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# IBM HACKATHON PROJECT

## NUTRITION AGENT

**Presented By:**

**Student Name : KARTHIKEYAN M**

**College Name : S. Veerasamy Chettiar College of Engineering and Technology**

**Department : B.E - Electronics and Communication Engineering**

# OUTLINE

- ❑ Problem Statement
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- ❑ Results
- ❑ Conclusion
- ❑ Git-Hub Link
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# PROBLEM STATEMENT

- In today's health-conscious society, individuals are increasingly seeking personalized nutrition guidance that goes beyond generic diet plans. Existing tools often fail to provide real-time adaptability and do not consider the holistic aspects of a person's lifestyle, including cultural preferences, allergies and evolving health conditions. Additionally, dietitians and nutritionists face significant challenges in scaling personalized consultations due to time and resource constraints.
- Generative AI offers a transformative opportunity to address these challenges by creating an intelligent, interactive and adaptive virtual nutrition assistant. This project aims to develop "The Smartest AI Nutrition Assistant" leveraging state-of-the-art generative AI models to deliver a comprehensive and personalized nutrition experience.

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# PROPOSED SOLUTION

To address the challenges of personalized nutrition guidance, we propose the development of "The Smartest AI Nutrition Assistant", aims to revolutionize personalized nutrition by providing an intelligent, adaptive and user-centric solution. By combining advanced AI technologies with deep understanding of individual needs, this platform will empower users to make informed dietary choices, ultimately enhancing their health and well-being. The solution will encompass the following components:

- ✓ Personalized Meal Planning
- ✓ User-Friendly Interface
- ✓ Contextual Explanations and Education
- ✓ Real-Time Adaptability

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# TECHNOLOGY USED

- IBM Cloud Lite Services
- Natural Language Processing (NLP)
- IBM Granite Model

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# 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 assistant continuously learns from user interactions, health data, and feedback to provide personalized meal plans and recommendations that evolve with the user's lifestyle, preferences, and health conditions.

1. **Personalized meal planning with AI-generated recipes:** Create customized meal plans with unique recipes tailored to individual tastes, dietary needs, and health goals.
2. **Real-time nutrient analysis:** Provide instant analysis of nutritional content, including macronutrients, micronutrients, and potential allergens.
3. **Smart grocery shopping:** Generate grocery lists, suggest healthy alternatives, and offer in-store navigation.
4. **Conversational interface:** Engage users with a friendly, conversational AI assistant that provides personalized guidance and support.
5. **Dynamic meal planning adjustments:** Continuously update meal plans based on user feedback, progress, and changing dietary needs.

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# END USERS

- ✓ Health-Conscious Individuals
- ✓ Individuals Managing Health Conditions
- ✓ Fitness Enthusiasts and Athletes
- ✓ Busy Professionals and Families
- ✓ Nutrition Students and Professionals
- ✓ Health Coaches and Dietitians



# RESULTS

IBM watsonx

Upgrade ?

Karthikeyan Murugan's Acc... Dallas KM

Projects / Agentic Ai / Smart AI Nutrition Assistant...

Share feedback β Autosaved 7:40 AM New agent + Deploy

Build

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

Setup

Configuration

Knowledge


Tools

Agent preview

Smart AI Nutrition Assistant... 07:41 AM

Welcome to Smart AI Nutrition Assistant...

Smart AI Nutrition Assistant: Your Personalized Nutrition Companion.




Sample questions

Personalized Meal Planning

Smart Food Swaps

Type something...

# AI AGENT - CHAT INTERFACES


- KM** You: 07:10 PM
- how can i stay hydrated and what are some healthy drink options
-  Smart AI Nutrition Assistant... 07:10 PM
- Staying hydrated is crucial for your overall health, as water is involved in every bodily function, impacting temperature regulation, nutrient transportation, and waste elimination. Here are some tips to help you stay hydrated:
- 1. Drink Water Regularly:** Aim to drink water consistently throughout the day, not just when you're thirsty.
  - 2. Carry a Reusable Water Bottle:** Having water easily accessible can encourage you to sip it more often.
  - 3. Eat Hydrating Foods:** Many fruits and vegetables, like watermelon, cucumber, and spinach, have high water content and contribute to your fluid intake.
  - 4. Monitor Urine Color:** Pale yellow urine is generally a sign of good hydration. Darker colors may indicate dehydration.
  - 5. Adjust for Activity Level:** If you exercise or engage in strenuous activities, increase your water intake before, during, and after.

As for healthy drink options, consider these:

Type something...



- KM** You: 07:09 PM
- can you help me to create a meal plan for weight loss

-  Smart AI Nutrition Assistant... 07:09 PM
- Absolutely, I'd be happy to help you create a meal plan for weight loss. To make it as personalized as possible, could you please share some additional details?
1. What are your dietary preferences or restrictions? (e.g., vegetarian, vegan, gluten-free, lactose intolerant, etc.)
  2. Do you have any food allergies?
  3. What's your average daily calorie intake at the moment?
  4. How active are you? (e.g., sedentary, lightly active, moderately active, very active)
  5. Do you have any disliked foods or specific meals you prefer to eat regularly?

Once I have this information, I can generate a more tailored meal plan for you. In the meantime, here are some general tips for weight loss:

- Focus on whole, unprocessed foods like fruits, vegetables, lean proteins, and whole grains.
- Control portion sizes to manage calorie intake.
- Stay hydrated by drinking plenty of water.
- Limit added sugars, sodium, and saturated fats.

Type something...



# DEPLOYED AI AGENT

Smart AI Nutrition Assistant... ✓ Deployed Online

API reference

Test

Preview



You 07:20 PM

can you provide nutrition facts in chicken biriyani



Smart AI Nutrition Assistant... 07:20 PM

Chicken Biryani is a flavorful dish, but it's also higher in calories and fat due to the meat and rice, as well as the use of oil or ghee in preparation. Here's a rough estimate of nutritional content per serving (note that this can vary widely based on the exact recipe and portion size):

- Calories: ~500-600
- Protein: ~35-40 grams (from chicken and basmati rice)
- Carbohydrates: ~60-70 grams (mostly from rice)
- Fiber: ~3 grams (from vegetables and spices)
- Fat: ~25-35 grams (includes saturated fat from ghee or oil, and unsaturated fats from nuts or yogurt used in some recipes)
- Sodium: ~800-1000 mg (high, due to salt and added spices)

Type something...



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# CONCLUSION

- ◆ The Smartest AI Nutrition Assistant represents a groundbreaking advancement in personalized nutrition guidance, addressing the growing demand for tailored dietary solutions in an increasingly health-conscious society.
- ◆ As we look to the future, the potential for this project is vast. With ongoing advancements in AI, data integration and user experience design, the Smartest AI Nutrition Assistant can evolve to meet the diverse needs of users worldwide, making personalized nutrition accessible and enjoyable for all.
- ◆ Ultimately, this project aims to revolutionize the way individuals approach their health, transforming nutrition from a one-size-fits-all solution into a personalized journey that promotes well-being and empowers users to thrive.

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# GIT-HUB LINK

GIT-HUB LINK - [View Repository](#)

# FUTURE SCOPE

## 1. Expansion of Personalization Capabilities

- Advanced data integration
- Cultural and ethical considerations

## 2. Enhanced Real-Time Adaptability

- Dynamic feedback mechanism
- Integration with smart home devices

## 3. Community and Social Features

- Peer support networks
- Collaborative challenges

## 4. Market Expansion

- Targeting diverse demographics
- Global reach

## 5. Gamifications and Engagement

- Augmented reality experiences
- Personalized rewards systems

## 6. Research and Development

- Continuous improvement through AI research
- Partnership with health institutions

# IBM CERTIFICATIONS

In recognition of the commitment to achieve professional excellence



KARTHIKEYAN M

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



Issued on: Jul 16, 2025  
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Journey to Cloud: Envisioning Your Solution



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# IBM CERTIFICATIONS

IBM SkillsBuild

Completion Certificate



This certificate is presented to

KARTHIKEYAN M

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



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# THANK YOU