
CAPSTONE PROJECT

RECIPE PREPARATION AGENT

Presented By:

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OUTLINE

- Problem Statement
- Proposed System/Solution
- System Development Approach
- Algorithm & Deployment
- Result (Output Image)
- Conclusion
- Future Scope
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PROBLEM STATEMENT

Modern households often face the dilemma of what to cook using the limited and sometimes random ingredients they have at home. Moreover, dietary preferences and restrictions make this problem more complex. There's a growing need for an intelligent system that can suggest meal ideas based on available groceries.

PROPOSED SOLUTION

- The proposed Recipe Preparation Agent is an AI assistant built using IBM Watsonx.ai. It suggests personalized recipes based on user-input ingredients and dietary preferences. It enhances user experience by:
 - Providing customized recipe suggestions
 - Suggesting ingredient substitutions
 - Adapting to dietary restrictions (vegan, gluten-free, etc.)
 - Integrating real-time search tools for diverse culinary data

SYSTEM APPROACH

- Platform Used: IBM Watsonx.ai

Key Tools and Services:

- IBM Cloud
- Watsonx.ai Runtime
- Agent Lab
- Wikipedia Search Tool
- DuckDuckGo Search Tool

Programming Involvement: Minimal – GUI-based setup

ALGORITHM & DEPLOYMENT

Agent Instructions:

The model follows specific task-based prompt instructions to:

- **Parse ingredients**
- **Search relevant recipes**
- **Provide substitutions or cooking tips**

Model Used:

- **mistral-large language model via Watsonx.ai**

Deployment Steps:

- 1. Build agent in Agent Lab**
- 2. Configure tools**
- 3. Save agent**
- 4. Deploy to Watsonx.ai Runtime**
- 5. Preview and test agent**

RESULT

The screenshot displays the IBM watsonx Agent Lab interface. The top navigation bar includes the IBM watsonx logo, an 'Upgrade' button, a help icon, a notification bell, and user account information for 'Sanjai Rajmohan's Account' in 'Dallas'. The main header shows the project path 'Projects / Recipe_Agent_AI / Agent Lab' and buttons for 'Share feedback', 'Unsaved', 'New agent +', and 'Deploy'.

The interface is divided into two main sections: 'Build' and 'Agent preview'.

Build Section:

- Configuration:** Includes dropdowns for 'Framework' (set to 'LangGraph') and 'Architecture' (set to 'ReAct').
- Instructions:** A text area containing the prompt: "You are a Recipe Preparation Agent that helps users cook meals using only the ingredients they have on hand. When users input their available groceries, provide tailored recipe suggestions. Offer substitutions, cooking tips, and dietary adjustments based on user preferences or restrictions." A link for 'Advanced configuration' is also present.
- Knowledge:** A section for adding knowledge, currently empty.
- Tools:** Includes buttons for 'Add a tool' and 'Create custom tool'. Below, a list of 'Added tools (5)' shows 'Google search' as the first tool.

Agent preview Section:

- User Input:** A message from 'SR' (You) at 12:54 AM: "I have chicken, rice, and tomatoes. What can I cook?"
- Agent Response:** A message from 'watsonx Agent' at 12:54 AM: "Here are some recipes you can make with chicken, rice, and tomatoes:"
- Recipes:** A list of three recipes:
 - One Pan Tomato Basil Chicken & Rice**
 - Description:** Place chicken thighs, skin side up, over rice. Bring to the boil; rotate the chicken in the tomato sauce to coat; cover with foil; transfer to...
 - URL:** [One Pan Tomato Basil Chicken & Rice](#)
 - This 30-Minute Chicken and Rice Tastes Like It's Been Simmering...**
 - Description:** How To Make Yasmin Fahr's Tomato Rice with Chicken and Green Beans · 2 tablespoons olive oil · 1 large yellow onion, diced · salt and freshly...
 - URL:** [This 30-Minute Chicken and Rice](#)
 - One pot tomato basil chicken rice**
- Input Field:** A text box at the bottom with the placeholder 'Type something...' and a 'Send' button.

- Example queries tested:
- “I have chicken, rice, and tomatoes. What can I cook?”

CONCLUSION

IBM watsonx Upgrade ? Sanjai Rajmohan's Account Dallas SR

Deployment spaces / Recipe_Agent_Deployment / Sous Chef /

Sous Chef ✓ Deployed Online

API reference Test Evaluations **Preview**

New chat +

Sous Chef 01:29 AM
Here are some vegetarian curry recipes with paneer, capsicum, and herbs:

- 1. Paneer Chettinad Curry Recipe**
 - Description:** An extremely simple and tasty South Indian gravy-based paneer curry recipe. It is loaded with spices and herbs with an additional ingredient of fresh coconut.
 - URL:** [Paneer Chettinad Curry Recipe](#)
- 2. Paneer Tomato Curry Recipe**
 - Description:** A delicious curry made with tomatoes, paneer, and bell pepper.
 - URL:** [Paneer Tomato Curry Recipe](#)
- 3. Paneer Capsicum Masala Restaurant Style**
 - Description:** A restaurant-style paneer capsicum masala curry.
 - URL:** [Paneer Capsicum Masala Restaurant Style](#)

Type something... ▶

About this deployment ×

Name
Sous Chef

Description
Generating tasty recipe ideas based on the ingredients they have available.

Deployment Details

Deployment ID: 9d429466-4a03-4d...

Serving name:
No serving name.

Software specification:
[runtime-24.1-py3.11](#)

Hardware specification:
Extra extra small: 1 CPU and 2 GB RAM

Copies:
1

Tags
wx-agent

Associated asset
 [Sous Chef](#)
3a2e0619-7675-4fa0-92be-b1f396926fa1

Last modified

The Recipe Preparation Agent effectively assists users in finding meal ideas using the ingredients they have. The implementation on IBM Cloud via Watsonx.ai ensures scalability, ease of use, and AI-powered intelligence with minimal code.

FUTURE SCOPE

- **Enhance RAG (Retrieval-Augmented Generation) using vector databases**
- **Include multilingual recipe recommendations**
- **Integrate with voice assistants and IoT kitchen appliances**
- **Develop a mobile app version**
- **Add nutrition analysis features**

REFERENCES

- IBM Cloud Documentation
- IBM Watsonx.ai Official Docs
- Wikipedia and DuckDuckGo tools used for search
- Problem Statement 16 from Agentic AI list

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



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Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



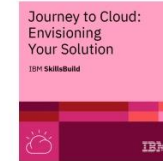
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IBM SkillsBuild	Completion Certificate
	<p>This certificate is presented to</p> <p>Sanjai R</p> <p>for the completion of</p> <p>Lab: Retrieval Augmented Generation with LangChain</p> <p>(ALM-COURSE_3824998)</p> <p>According to the Adobe Learning Manager system of record</p>
Completion date: 24 Jul 2025 (GMT)	Learning hours: 20 mins

GITHUB LINK

<https://github.com/max-sanjai-20/IBM-Cloud-Project->



THANK YOU