

---

# CAPSTONE PROJECT

## NUTRITION AGENT

**Student name : Anup Ramteke**

**College Name & Department : Mit Academy Of Engineering  
(ENTC)**

# OUTLINE

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

---

# PROBLEM STATEMENT

- **Problem:**

People struggle to get personalized nutrition advice tailored to their health goals, preferences, and lifestyle.

- **Solution:**

An AI Nutrition Agent that uses NLP and RAG to provide personalized meal plans, food swaps, and health tips—adapting to user needs in real time.

---

# 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 AgentLab
- IBM Granite Foundation Model

# WOW FACTORS

- **This agent will** simplify access to personalized nutrition, improve dietary habits, support health goals, and make expert nutritional advice available to everyone—by adapting to individual needs, preferences, and lifestyles through natural conversation.

## Unique Features:

-  Interaction via voice and text in local languages
-  Personalized meal plans based on goals, health, and preferences
-  Adaptive food suggestions based on continuous user feedback
-  Smart food swaps with simple nutritional explanations
-  Allergy-aware and culturally inclusive recommendations
-  Multimodal input: text, voice, and future support for food label or meal image interpretation

# END USERS

- 👤♂ Individuals seeking personalized diet plans
- 🏥 Patients with specific health conditions (e.g., diabetes, obesity)
- 🎓 Students, athletes, and fitness enthusiasts
- 👩⚕️ Dieticians & health coaches needing scalable tools
- 🏠 Homemakers and caregivers planning balanced meals
- 📱 Users in rural or underserved areas needing accessible nutrition guidance

# RESULTS

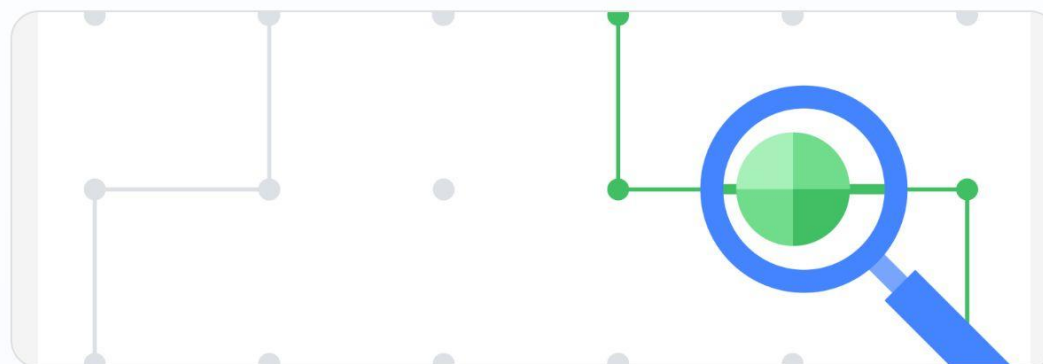
## Agent preview



Nutrition Agent 10:02 PM

### Welcome to Nutrition Agent

AI-powered assistant offering personalized, adaptive meal plans via text, voice, and image inputs.



Type something...





# RESULTS

## Agent preview



You: 10:03 PM

Is brown rice healthier than white rice?



Nutrition Agent 10:03 PM

Brown rice is generally considered healthier than white rice due to its higher nutritional content. Here's a breakdown:

1. **Fiber:** Brown rice has more fiber, which aids in digestion and helps maintain a feeling of fullness.
2. **Nutrients:** It contains more vitamins and minerals, including magnesium, selenium, and manganese, which are partially removed when white rice is refined.
3. **Glycemic Index:** Brown rice has a lower glycemic index, meaning it causes a slower, more controlled rise in blood sugar levels compared to white rice.

However, white rice is often easier to digest and can be a good option for those with digestive issues.

For more detailed information, you can refer to this article from Healthline: [Healthline - Brown Rice vs White Rice: Differences and Health Benefits](#).

*Note:* Always consult with a healthcare provider or a registered dietitian for personalized dietary advice.

► How did I get this answer?



Type something...



# RESULTS

## Agent preview



You: 10:03 PM

What's a good alternative to bread?



Nutrition Agent 10:03 PM

If you're looking for alternatives to bread, there are several options that can provide similar versatility in meals while varying in nutritional content:

1. **Lettuce Wraps:** Use large lettuce leaves like romaine or butter lettuce to create wraps for sandwiches or burgers. This is a low-carb option that's high in fiber and vitamins.
2. **Portobello Mushrooms:** These can be used as burger substitutes, offering a meaty texture and earthy flavor without the carbs.
3. **Cabbage Leaves:** Similar to lettuce wraps, cabbage leaves can be used for various fillings, providing a crunchy texture and good amounts of vitamins C and K.
4. **Zucchini or Squash Slices:** Thinly sliced zucchini or squash can be used as a base for open-faced "sandwiches." They're low in carbs and high in fiber and vitamins.
5. **Rice Cakes or Celery Sticks:** For those who miss the texture of bread, rice cakes or celery sticks can be topped with spreads like hummus or avocado.
6. **Cauliflower Rice:** This is a low-carb alternative that mimics the texture of rice. It can be used as a base for stir-fries or as a side dish.

Remember, the best alternative depends on your personal dietary needs and preferences. If

Type something...



# RESULTS

## Deployed AI Agent

IBM watsonx Upgrade ? 🔔 Anup Ramteke's Account ▾ Dallas ▾ AR

Deployment spaces / Nutrition Agent / Nutrition Agent /

### Nutrition Agent

🟢 Deployed Online

API reference Test Evaluations **Preview**

[New chat](#) +

**A** You 10:48 PM

What are the benefits of flaxseeds?

**Nutrition Agent** 10:48 PM

Flaxseeds are nutritional powerhouses with several health benefits:

- 1. Rich in Omega-3 Fatty Acids:** Flaxseeds are one of the best plant sources of alpha-linolenic acid (ALA), an essential omega-3 fatty acid that has heart health benefits.
- 2. High in Fiber:** They are loaded with soluble fiber, which can contribute to improved digestion and help lower blood sugar and cholesterol levels.
- 3. Lignans:** Flaxseeds contain a unique group of plant compounds called lignans, which have antioxidant properties and may offer protection against cancer and heart disease.
- 4. Protein:** They provide a good amount of plant-based protein, which is beneficial for vegetarians and vegans.

Type something... ➤

#### About this deployment

**Name** Nutrition Agent

**Description** AI-powered assistant offering personalized, adaptive meal plans via text, voice, and image inputs.

**Deployment Details**

Deployment ID: c376c09d-bb85-4d...

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 9c87383a-34f6-4e74-8d00-7af36107681a

## CONCLUSION

- Provides personalized, adaptive nutrition advice using AI and RAG
- Helps users make healthier food choices aligned with their goals
- Enables interaction in local languages for broader accessibility
- Bridges the knowledge gap using trusted dietary and health data
- Promotes well-being through balanced, culturally relevant meal planning

# FUTURE SCOPE

-  Image-based food recognition (e.g., meal photos, grocery labels)
-  Integration with health trackers and wearable devices
-  Linkage with government nutrition programs (e.g., ICDS, Ayushman Bharat)
-  Predictive nutrition planning using AI/ML (e.g., based on habits & goals)
-  Offline access for rural and low-connectivity areas

# IBM CERTIFICATIONS

In recognition of the commitment to achieve  
professional excellence



## Anup Ramteke

Has successfully satisfied the requirements for:

---

### Getting Started with Artificial Intelligence

---



Issued on: Jul 20, 2025

Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/b3dc1480-f478-4938-b532-6da3c2d34126>



IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Anup Ramteke

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

Git hub link : <https://github.com/anup0611/Nutrition-Agent/tree/main>





**THANK YOU**