
IBM AICTE PROJECT

FARMING AI ASSISTANT

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OUTLINE

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PROBLEM STATEMENT

Problem Statement No.9 – AI Agent for Smart Farming Advice

Small-scale farmers often struggle to get timely and reliable advice tailored to their local conditions. Limited access to resources and scattered information makes it hard for them to make informed decisions about their crops. The AI Agent for Smart Farming Advice, built on Retrieval-Augmented Generation (RAG), steps in to close that gap. It delivers real-time, region-specific insights—covering everything from weather updates and soil health to crop recommendations, pest control, and market prices. Farmers can ask practical questions in their own language and get clear, data-backed answers that help boost yields, cut risks, and improve incomes where it matters most: on the ground.

TECHNOLOGY USED

IBM cloud lite services

Natural Language Processing (NLP)

Retrieval Augmented Generation (RAG)

IBM Granite model

Wikipedia

Google

DuckDuckGo

WebCrawler

IBM CLOUD SERVICES USED

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

END USERS

- Farmers
- Academic Researchers
- Locals(for personal gardening and farming)
- Research Institutions and Universities
- Industry R&D Teams

RESULTS

Agent preview



FARMING AI ASSISTANT 11:02 PM

Welcome to FARMING AI ASSISTANT

AI-driven assistant bridges the smart farming to the grassroots.



Type something...



RESULTS

Agent preview



You: 11:05 PM

What crop is best for monsoon in mumbai?



FARMING AI ASSISTANT 11:05 PM

For the monsoon season in Mumbai, suitable crops include vegetables like tomatoes, chilies, brinjal, and cucumbers. Pulses like black gram and green gram are also recommended. Additionally, fruits like banana, papaya, and mango thrive in this climate. However, it's essential to consider soil conditions and local market demands for the most profitable crop. For precise recommendations, consult local agricultural departments or agritech platforms for location-specific data and seasonal trends.

► How did I get this answer?



Type something...




RESULTS

Agent preview

► How did I get this answer?

KB You: 11:08 PM

what kind of fertilizers should i use for cucumbers?

 FARMING AI ASSISTANT 11:08 PM

Cucumbers require a balanced supply of nutrients, particularly nitrogen, phosphorus, and potassium (NPK). A general-purpose fertilizer with an NPK ratio of 10-10-10 or 14-14-14 is suitable. You can also use organic fertilizers like compost or well-rotted manure. Apply the fertilizer according to the soil test results and the specific recommendations on the fertilizer package. Always follow the guidelines to avoid over-fertilization, which can harm the plants. For the most accurate advice, consult local agricultural experts or agritech platforms that provide region-specific recommendations.

► How did I get this answer?





|Type something...









RESULTS


Deployed AI Agent

 IBM watsonx

Upgrade ?  Karan Bhatre's Account Dallas KB


Deployment spaces / AI Farming Assistant / FARMING AI ASSISTANT


FARMING AI ASSISTANT  Deployed Online

API reference Test Preview

New chat +

 You 11:21 PM


What is the best way to preserve mangoes

 FARMING AI ASSISTANT 11:21 PM

Hi, I am FARMING AI ASSISTANT. How can I help you?

There are several methods to preserve mangoes, depending on your needs and resources. Here are a few common methods:

- Canning:** This involves processing mangoes in jars and heating them to kill bacteria and destroy enzymes that cause spoilage. You can make mango jam, chutney, or preserve whole mango slices.
- Drying:** Mangoes can be dried in the sun or using a food dehydrator. Dried mangoes can be stored for several months and are a great snack.
- Freezing:** You can freeze mango puree, chunks, or even make-ahead smoothies. To freeze, ensure the mango pieces are in an airtight container to prevent freezer burn.
- Pickling:** Pickled mangoes are a delicious condiment. They are made by soaking mango pieces in a brine solution, often with spices like chili, garlic, and vinegar.

Type something... 

CONCLUSION: REAL-WORLD IMPACT OF THE SMART FARMING AI AGENT

- **Empowers farmers** with localized, expert advice tailored to seasonal and regional conditions
- **Bridges communication gaps** through multilingual support and intuitive interaction
- **Saves time** by automating access to critical data like mandi rates, weather updates, and pest alerts
- **Enhances productivity** with data-driven crop recommendations and timely interventions
- **Improves income** through smarter planning, reduced crop failure, and market-aware decisions
- **Promotes digital inclusion** by extending smart farming benefits to grassroots communities
- **Encourages sustainable practices** with ongoing insights from trusted agricultural datasets
- **Supports informed decision-making** that leads to resilient and future-ready farming systems

GITHUB LINK

- <https://github.com/KaranGB83/FARMING-AI-ASSISTANT>

FUTURE SCOPE

- Link with government schemes and subsidies
- Voice-Activated Research Assistant
- Promote sustainability with eco-scoring
- Strengthen data privacy and trust

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



Karan Bhatre

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



Issued on: Jul 16, 2025
Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/96054977-5dd6-452e-a3a7-df90bc15ab67>



IBM CERTIFICATIONS

IBM SkillsBuild

Completion Certificate



This certificate is presented to

Karan Bhatre

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

BYE BYE