
AGENTIC AI PROJECT

NUTRITION AGENT

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OUTLINE

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

PROBLEM STATEMENT

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

WOW FACTORS

The AI doesn't just suggest workouts and meals—it creates *fully customized* routines and meal preps based on:

- Fitness goals (fat loss, muscle gain, endurance)
- Dietary restrictions (vegan, keto, diabetic-friendly)
- Time constraints (e.g., 15-minute meals, 20-min home workouts)
- Equipment availability (bodyweight only? full gym access? No problem.)

2. Dynamic Meal Prep Generator

Instantly generates meal plans that are:

- Nutritionally balanced (macros and micros calculated)
- Batch-cooking optimized (makes meal prep efficient for the whole week)
- Budget-aware and tailored to grocery costs
- Can even produce shopping lists grouped by supermarket aisle.

3. Intelligent Workout Structuring

Your AI builds programs like a human trainer:

- Progressive overload included
- Adapts based on user feedback (sore? missed a session? No worries.)
- Periodizes training phases (e.g., strength → hypertrophy → recovery weeks)

END USERS

- General Consumers
- Healthcare & Wellness Professionals
- Fitness Studios & Gyms
- Schools, Colleges & Universities
- Corporate Wellness Programs

RESULTS



Healthily 10:29 PM

Welcome to Healthily

I am your fitness and nutrition buddy, I can design your diet and fitness plan.



Type something...



RESULTS

Build > Agent preview



You: 10:32 PM

Hello.



Healthily 10:32 PM

Hello! May I know your name and some details about your health and diet to assist you better?

► How did I get this answer?



You: 10:33 PM

My name is Navam, I am 5 feet and 20 inches and my weight is 80 kilograms.



Healthily 10:33 PM

Thank you, Navam. To better assist you, could you please tell me about your activity level, any health conditions you have, your dietary goals, and your food preferences or allergies?

► How did I get this answer?



You: 10:34 PM

Type something...



RESULTS

Build > Agent preview

 You: 10:36 PM

Create a meal prep in short for over an year in brief.

 Healthily 10:36 PM

Creating a detailed meal plan for an entire year can be quite extensive, but I can certainly outline a general structure for you to follow. Please note that individual needs may vary, so it's essential to adjust this plan according to your preferences and progress.

Year-Long Meal Prep Outline:

Phase 1 (Months 1-3): Foundation Building

- Focus on whole, unprocessed foods.
- Prioritize lean proteins (chicken, turkey, fish, tofu), whole grains (brown rice, quinoa, whole-grain pasta), and plenty of vegetables.
- Incorporate healthy fats (avocado, olive oil, nuts).
- Control portion sizes to create a calorie deficit for weight loss.

Type something...



RESULTS

Deployed AI Agent

The screenshot displays the IBM Watsonx interface for a deployed AI agent named "Healthily". The top navigation bar includes the IBM Watsonx logo, an "Upgrade" button, and user account information for Navam Sharma. The breadcrumb trail indicates the current location: "Deployment spaces / Nutrition_Deploy / Healthily".

The agent "Healthily" is shown as "Deployed" and "Online". The "Preview" tab is active, showing a chat history:

- User (N):** You 10:40 PM
Plan a meal prep, the meal must contain fibres, protein, and carbohydrates.
- Healthily (⚡):** Healthily 10:40 PM
Sure, I can help with that. To create a balanced meal prep, we need to consider meals that contain a good balance of fibers, proteins, and carbohydrates. Here's a simple plan for a day:

Breakfast: Overnight oats with chia seeds, mixed berries, and a scoop of protein powder.

Lunch: Grilled chicken salad with mixed greens, cherry tomatoes, cucumber, chickpeas, and a vinaigrette dressing.

Snack: A medium apple with a tablespoon of almond butter.

A text input field at the bottom prompts the user to "Type something..." with a send button (triangle icon).

CONCLUSION

- The agent can generate personalized meal preps according to user's interest and fitness goals.
- It can swap food items to the equal nutrient source food if a person has allergies to certain food items.
- Nutrition Agent can develop a plan to lose weight or gain muscles by providing respectful plans and exercises such as for cutting, high cardio is recommended by it.
- The agent can plan diet in phases for over a course of year to keep the plan brief and understandable.

FUTURE SCOPE

- Personalization & Precision Nutrition
- Voice-Activated Nutrition Agent
- Advanced User Interaction
- Real-Time Monitoring
- Clinical & Preventive Health Use
- Global & Sustainable Nutrition

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



Navam Kumar Sharma

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



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7/17/25, 10:10 PM

Completion Certificate | SkillsBuild

IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Navam Sharma

for the completion of

**Lab: Retrieval Augmented Generation with
LangChain**

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 17 Jul 2025 (GMT)

Learning hours: 20 mins

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GITHUB LINK

- <https://github.com/Navam28>



THANK YOU