CAPSTONE PROJECT

NUTRITION AGENT

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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
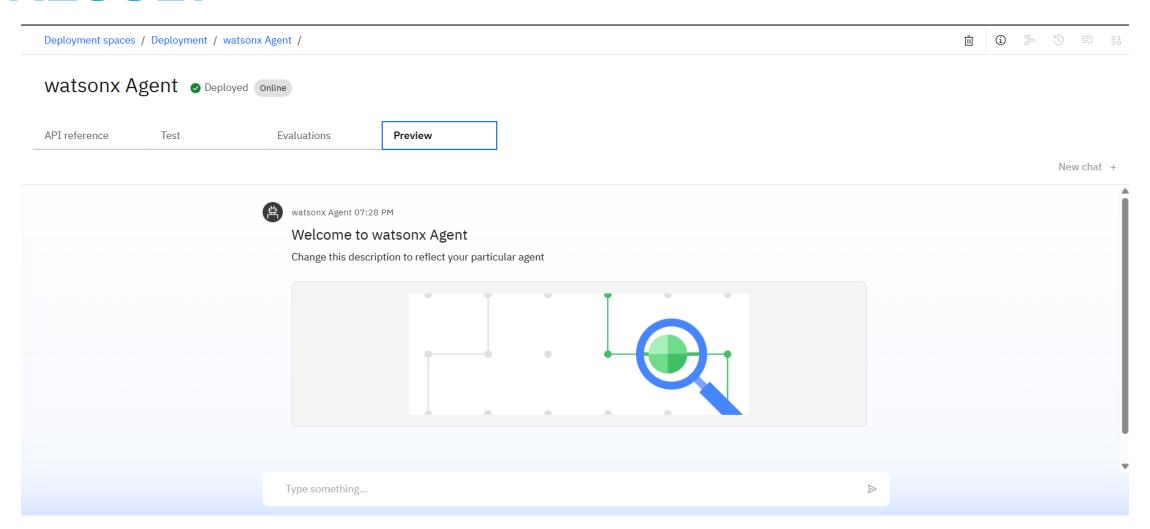
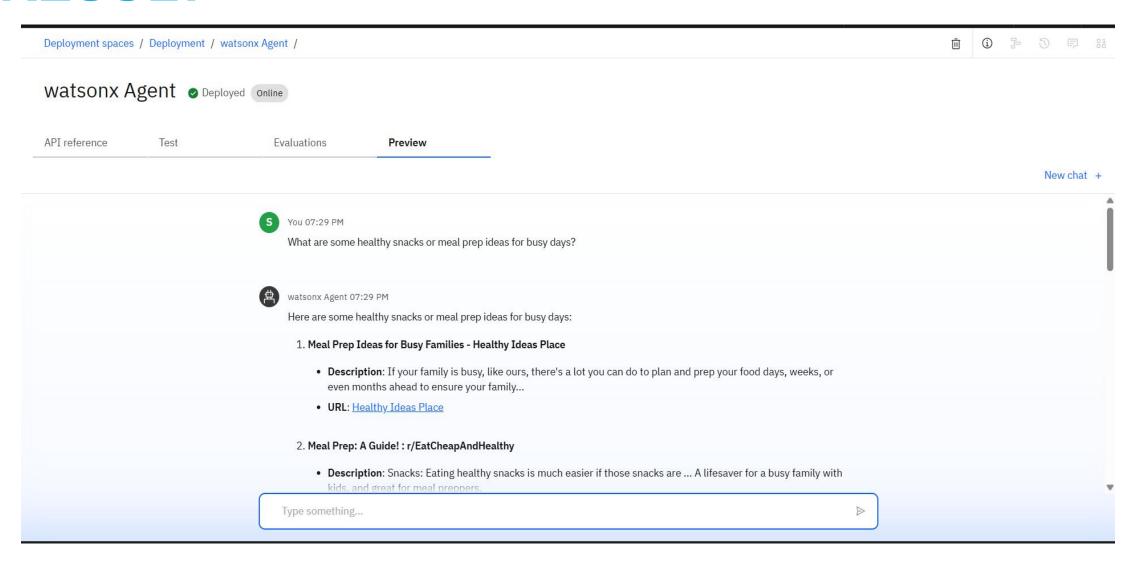- Wellness coaches and dietitians

RESULT

RESULT

RESULT

RESULT

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

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GITHUB LINK :

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

THANK YOU

edunet
foundation