
IBM AICTE PROJECT

NUTRITION AGENT

Presented By:

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OUTLINE

- Problem Statement
- Technology used
- Wow factor
- End users
- Result
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- IBM Certifications

PROBLEM STATEMENT

Managing nutrition is challenging for many due to lack of personalized advice, limited awareness of dietary needs, and no time to consult experts. Existing tools give one-size-fits-all meal plans, ignoring key factors like health conditions, fitness targets, cultural preferences, and allergies—making it tough to choose healthy, sustainable food options.

Proposed Solution:

An AI-powered Nutrition Assistant that uses NLP, image recognition, and RAG to create tailored meal plans, explain food choices, suggest healthy swaps, and adapt to changing health data—making healthy eating simple, personalized, and sustainable for everyone.

TECHNOLOGY USED

Natural Language Processing (NLP) – To understand and respond to user queries in natural language.

Retrieval-Augmented Generation (RAG) – To fetch relevant data and generate accurate, contextual responses.

IBM Granite Model – Pre-trained AI model for advanced language understanding and generation.

IBM Cloud Lite Services – Cloud platform for hosting and deploying AI solutions.

IBM CLOUD SERVICES USED

- IBM Cloud Watsonx AI Studio
- IBM Cloud Watsonx AI runtime
- IBM Cloud Agent Lab
- IBM Granite foundation model

WOW FACTORS

This agent transforms personal nutrition management by providing expert-level guidance instantly—helping users make smarter food choices, improve long-term health, and build sustainable eating habits. It delivers culturally aware, contextual advice tailored to each individual’s evolving needs—without the need for frequent dietician visits.

Unique Features:

- Multimodal Input : understands food photos, grocery labels, and text.
- Personalized Meal Plans : Based on health conditions, fitness goals, and personal preferences.
- Smart Food Swaps & Explanations:clearly explains why a choice is better.
- Real-Time Adaptability : adjusts recommendations using user feedback and changing health data.
- Allergy & Cultural Filters : avoids restricted foods while respecting dietary traditions.
- Conversational Nutrition Education : teaches users through engaging, interactive chats.
- Wearable Device Integration : Uses live health data for dynamic, timely suggestions.

END USERS

- Hospitals, Clinics & Wellness Centers : for patient diet management and recovery support.
- Public Health Organizations & NGOs : for large-scale nutrition awareness and community programs.
- Parents : to ensure balanced nutrition for children.
- Health-Conscious Individuals : People aiming to maintain or improve their lifestyle.
- Elderly Care Facilities : for age-specific and condition-based dietary planning.

RESULTS

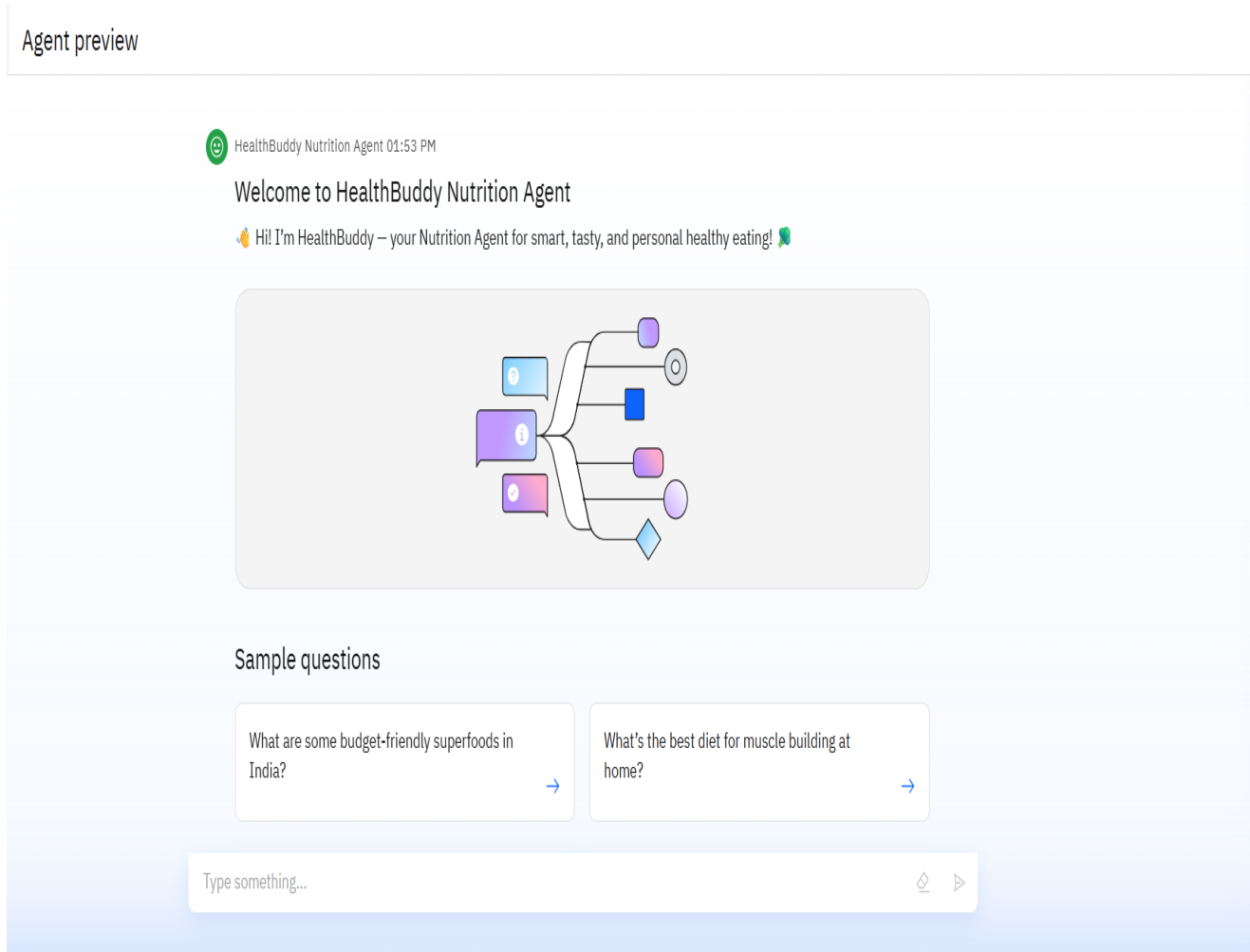
The preview screen showcases the Nutrition Agent in action, offering a warm welcome to users:

"Hello! I'm your AI-powered guide to smarter, tastier, and healthier eating!"

Key elements visible on the interface include:

- Interactive conversation flow diagram in the center, symbolizing how the AI processes and responds to different queries.
- Guided prompts to help users start, such as:
 - “Suggest budget-friendly superfoods in India.”
 - “Recommend the best diet for muscle building at home.”

These features make it easy for users to explore and understand the chatbot’s capabilities



RESULTS

- Inside the Chat Experience:

When a user asks, “*What are the nutritious foods in our daily life?*”, the chatbot instantly processes it and returns a clear, structured answer.

- Here’s how the interaction unfolds:

- Question Capture: The query appears on screen with an exact timestamp for easy reference.

- AI Breakdown: The system delivers seven distinct nutrition groups, each explained in simple, easy-to-grasp language.

- Wellness Insights: The reply links each category to benefits like immunity-boosting vitamins, digestion-supporting fiber, muscle-strengthening protein, and heart-healthy fats.

- Seamless Design: The chat history remains visible, ensuring users can track their conversation without losing context.

- Instant Follow-ups: A visible input box invites the user to continue the discussion instantly.

Agent preview

AH You: 01:55 PM

what are the nutritious foods in our daily life

😊 HealthBuddy Nutrition Agent 01:55 PM

Here are some nutritious foods that can easily be included in your daily diet:

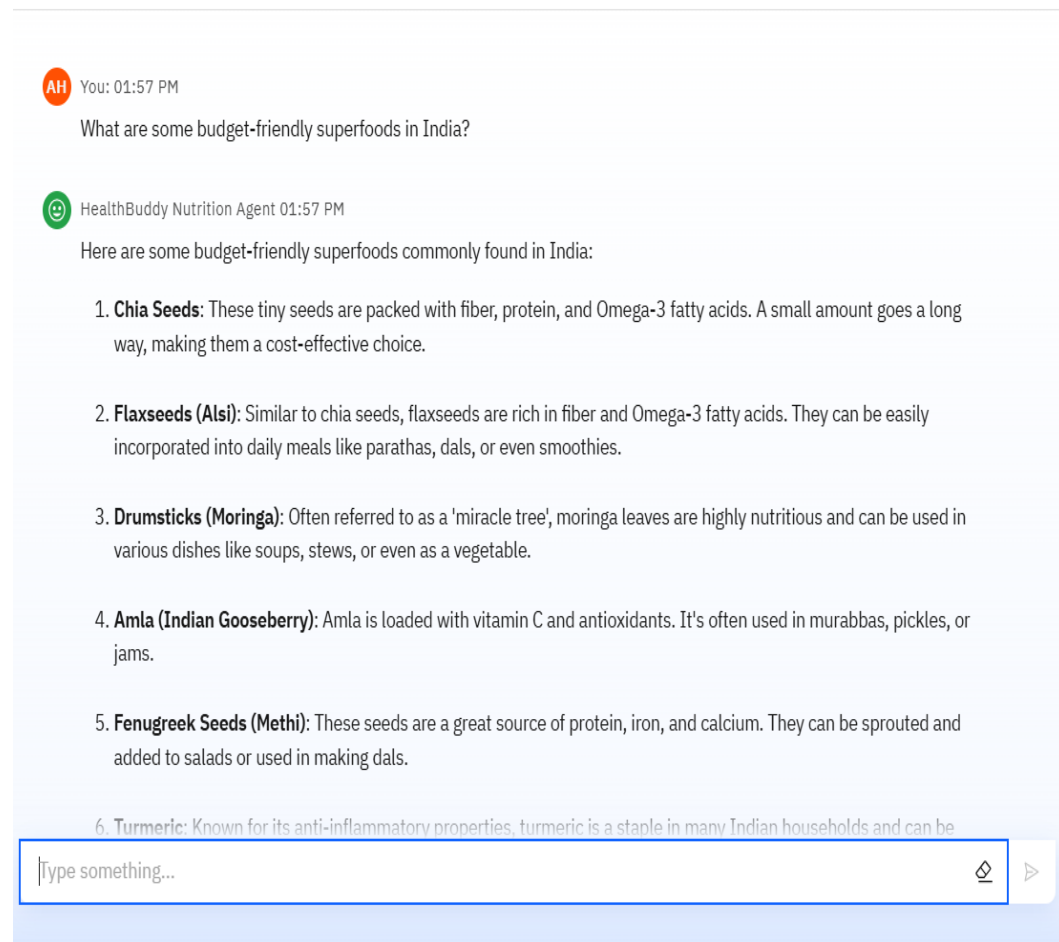
1. **Fruits:** Apples, bananas, oranges, berries, and pomegranates are rich in vitamins, minerals, and fiber.
2. **Vegetables:** Leafy greens like spinach and kale, broccoli, carrots, and bell peppers are packed with essential nutrients.
3. **Whole Grains:** Brown rice, quinoa, oats, and whole wheat bread provide fiber and keep you full for longer.
4. **Legumes:** Lentils, chickpeas, and beans are excellent sources of protein and fiber.
5. **Nuts and Seeds:** Almonds, walnuts, chia seeds, and flaxseeds are high in healthy fats, fiber, and protein.
6. **Lean Proteins:** Chicken, turkey, fish (especially fatty fish like salmon), and tofu are great sources of lean protein.
7. **Dairy or Dairy Alternatives:** Milk, yogurt, and cheese provide calcium and vitamin D. For non-dairy options, consider almond milk or soy milk fortified with calcium.

Type something...



RESULTS

- Key Highlights of the Nutrition Agent:
- Real-Time Nutrition Guidance – Instantly answers user questions with insights grounded in expert knowledge.
- India-Centric Food Suggestions – Recommends superfoods familiar to Indian kitchens and eating habits.
- Affordable & Healthy Choices – Focuses on cost-effective options without compromising nutritional benefits.
- Clear & Structured Responses – Presents information in neat numbered points with bold titles and concise notes.
- Actionable Meal Ideas – Offers quick, practical tips to add each suggested superfood into everyday diets.





AH You: 01:57 PM

What are some budget-friendly superfoods in India?

😊 HealthBuddy Nutrition Agent 01:57 PM

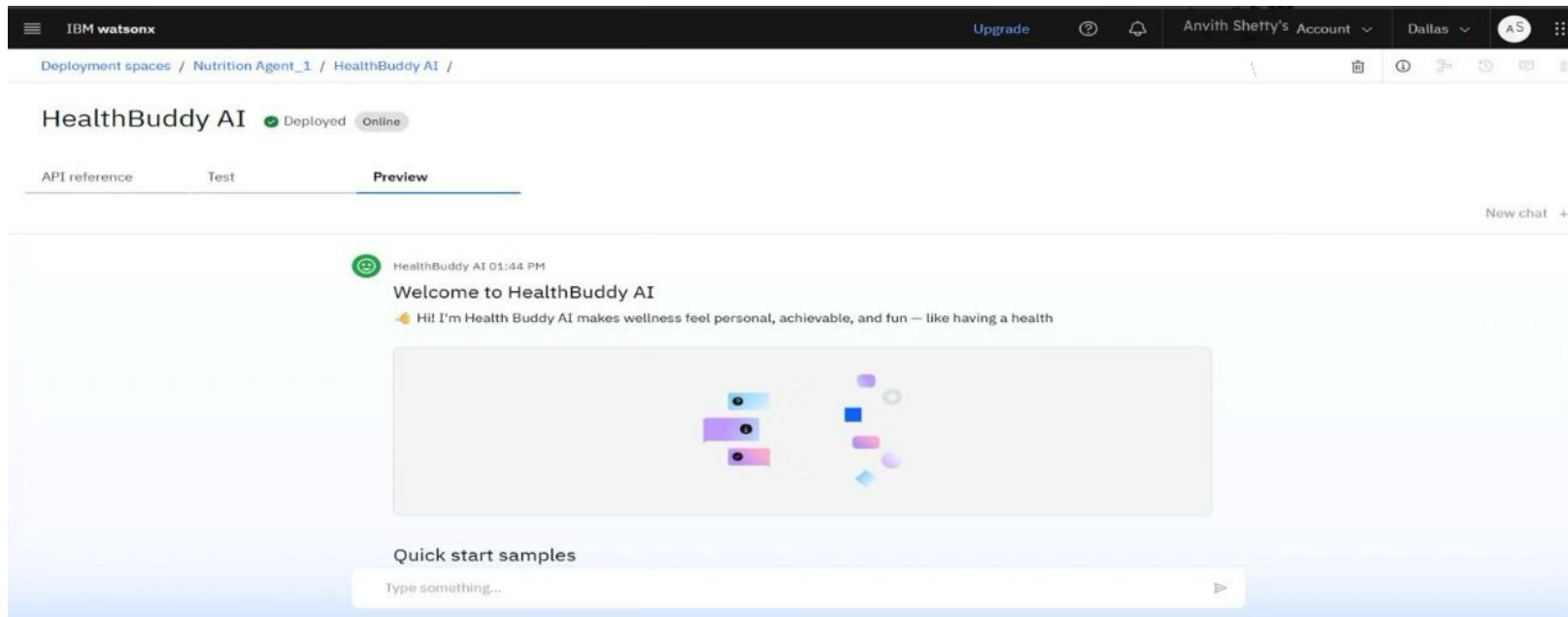
Here are some budget-friendly superfoods commonly found in India:

1. **Chia Seeds:** These tiny seeds are packed with fiber, protein, and Omega-3 fatty acids. A small amount goes a long way, making them a cost-effective choice.
2. **Flaxseeds (Alsi):** Similar to chia seeds, flaxseeds are rich in fiber and Omega-3 fatty acids. They can be easily incorporated into daily meals like parathas, dals, or even smoothies.
3. **Drumsticks (Moringa):** Often referred to as a 'miracle tree', moringa leaves are highly nutritious and can be used in various dishes like soups, stews, or even as a vegetable.
4. **Amla (Indian Gooseberry):** Amla is loaded with vitamin C and antioxidants. It's often used in murabbas, pickles, or jams.
5. **Fenugreek Seeds (Methi):** These seeds are a great source of protein, iron, and calcium. They can be sprouted and added to salads or used in making dals.
6. **Turmeric:** Known for its anti-inflammatory properties, turmeric is a staple in many Indian households and can be

RESULTS

Deployed AI Agent



CONCLUSION

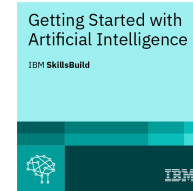
- The **Nutrition Agent** offers smart, tailored meal plans and nutritional advice designed to match personal health goals and daily habits.
- It streamlines healthy living by **automating diet tracking, analyzing nutritional content, and recommending foods** that fit individual needs.
- With AI at its core, it delivers reliable, scalable, and accessible nutrition support for both individuals and institutions.
- Above all, it bridges the gap between **limited face-to-face consultations** and **generic diet planning tools**, giving users a truly personalized experience.

FUTURE SCOPE

- **Multi-Language Research Assistance** – Supports nutrition guidance and queries in multiple languages for wider accessibility.
- **Voice-Controlled Assistant** – Enables hands-free interaction for quick, on-the-go research.
- **Wearable & Health App Sync** – Connects with fitness trackers and health apps to provide data-driven nutrition advice.
- **Cultural & Regional Adaptation** – Customizes meal recommendations based on local cuisines and traditions.
- **Smart Grocery & Meal Planning** – Uses AI to suggest shopping lists and weekly meal schedules.
- **Live Nutrition Coaching** – Offers instant feedback to guide users toward healthier food choices.

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



ANVITH SHETTY

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



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IBM SkillsBuild

Completion Certificate



This certificate is presented to

ANVITH SHETTY

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

GITHUB LINK

Git hub Repo link :<https://github.com/QuantumGod007/nutri-buddy-ai>

THANK YOU