IBM AICTE PROJECT

FARMING AI ASSISTANT

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OUTLINE

- Problem Statement
- Technology used
- End users
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- Future scope
- IBM Certifications



PROBLEM STATEMENT

Problem Statement No.9 - Al 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 Al 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 Al 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



Agent preview





Agent preview



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?

G

Type something...





Agent preview

► How did I get this answer?



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?

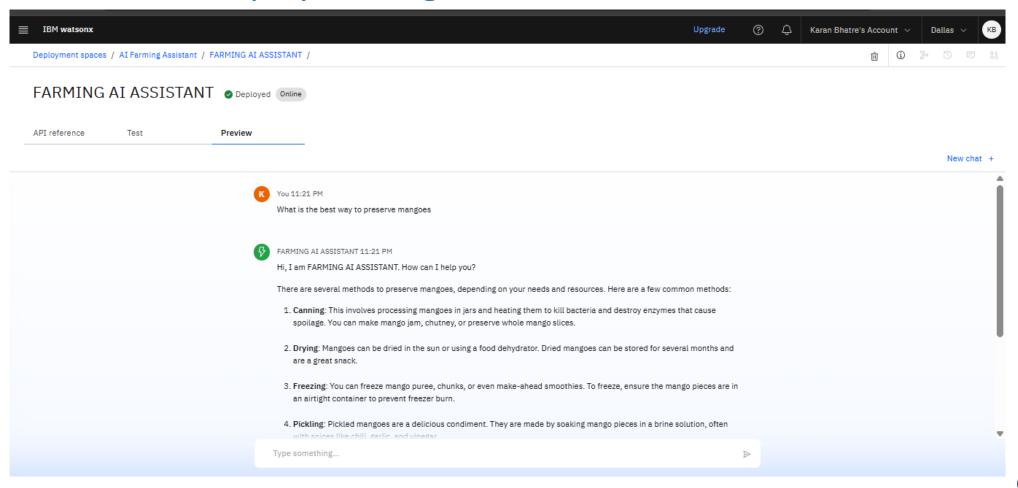


Type something...





Deployed AI Agent





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







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

