
CAPSTONE PROJECT

NUTRITION AGENT

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OUTLINE

- Problem Statement
- Technology used
- Wow factor
- End users
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- Git-hub Link
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PROBLEM STATEMENT

In today's era of information overload, individuals often struggle to access reliable and personalized nutrition advice. Most available diet plans are generic, overlooking crucial factors such as personal health goals, medical conditions, lifestyle, dietary restrictions, and cultural food preferences. This results in confusion, unsustainable eating habits, and difficulty achieving wellness objectives like weight management, improved fitness, or chronic disease management.

Proposed Solution:

Develop an AI-powered virtual nutrition assistant using **IBM Watsonx.ai**, designed to provide accurate, document-based nutritional guidance. Leveraging **trusted sources** such as the **Indian Council of Medical Research (ICMR)** and the **National Institute of Nutrition (NIN)**, and powered by **Retrieval-Augmented Generation (RAG)**, the system will ensure users receive grounded, easy-to-understand, and contextually personalized recommendations. This solution bridges the gap between generic diet advice and evidence-based, tailored nutrition support.

TECHNOLOGY USED

- ❑ IBM Watsonx.ai Studio
- ❑ IBM Granite Foundation Model (LLM)
- ❑ Vector Index for Retrieval-Augmented Generation
- ❑ PDF documents from NIN/ICMR & other trusted health sources
- ❑ NLP (Natural Language Processing)
- ❑ IBM Cloud Object Storage

IBM CLOUD SERVICES USED

- Watsonx.ai Studio
- IBM Granite Model
- WatsonxVector Index
- IBM Cloud Lite Account
- IBM Cloud IAM
- IBM Cloud Object Storage

WOW FACTORS

- Uses RAG to fetch answers from real NIN/ICMR or uploaded dietary guideline PDFs
- Built entirely on IBM Cloud using Watsonxtools
- Handles unrelated questions with polite redirection
- Provides personalized meal plans based on user goals
- Educates users on food science, nutrients, and healthy swaps
- Offers safe and reliable nutritional guidance grounded in scientific documents

END USERS

- Health-conscious individuals seeking wellness advice
- Fitness enthusiasts and athletes
- Individuals with dietary restrictions (e.g., diabetes, allergies)
- Users aiming for weight loss or muscle gain
- People looking for healthy recipes and meal plans
- Families wanting to adopt healthier eating habits
- Wellness coaches and dietitians

RESULT

[Deployment spaces](#) / [Deployment](#) / [watsonx Agent](#) /

watsonx Agent ✓ Deployed Online

API reference

Test

Evaluations

Preview

Endpoints for inferencing ⓘ

Private endpoint

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/d1aae143-29c8-4efd-ad83-092f039e05d7/ai_service?version=2021-05-01

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/d1aae143-29c8-4efd-ad83-092f039e05d7/ai_service?version=2021-05-01

Public endpoint

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/d1aae143-29c8-4efd-ad83-092f039e05d7/ai_service?version=2021-05-01

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/d1aae143-29c8-4efd-ad83-092f039e05d7/ai_service?version=2021-05-01

[Learn more](#) about the 2021-05-01 version query parameter

Code snippets

cURL	Java	JavaScript	Python	Scala
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Bearer <token> ⓘ

IAM

About this deployment ×

Name ⓘ

watsonx Agent

Description ⓘ

Change this description to reflect your particular agent

Deployment Details

Deployment ID: d1aae143-29c8-4e...

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 ⓘ

 [watsonx Agent](#)

6c30bbf7-bae8-470b-a491-8268e017ef5b

edunet
foundation

RESULT

IBM watsonx

Upgrade ?

Sakshi Bhingarkar's Account

Dallas

SB

Projects / Nutrition Agent / Agent Lab

Share feedback β Unsaved 📄 New agent + Deploy 🚀

Build

AI Model: mistral-large ⚠️ ⚙️ <

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 (4)

Google search

Retrieve information from the internet with the Google search engine.

⚙️ 🗑️

DuckDuckGo search

Retrieve information from the internet with the DuckDuckGo search engine.

🗑️

Wikipedia search

Retrieve information from Wikipedia articles.

⚙️ 🗑️

Webcrawler

Retrieve information from a website.

🗑️

Agent preview

gain, diabetes, etc.)?

🤖 watsonx Agent 07:05 PM

Hi, I am watsonx.ai agent. How can I help you?

Here are some resources that might help you with your question:

1. [Dietary Advice For Individuals with Diabetes - Endotext - NCBI ...](#)
2. [Physical Activity/Exercise and Diabetes: A Position Statement of the ...](#)
3. [Dietary Guidelines for Americans, 2020-2025](#)
4. [Management of Hyperglycemia in Type 2 Diabetes, 2022. A ...](#)
5. [Atkins Diet: What's behind the claims? - Mayo Clinic](#)
6. [Recommendations from the 2023 International Evidence-based ...](#)
7. [Diabetes management: How lifestyle, daily routine affect blood ...](#)
8. [The importance of exercise for glycemic control in type 2 diabetes ...](#)
9. [Diabetes and healthy eating. | Better Health Channel](#)
10. [Dietary Supplements for Weight Loss - Health Professional Fact Sheet](#)

► How did I get this answer?

🔄

Type something...

🗑️ ➤

Send

RESULT

[Deployment spaces](#) / [Deployment](#) / [watsonx Agent](#) /



watsonx Agent ✓ Deployed Online

[API reference](#)

[Test](#)

[Evaluations](#)

Preview

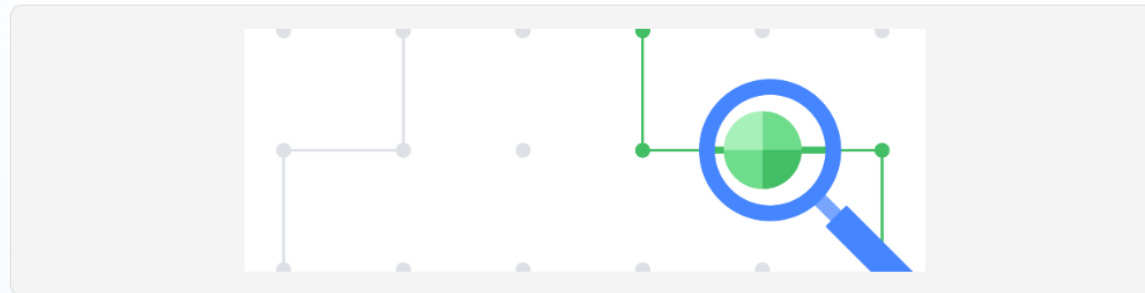
New chat +



watsonx Agent 07:28 PM

Welcome to watsonx Agent

Change this description to reflect your particular agent



Type something...



RESULT

Deployment spaces / Deployment / watsonx Agent /



watsonx Agent ✓ Deployed Online

API reference

Test

Evaluations

Preview

New chat +



You 07:29 PM

What are some healthy snacks or meal prep ideas for busy days?



watsonx Agent 07:29 PM

Here are some healthy snacks or meal prep ideas for busy days:

1. Meal Prep Ideas for Busy Families - Healthy Ideas Place

- **Description:** If your family is busy, like ours, there's a lot you can do to plan and prep your food days, weeks, or even months ahead to ensure your family...
- **URL:** [Healthy Ideas Place](#)

2. Meal Prep: A Guide! : r/EatCheapAndHealthy

- **Description:** Snacks: Eating healthy snacks is much easier if those snacks are ... A lifesaver for a busy family with kids, and great for meal preppers.

Type something...



CONCLUSION

- The Smart Nutrition Agent automates nutrition analysis and meal planning, saves time, and helps users make healthier choices daily . It transforms nutrition from guesswork to science by leveraging AI-driven insights, resulting in improved health and well-being.
- **Reduces manual effort** by automatically analyzing meals for calories, macros, and micronutrients.
- **Improves consistency** in healthy eating by offering daily guidance

FUTURE SCOPE

- The Smart Nutrition Agent has strong potential for continued innovation and enhancement. Future developments may include:
- **Integration with fitness trackers (e.g., smartwatches):** Enable real-time syncing of activity, heart rate, and calorie burn data for more accurate nutritional recommendations.
- **Advanced image recognition:** Allow users to log meals simply by taking photos, enhancing convenience and accuracy in food tracking.
- **Speech-to-text capabilities:** Support hands-free, natural language queries for improved accessibility and ease of use.
- **Personalized grocery list generation:** Automatically create tailored shopping lists based on meal plans, with integration for online grocery ordering.
- **Multilingual support:** Expand language capabilities to serve a diverse global user base and promote inclusivity.

IBM CERTIFICATIONS



IBM CERTIFICATIONS



IBM CERTIFICATIONS

IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Sakshi Bhingarkar

for the completion of

**Lab: Retrieval Augmented Generation with
LangChain**

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 04 Aug 2025 (GMT)

Learning hours: 20 mins

GITHUB LINK :

LINK :

<https://github.com/sakshinb/NUTRITION-AGENT-IBM-EDNET-PROJECT->



THANK YOU