface for managing AI agents. The top navigation bar includes the IBM Watsonx logo, an 'Upgrade' button, and user account information for 'Sai Charan Naidu's Account' in 'Dallas'. The breadcrumb trail indicates the current location: 'Deployment spaces / NutriBuddy_Deployment / NutriBuddy_AI_Agent /'. The main heading is 'NutriBuddy_AI_Agent', which is marked as 'Deployed' with a green checkmark and 'Online' in a grey pill. Below this, there are three tabs: 'API reference', 'Test', and 'Preview', with the 'Preview' tab being the active one. The chat interface shows a conversation where the user asks for a high-protein vegetarian meal suggestion, and the AI agent responds with a list of seven meal ideas. The chat input field at the bottom contains the placeholder text 'Type something...'. A 'New chat +' button is located in the top right corner of the chat area.

IBM watsonx Upgrade ? Sai Charan Naidu's Account Dallas SN

Deployment spaces / NutriBuddy_Deployment / NutriBuddy_AI_Agent /

NutriBuddy_AI_Agent ✓ Deployed Online

API reference Test **Preview**

New chat +

S You 03:01 AM
Suggest a high-protein vegetarian meal.

NutriBuddy_AI_Agent 03:01 AM
Here are some high-protein vegetarian meal ideas:

1. Quinoa and black bean bowl with roasted vegetables
2. Lentil soup with whole grain bread
3. Grilled tofu or tempeh with roasted sweet potatoes and steamed broccoli
4. Veggie burgers made with black beans, mushrooms, and quinoa
5. Stuffed bell peppers with quinoa, black beans, and cheese
6. Spinach and feta stuffed portobello mushrooms
7. Chickpea and avocado salad with whole grain pita

Type something...

CONCLUSION

- The NutriBuddy AI Nutrition Assistant demonstrates how powerful foundation models like IBM Granite can be leveraged to deliver personalized, real-time nutritional insights. By integrating Natural Language Processing and web search capabilities, the agent enables users to make informed dietary choices instantly. This project showcases the potential of AI in transforming everyday health decisions into smarter, data-driven actions.

GITHUB LINK

<https://github.com/saicnaidu27/NutriBuddy-AI-Agent/tree/b0e836efdb08f3a7897622f60bd88308fbaad153>

FUTURE SCOPE

- Custom User Profiles: Add login system to store age, goals, allergies, and preferences.
- Voice Interaction: Integrate voice-based queries using IBM Watson Speech-to-Text and Text-to-Speech.
- Wearable Integration: Sync with fitness trackers (like Fitbit, Apple Watch) for activity-based diet suggestions.
- Recipe Generator Tool: Automatically generate recipes based on fridge ingredients or regional preferences.
- Indian Food Database Integration: Link with APIs like HealthifyMe, MyFitnessPal, or USDA.
- Multilingual Support: Expand to regional Indian languages using NLP models for inclusivity.
- Meal Plan Export: Allow users to download weekly diet charts in PDF or calendar format.
- Dietician Connect: Suggest nearby certified professionals for medical-grade advice.
- AI Coach + Chat App: Deploy as a WhatsApp bot or mobile app for real-time feedback.

IBM CERTIFICATIONS

IBM **SkillsBuild**

Completion Certificate



This certificate is presented to
SAI CHARAN NAIDU P

for the completion of

Introduction to Artificial Intelligence

(MDL-211)

According to the Moodle system of record

Completion date: 18 Jul 2025 (GMT)

Learning hours: 1 hr 15 mins



This certificate is presented to
SAI CHARAN NAIDU P

for the completion of

Lab: Retrieval Augmented Generation with LangChain

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 18 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU