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# CAPSTONE PROJECT

## RECIPE PREPARATION AGENT

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# OUTLINE

- Problem Statement
- Technology used
- Wow factor
- End users
- Result
- Conclusion
- Git-hub Link
- Future scope
- IBM Certifications

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# PROBLEM STATEMENT

A Recipe Preparation Agent helps users cook meals using only the ingredients they have on hand. By inputting available groceries, users receive tailored recipe suggestions using a RAG-based AI system. The agent retrieves relevant recipes and generates step-by-step instructions adapted to ingredient limitations. It offers substitutions, cooking tips, and dietary adjustments based on user preferences or restrictions. Designed to reduce food waste and save time, it turns pantry items into practical meal solutions. This AI assistant makes everyday cooking smarter, simpler, and more sustainable.

## Proposed Solution:

A Recipe Preparation Agent that uses NLP and Retrieval-Augmented Generation (RAG) on IBM Cloud to help users find practical, tasty recipes using the ingredients they have. The agent provides stepwise instructions, suggests substitutions, and adapts for dietary needs, making everyday cooking smarter, faster, and more eco-friendly.

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# TECHNOLOGY USED

IBM cloud lite services

Natural Language Processing (NLP)

Retrieval Augmented Generation (RAG)

IBM Granite model

# IBM CLOUD SERVICES USED

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

# WOW FACTORS

This agent reduces food waste, saves time, and makes daily cooking easier, especially for students and busy families.

Unique features:

- Custom recipe suggestions from user's available ingredients
- Smart substitutions if some items are missing
- Step-by-step adaptive instructions
- Cooking tips, dietary and allergy adjustments
- Personalized meal planning
- Makes cooking accessible, fun, and less wasteful

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## END USERS

- Home cooks and families
- Students living away from home
- Working Professionals
- Anyone wanting to save time and reduce kitchen waste

# RESULTS

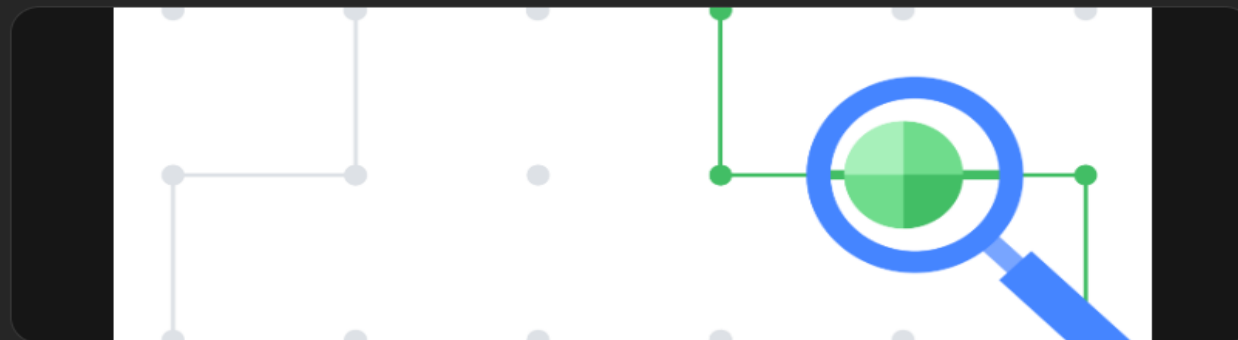
## Agent preview



Recipe Preparation Agent 06:28 PM

### Welcome to Recipe Preparation Agent

Generating tasty recipe ideas based on the ingredients Users have available.



Type something...





# RESULTS

## Agent preview



You: 03:11 PM

I have tomato, onions, and rice, give me a quick idea to make a delicious dinner tonight



Recipe Preparation Agent 03:11 PM

Here are a few delicious dinner ideas you can make using tomato, onions, and rice:

1. Tomato Rice: A simple and flavorful dish made with sautéed onions, garlic, and tomatoes, cooked with rice and seasoned with spices.
2. Spanish Rice: A classic dish made with cooked rice, tomatoes, onions, and spices, often served as a side dish.
3. Cheesy Baked Tomato Rice: A creamy and comforting casserole made with cooked rice, tomatoes, onions, and cheese, perfect for a weeknight dinner.

You can find many recipes online that use these ingredients, such as the ones from Budget Bytes, Julias Simply Southern, and Love and Lemons. Enjoy!

► How did I get this answer?



Type something...



# RESULTS

## Agent preview



You: 06:53 PM

I'm looking for a quick dinner idea using tomatoes and pasta. Can you suggest a few options?



Recipe Preparation Agent 06:53 PM

Here are a few quick dinner ideas using tomatoes and pasta:

1. **Pasta with Cherry Tomatoes:** A simple and delicious recipe that combines cherry tomatoes, garlic, and basil with pasta.
2. **20-Minute Fresh Tomato Pasta:** A quick and easy recipe that turns seasonal tomatoes into a super fresh and delicious pasta dish.
3. **Super Easy Creamy Tomato Pasta:** A creamy and flavorful recipe that combines tomato paste, garlic, and heavy cream with pasta.

You can find the recipes and instructions for these dishes on the following websites:

- [feelgoodfoodie.net](https://feelgoodfoodie.net)
- [lexiscleankitchen.com](https://lexiscleankitchen.com)
- [saltandlavender.com](https://saltandlavender.com)
- [budgetbytes.com](https://budgetbytes.com)
- [itdoesnttastelikechicken.com](https://itdoesnttastelikechicken.com)
- [lastingredient.com](https://lastingredient.com)
- [theburntbuttertable.com](https://theburntbuttertable.com)
- [ohsweetbasil.com](https://ohsweetbasil.com)
- [theclevercarrot.com](https://theclevercarrot.com)
- [alexandracooks.com](https://alexandracooks.com)

Type something...



# RESULTS

## Deployed AI Agent

The screenshot displays the IBM watsonx interface for a deployed AI agent. The top navigation bar includes the IBM watsonx logo, an 'Upgrade' button, a help icon, a notification bell, and user account information for 'Ankit Kumar's Account' in 'London'. The breadcrumb trail shows the path: 'Deployment spaces / Recipe Preparation Agent / Recipe Preparation Agent /'. The agent's status is 'Deployed' and 'Online'. The 'Preview' tab is active, showing a chat history. The user's message is: 'I have eggs and noodles. can you suggest a quick recipe option?'. The agent's response is: 'Here are a few quick recipe options using eggs and noodles:'. The agent provides three recipe suggestions: 1. Egg Noodles - Tastes Better From Scratch, 2. Homemade Egg Noodles Recipe | Gimme Some Oven, and 3. Homemade Egg Noodles - The Salted Pepper. The agent also provides a link to 'How did I get this answer?'. The input field at the bottom contains the text 'Type something...'. The interface is dark-themed with a blue header bar.

IBM watsonx Upgrade ? 🛎 Ankit Kumar's Account London AK

Deployment spaces / Recipe Preparation Agent / Recipe Preparation Agent /

Recipe Preparation Agent 🟢 Deployed Online

API reference Test Preview New chat +

**You** 06:37 PM  
I have eggs and noodles. can you suggest a quick recipe option?

**Recipe Preparation Agent** 06:37 PM  
Here are a few quick recipe options using eggs and noodles:

1. Egg Noodles - Tastes Better From Scratch: A simple recipe that combines eggs, milk, and salt to make a delicious and easy-to-make egg noodle dish.
2. Homemade Egg Noodles Recipe | Gimme Some Oven: A homestyle egg noodle recipe that is incredibly easy to make by hand in just 15 minutes with 4 basic ingredients.
3. Homemade Egg Noodles - The Salted Pepper: A recipe that uses flour, egg, salt, and water to make a delicious and homemade egg noodle dish.

These recipes are all quick, easy, and delicious, and can be made with just a few ingredients. You can find the full recipes and instructions by visiting the websites listed in the search results.

► How did I get this answer?

🔄

Type something... ➤

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## CONCLUSION

The Recipe Preparation Agent helps users turn ordinary kitchen items into delicious meals with AI-powered suggestions. It makes homemaking efficient by reducing food waste and optimizing what's already available.

- Saves money, effort, and food
- Personalized and easy to use
- Can be integrated with kitchen apps/devices

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# FUTURE SCOPE

- Voice input & output for hands-free kitchen use
- Multi-language support for regional cuisines
- Integration with online grocery ordering
- Nutritional tracking and health-focused meal planning
- Feedback based recipe improvement

# IBM CERTIFICATIONS

- Screenshot/ credly certificate( getting started with AI)



Attach your RAG LAB certificate here



[https://skills.yourlearning.ibm.com/certificate/ALM-COURSE\\_3824998](https://skills.yourlearning.ibm.com/certificate/ALM-COURSE_3824998)

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GitHub Link: <https://github.com/ChikuX/Recipe-Preparation-Agent>



# GITHUB LINK

- Make sure that there should be readme file

- <https://github.com/ChikuX/Recipe-Preparation-Agent>

The screenshot shows the GitHub repository page for 'Recipe Preparation Agent' by ChikuX. The page is in dark mode. The main content area displays the README file, which includes the repository title, a description of the agent's functionality, a preview section with a chat log, and a 'Preview' heading. The chat log shows a user asking for a recipe idea based on ingredients (tomato, onions, and rice) and the agent's response. The right sidebar contains statistics (0 watching, 0 forks), sections for Releases, Packages, Languages (Python 100.0%), and Suggested workflows (Publish Python Package).

**Recipe Preparation Agent**

Generating tasty recipe ideas based on the ingredients Users have available using Recipe Preparation AI Agent.

*Stop food waste and make amazing meals with what's already in your kitchen. This smart assistant finds tasty recipes based on your ingredients. It gives you easy instructions, helps with ingredient substitutions, and adjusts for dietary needs. It's everyday cooking made smarter, not harder. ✨*

## Preview

### Agent preview

**AK** You: 03:11 PM  
I have tomato, onions, and rice, give me a quick idea to make a delicious dinner tonight

**Recipe Preparation Agent** 03:11 PM

**Releases**  
No releases published  
[Create a new release](#)

**Packages**  
No packages published  
[Publish your first package](#)

**Languages**  
Python 100.0%

**Suggested workflows**  
Based on your tech stack

**Publish Python Package** [Configure](#)  
Publish a Python Package to PyPI on release.



**THANK YOU**