

# CAPSTONE PROJECT

## NUTRITION AGENT

**Presented By:**

**1.Student Name: Alivelu Bhanuteja**

**2.College Name: CMR Institute of Technology Hyderabad**

**3.Department : Computer Science and Engineering(AI&ML)**

# OUTLINE

- **Problem Statement**
- **Proposed System/Solution**
- **System Development Approach** (Technology Used)
- **Algorithm & Deployment**
- **Result (Output Image)**
- **Conclusion**
- **Future Scope**
- **References**

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# PROBLEM STATEMENT

- People seek personalized nutrition advice, but most tools offer only generic plans.
- Many tools fail to consider allergies, preferences, lifestyle, and evolving health needs.
- Dieticians face time and resource limits to scale one-on-one counseling.
- There is a need for an AI-based assistant that understands and adapts like a real nutrition expert.

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# PROPOSED SOLUTION

- Build a virtual AI Nutrition Agent using Generative AI and NLP.
- It can process input via text, voice, or images (like food labels or meals).
- The system suggests customized meal plans based on goals, medical needs, and culture.
- Offers food swap and explains nutritional decisions with clear context

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# SYSTEM APPROACH

- IBM Cloud Lite for deploying the backend services.
- IBM Granite for handling natural language understanding and generation.
- Integration of multimodal AI to accept image inputs.
- Connect to dietary and health databases for personalized planning.

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# ALGORITHM & DEPLOYMENT

- Input: User provides health goals, allergies, fitness routine, or uploads food images.
- NLP Engine: Processes text or voice commands.
- Image Model: Identifies food items from images.
- AI Model (IBM Granite): Generates meal plan and food swaps.
- Deployment: Hosted on IBM Cloud with a web or mobile chatbot interface.

# RESULT(OUTPUT IMAGE)

- Display a sample chatbot response to a query like:  
"Can you give me a weight gain diet plan for a 21-year-old from Telangana, India?"
- Ensure the response includes detailed meal suggestions, nutrition focus, and lifestyle tips for weight gain
- Highlight if the chatbot is using live search tools like Google or Wikipedia for accurate, real-time answers
- Include screenshot or image of working UI (if available)

Build

Model: mistral-large

Setup

Configuration

Framework

Architecture

LangGraph

ReAct

Instructions

Advanced configuration

You are a helpful assistant that uses tools to answer questions in detail.  
When greeted, say "Hi, I am watsonx.ai agent. How can I help you?"

Knowledge

Tools

Add a tool

Create custom tool

Added tools (5)

Agent preview

You: 08:05 AM

hi

watsonx Agent 08:05 AM

Hi, I am watsonx.ai agent. How can I help you?

► How did I get this answer?

You: 08:06 AM

can you help me to get a information about the nutrition that i want to follow for two months

watsonx Agent 08:06 AM

Sure, I can help you with that. Could you please provide more details about the type of nutrition plan you are interested in? For example, are you looking for a specific diet like keto, vegan, or something else? Additionally, do you have any specific goals in mind, such as weight loss, muscle gain, or overall health improvement?

► How did I get this answer?

You: 08:06 AM

now i will share details about my personality according to that give me the plain and what type of food i have to take

Type something...





## Build



Model: mistral-large



Add a tool

Create custom tool

Added tools (5)

## Google search

Retrieve information from the internet with the Google search engine.



## DuckDuckGo search

Retrieve information from the internet with the DuckDuckGo search engine.



## Wikipedia search

Retrieve information from Wikipedia articles.



## Webcrawler

Retrieve information from a website.



## Weather

Retrieve the weather of a city.



## Agent preview

▶ How did I get this answer?



You: 08:06 AM

now i will share details about my personality according to that give me the plain and what type of food i have to take



watsonx Agent 08:06 AM

Sure, please provide the details about your personality and any specific dietary preferences or goals you have. This will help me tailor the nutrition plan to your needs.

▶ How did I get this answer?



You: 08:06 AM

I am a 21-year-old male from Telangana, India, and I want to gain weight in a healthy way within 2 months. Please suggest a detailed Indian diet plan including meals, snacks, and drinks, along with the types of nutrients and food items I should focus on. Also include any additional tips related to exercise or lifestyle that can support weight gain.



watsonx Agent 08:06 AM

Here are some search results that might help you find an Indian diet plan for weight gain:

1. [Indian Diet Plan for Weight Gain: Effective Strategies and Nutritious ...](#)

Type something...



IBM watsonx

Upgrade?🔔Alivelu Bhanu Teja's Account ▾Dallas ▾AB⋮

Projects / Agentic\_1 / watsonx AgentShare feedback β🟢 Autosaved 8:07 AM📁 ▾New agent +Deploy 🔗🔒ℹ️

Build

AI Model: mistral-large ⚠️ ▾🔗 <

Add a tool

Create custom tool

Added tools (5)

Google search

Retrieve information from the internet with the Google search engine.

⚙️🗑️

DuckDuckGo search

Retrieve information from the internet with the DuckDuckGo search engine.

🗑️

Wikipedia search

Retrieve information from Wikipedia articles.

⚙️🗑️

Webcrawler

Retrieve information from a website.

🗑️

Weather

Retrieve the weather of a city.

🗑️

Agent preview

watsonx Agent 08:06 AM

Here are some search results that might help you find an Indian diet plan for weight gain:

1. [Indian Diet Plan for Weight Gain: Effective Strategies and Nutritious ...](#)

- The Ultimate Guide to Effectively Gain Weight with the Best Indian Diet Plan · 1. Calories · 2. Proteins · 3. Carbohydrates · 4. Fats · 1. Personalized ...

2. [Full Day Indian Diet Plan Weight Gain के लिये \(आसान और असरदार ...](#)

- Jul 21, 2025 ... WEIGHT GAIN - Indian Diet Plan Weight Gain के लिये (आसान और असरदार) Weight gain, Indian weight gain diet plan for men and women.

3. [Indian Weight Gain Diet Plan \(2600 Calorie\) - Healthkart Blog](#)

- Q1. Which Indian food is good to gain healthy weight? · Lentils and dals · Paneer · Eggs · Fish · Dairy products. You can also add weight gainer supplements to ...

4. [Gaining Weight with an Indian Diet!](#)

- Sep 19, 2016 ... Dal (or) sabzi (Boiled and prepared in refined oil or olive oil)(+) Green Salad(+) 1 Bowl of Curd/Raita (Non Fat Milk)2-3 Chapatis of 1 Plate ...

5. [Diet Chart for Weight Gain - SK Diet Assistant](#)

Type something...

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# CONCLUSION

- The Nutrition Agent empowers users with tailored diet guidance.
- Reduces need for repeated dietitian visits while delivering expert advice.
- Encourages healthier lifestyle with continuous and interactive support.

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# FUTURE SCOPE

- Add wearable health tracker integration (e.g., Fitbit).
- Expand to regional languages.
- Enable AR food scanning.
- Add community-based recipe suggestions.
- Include nutrition tracking and progress dashboard.

# REFERENCES

- IBM Cloud Documentation
- IBM Granite Model Reference
- Edunet Foundation Internship Guidelines
- Research on Generative AI in Health & Nutrition
- Open Food Facts & USDA Food Databases
- NLP & Multimodal AI Papers

# IBM CERTIFICATIONS

In recognition of the commitment to achieve professional excellence



## Alivelu Bhanu Teja

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

Alivelu Bhanu Teja

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





**THANK YOU**