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# **CAPSTONE PROJECT**

## **NUTRIGUIDE**

### **YOUR SMARTEST AI NUTRITION ASSISTANT**

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# OUTLINE

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

# PROBLEM STATEMENT

- **Problem statement – 8**
- **Nutrition AI**
- **Generic diet apps** deliver one-size-fits-all plans that don't adapt in real time.
- **Nutritionists** can't scale highly personalized counseling to more clients.
- Users need **holistic plans** that consider health conditions, cultural preferences, allergies,
  - evolving goals, and actual meals.
- **Challenge:** Build an AI agent that thinks, learns, and advises like a human nutritionist—24/7

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# PROPOSED SOLUTION

- **NutriGuide** is a smart AI-powered nutrition assistant that:
- Accepts **text, voice, and image** inputs
- Generates **personalized meal plans**
- Considers **health data, preferences, and goals**
- Offers **nutritional explanations** for every suggestion
- Learns from feedback to improve over time
- Operates 24/7 on **IBM Watsonx.ai + Watson Services**

# SYSTEM APPROACH

## **1. IBM Cloud & Watsonx.ai**

- Create sandbox project → Watsonx AI Agent → Associate runtime service
- Select Mistral-large foundation model

## **2. IBM Granity** for LLM orchestration & reasoning

## **3. Watson Assistant** for text dialog management

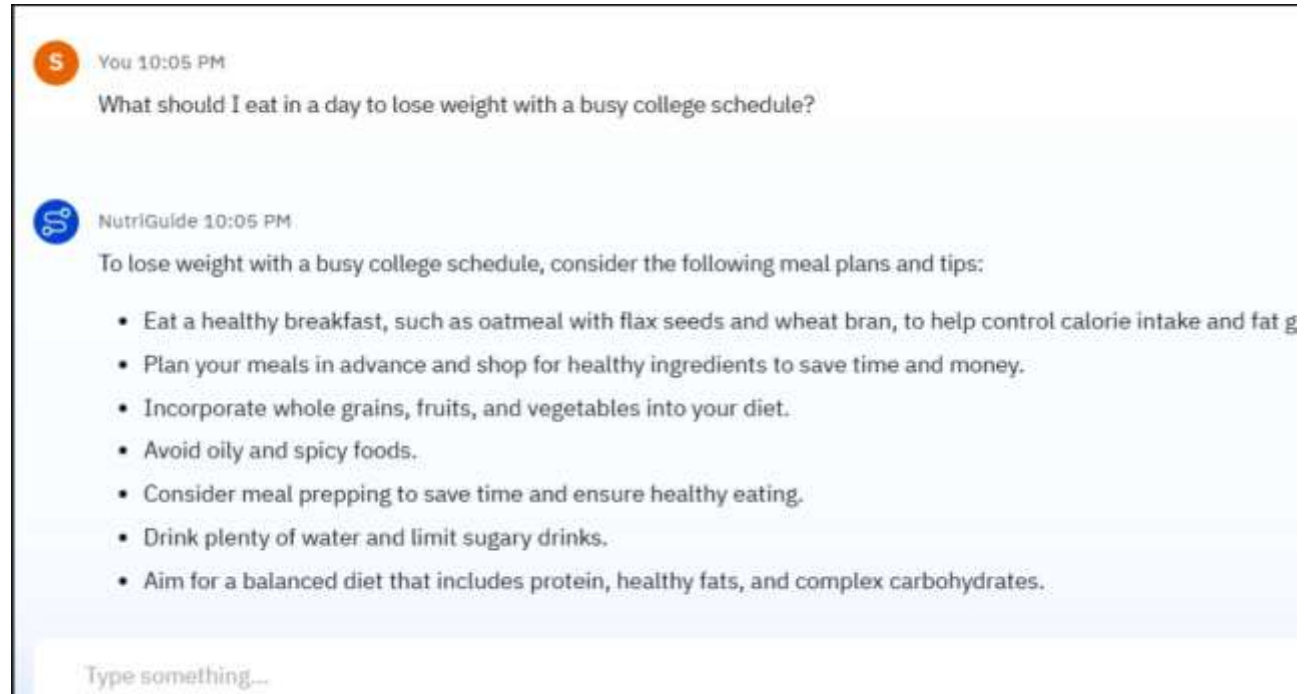
## **4. IBM Cloud Functions** for serverless back-end logic

## **5. IBM Cloudant / Db2** for user profile & meal plan storage

# ALGORITHM & DEPLOYMENT

- Algorithms & Workflow:
- Input:
  - Text → NLP processing
  - Voice → STT → NLP
  - Image → Visual Recognition → Food name
- Reasoning:
  - Granity & LLM-based prompt templates
- Explanation:
  - Rule-based + LLM summarization
- Feedback:
  - User logs/reflections → Profile updates

# RESULT



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# CONCLUSION

- NutriGuide provides **AI-driven, personalized** nutrition coaching
- Handles text
- Powered by **Watsonx.ai + IBM Watson services**
- Learns continuously and gives **explainable advice**
- Offers **real-time nutrition help** for anyone, anywhere



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# FUTURE SCOPE

- **Wearable integration** (e.g., Fitbit, smartwatches)
- **Grocery helper** – barcode scanning for smarter choices
- **Kitchen mode** – voice-only cooking guidance
- **Health outcome-based learning** using reinforcement
- **Multi-language support** for regional/cultural expansion

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# REFERENCES

- IBM Cloud – Watsonx.ai Agentic Lab Quickstart Guide
- IBM Watson Assistant, Speech-to-Text, Visual Recognition Docs
- USDA FoodData Central
- “AI in Personalized Nutrition,” *International Journal of AI*, 2024
- IBM Granity documentation

# IBM CERTIFICATIONS



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# IBM CERTIFICATIONS

**IBM SkillsBuild**

Completion Certificate



This certificate is presented to

Soumya Agnihotri

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**