
CAPSTONE PROJECT

THE SMARTEST AI NUTRITION ASSISTANT

Presented By

Bismay Kumar Biswal
(ITER) SIKSHA 'O' ANUSANDHAN
COMPUTER SCIENCE AND ENGINEERING

OUTLINE

- Problem Statement
- Proposed System/Solution
- System Development Approach
- Algorithm & Deployment
- Result
- Conclusion
- Future Scope
- References

PROBLEM STATEMENT

In an era where health awareness is rising, people increasingly seek personalized nutrition guidance. However, most existing tools:

- Provide generic diet plans
- Lack real-time adaptability
- Do not consider cultural preferences, allergies, lifestyle, or evolving health conditions

Dieticians and nutritionists face time/resource limitations in delivering 1-on-1 plans at scale.

PROPOSED SOLUTION

We propose an AI-powered virtual nutrition assistant built on IBM Cloud that:

- Understands user inputs
- Offers dynamic and personalized meal plans
- Recommends smart food swaps
- Explains nutritional decisions in user-friendly terms
- Learns from user feedback and health history

This system will act like a real-time, adaptable nutritionist

SYSTEM APPROACH

- **System requirements**

1. Windows OS
2. IBM Cloud Lite
3. IBM Granite Foundation Model

- **Library required to build the model**

1. Watsonx.ai
2. Cloud Object Storage
3. watsonx.ai Runtime
4. watsonx.ai Studio

ALGORITHM & DEPLOYMENT

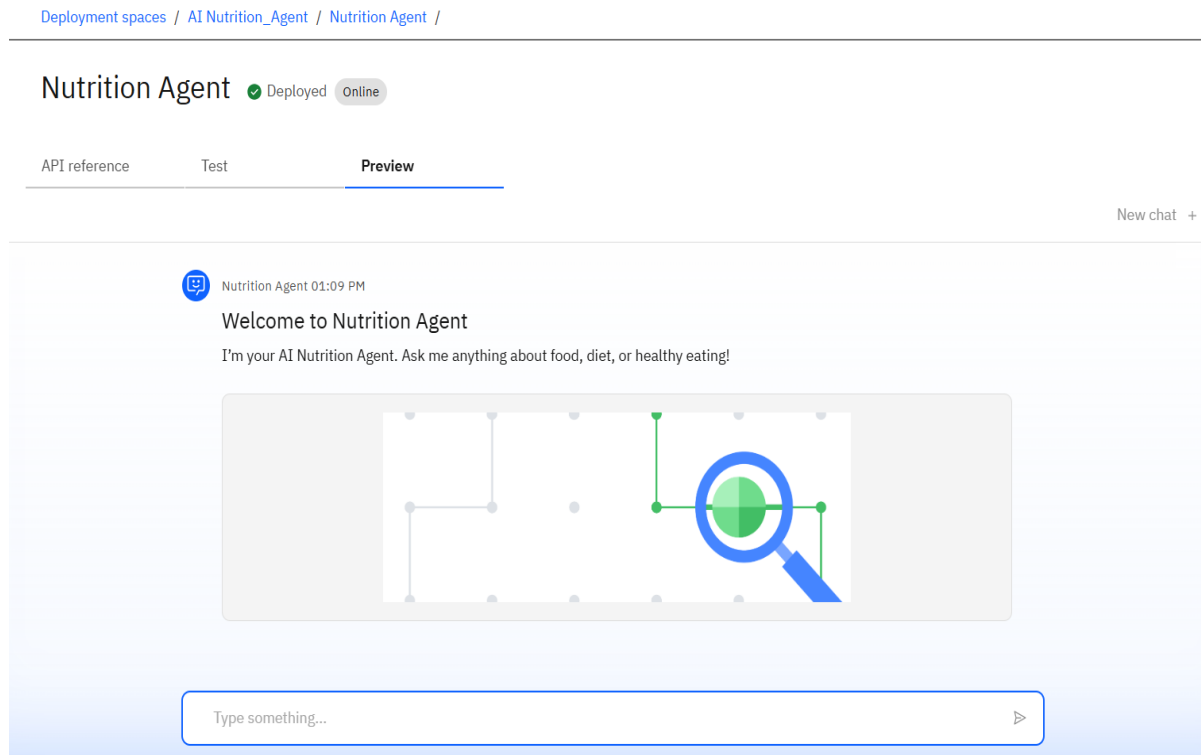
Algorithm Overview

- Uses **IBM Granite** to analyze user queries

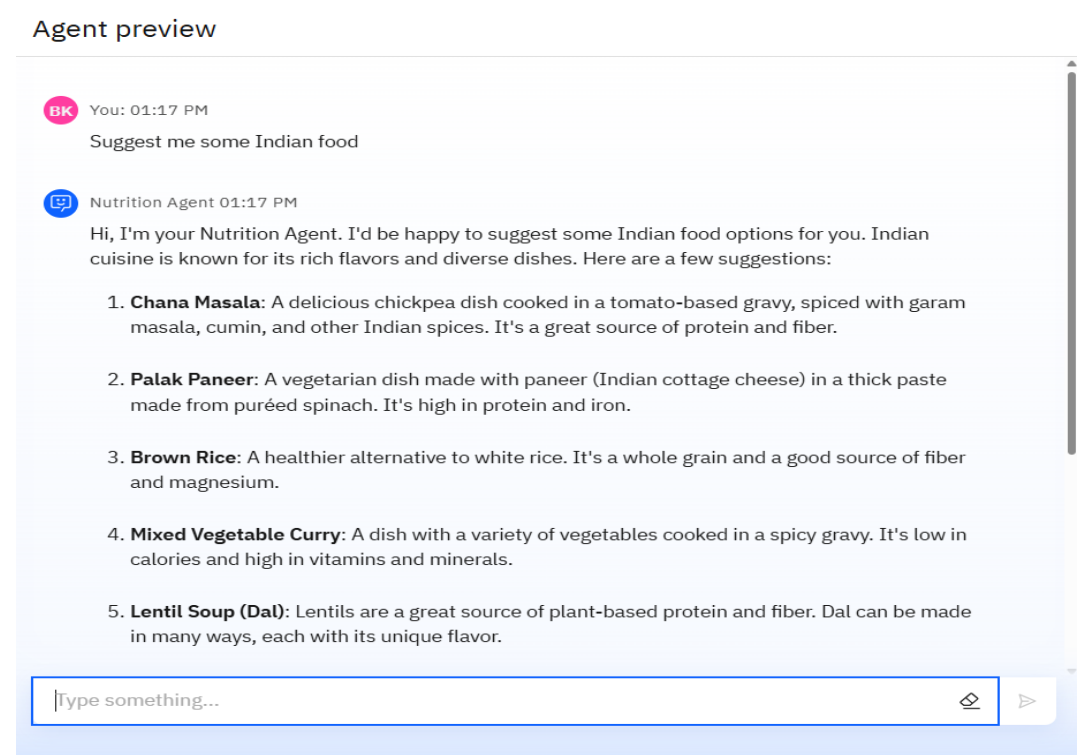
Deployment

- Built in **Watsonx.ai Notebook**
- Model accessed via **IBM API Key**
- Output shown as **chat-like interface inside IBM Cloud**

RESULT



The Nutrition Agent is successfully deployed and welcomes the user with a clear prompt to start chatting.



The agent suggests healthy Indian dishes like Chana Masala and Palak Paneer with nutritional

RESULT

Agent preview

6. **Roti or Naan:** Whole grain or whole wheat flatbreads that are a staple in Indian meals. They're a good source of complex carbohydrates.

Remember, the key to a healthy Indian meal is balance. Pair your main dish with a side of vegetables and a portion of whole grains. Also, try to limit the amount of oil and salt in your meals.

Could you also tell me if you have any health issues or diseases I should know about to provide more personalized recommendations?

► How did I get this answer?

BK You: 01:19 PM

Yes I am a diabetes Patient

Nutrition Agent 01:19 PM

Thank you for letting me know about your diabetes. It's important for me to consider this while suggesting meals. Here are some adjustments to the previous suggestions:

1. **Chana Masala:** Make sure to control the portion size as chickpeas can affect blood sugar levels. Opt for a version made with less oil and more vegetables.
2. **Palak Paneer:** This dish is generally safe for diabetics. Just be mindful of the portion size and avoid rich, creamy versions.

Type something...



BK You: 01:21 PM

I am in Odisha

Agent preview

Nutrition Agent 01:21 PM

Thank you for providing your location. Odisha has a rich culinary tradition with a variety of healthy options. Here are some local dishes you might enjoy:

1. **Odisha's Dalma:** This is a mixed vegetable dish cooked with black gram dal. It's high in protein and fiber, and the mustard oil used in its preparation has health benefits.
2. **Gambhari Ka Alu:** A potato curry made with dried mango powder (amchur), which gives it a tangy flavor. Potatoes are a good source of vitamin C and fiber.
3. **Fish Curry:** Fresh fish is a staple in Odisha's coastal cuisine. Opt for grilled or steamed fish instead of fried versions to keep the fat content low.
4. **Odisha's Chhaana Pradaan:** This is a sweet dish made from cottage cheese (chhana). If you're watching your sugar intake, ask for it to be made with less jaggery.
5. **Pakhala:** A fermented rice dish that's a staple in summer. It's cooling and easy to digest, but be mindful of portion sizes as rice can affect blood sugar levels.
6. **Baji:** A pancake-like dish made from rice powder, lentils, and vegetables. It's a good source of protein and fiber.

Remember, moderation is key. Even healthy dishes can affect blood sugar levels if eaten in large

Type something...



The agent customizes Indian meal recommendations for diabetic users

The Nutrition Agent offers culturally relevant, healthy Odia food choices personalized by location

CONCLUSION

- The Nutrition Agent acts as an **intelligent health companion**
- It delivers **personalized, explainable dietary advice** using IBM Granite
- Capable of **understanding user inputs**
- **Reduces burden** on human dieticians by offering scalable consultations

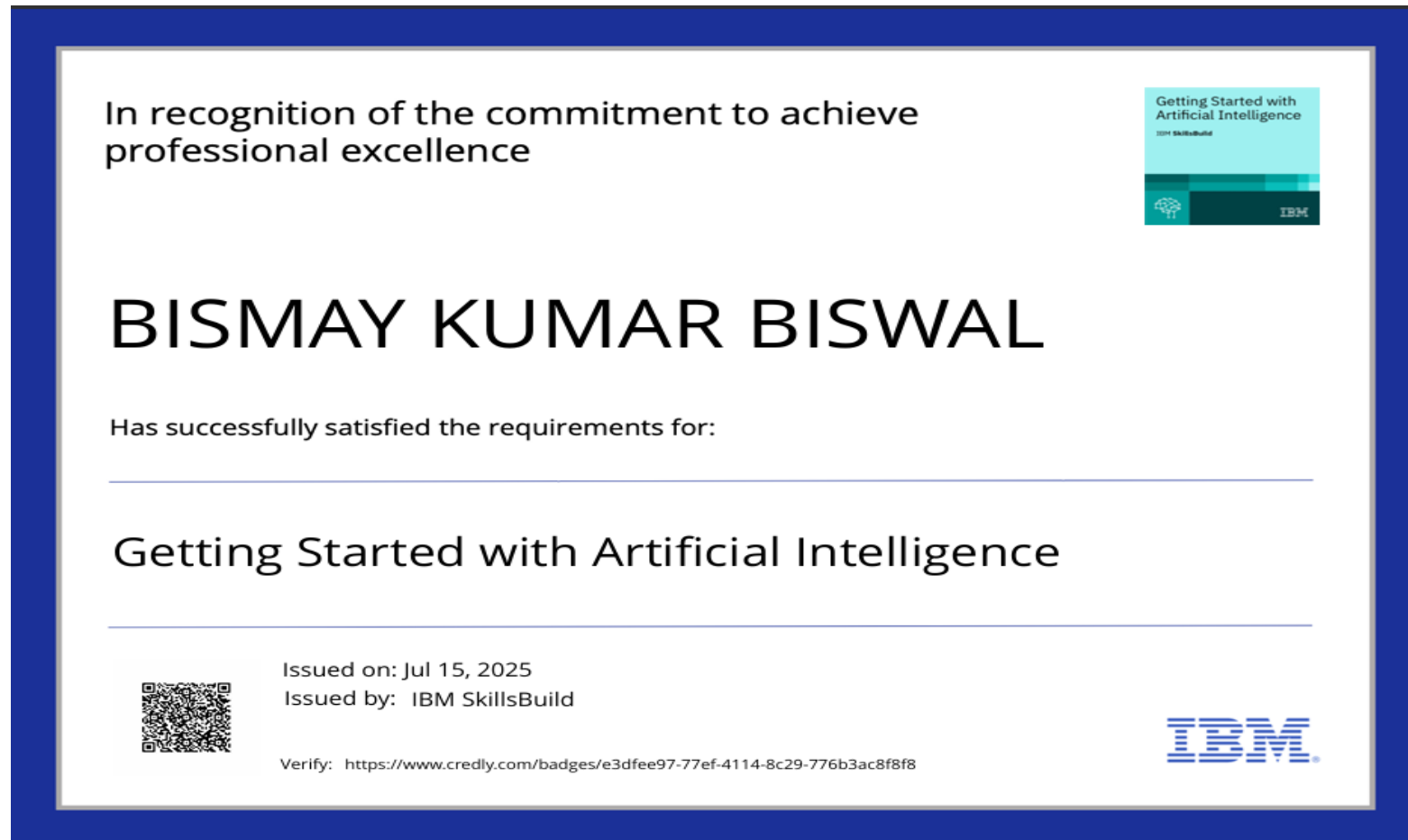
FUTURE SCOPE

- Using apps and wearable devices for nutrition tracking and counselling
- Expand into clinical diet planning for hospitals and institutions
- Support AI-generated shopping lists based on meal plans
- Establishing independent clinics, online platforms, or specialized food ventures
- Partner with food delivery apps for diet-friendly orders

REFERENCES

- IBM Cloud Docs
- IBM Watsonx.ai Foundation Model Guide
- WHO Nutrition Database

IBM CERTIFICATIONS



Credly certificate(Getting Started with AI)

IBM CERTIFICATIONS



Credly certificate(Journey to Cloud)

IBM CERTIFICATIONS



Credly certificate(RAG Lab)



THANK YOU