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# CAPSTONE PROJECT

## **NIBBLE – YOUR AI-POWERED RECIPE PREPARATION ASSISTANT**

**Presented By:**

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# OUTLINE

- Problem Statement
- Proposed Solution
- System Development Approach
- Algorithm & Deployment
- Results
- Conclusion
- Future Scope
- References

# PROBLEM STATEMENT

**Example:** Problem Statement No. 16- Recipe Preparation Agent

The Challenge - 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.

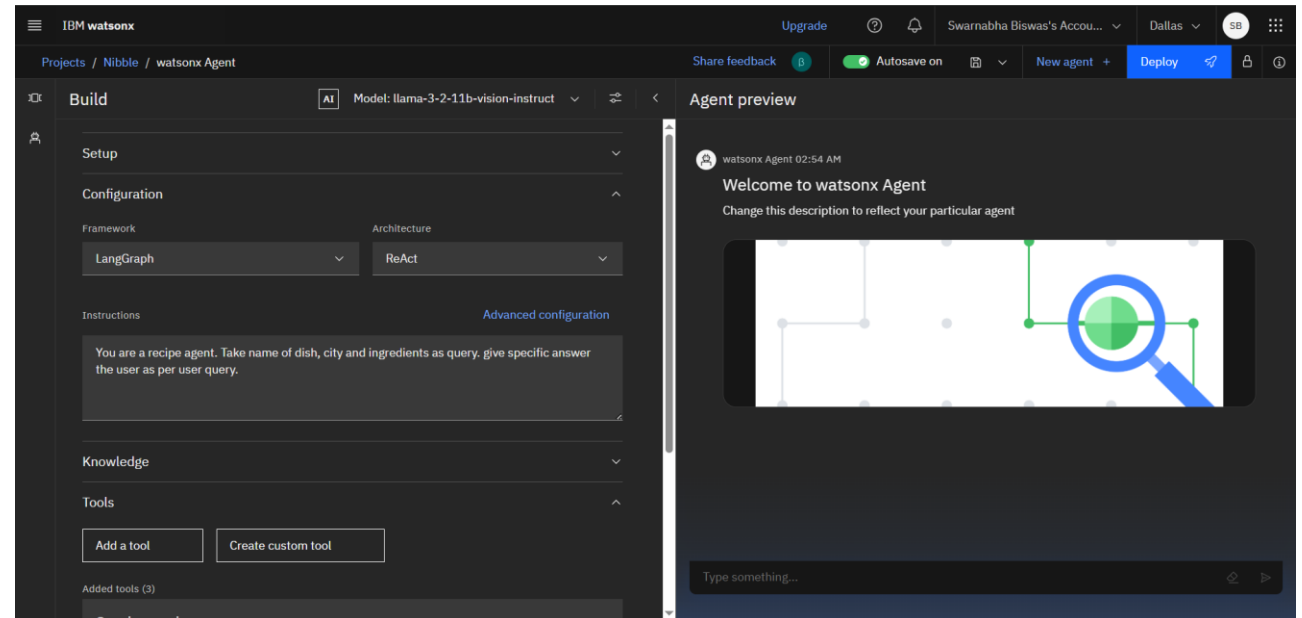
Designed to reduce food waste and save time, it turns pantry items into practical meal solutions.

This AI assistant makes everyday cooking smarter, simpler, and more sustainable.

Technology - Use of IBM cloud lite services /IBM Granity is mandatory.

# PROPOSED SOLUTION

- **Nibble** – An AI-powered Recipe Preparation Assistant that helps users:
- Get ingredient lists and substitutions
- Follow recipes step-by-step
- Set and manage cooking timers
- Ask natural language questions like:
  - “What can I use instead of sour cream?”
  - “How long should I boil potatoes?”
  - “Show me step 3 again.”



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# SYSTEM APPROACH

**Platform:** Platform: IBM Watson Assistant +  
Agent Frameworks

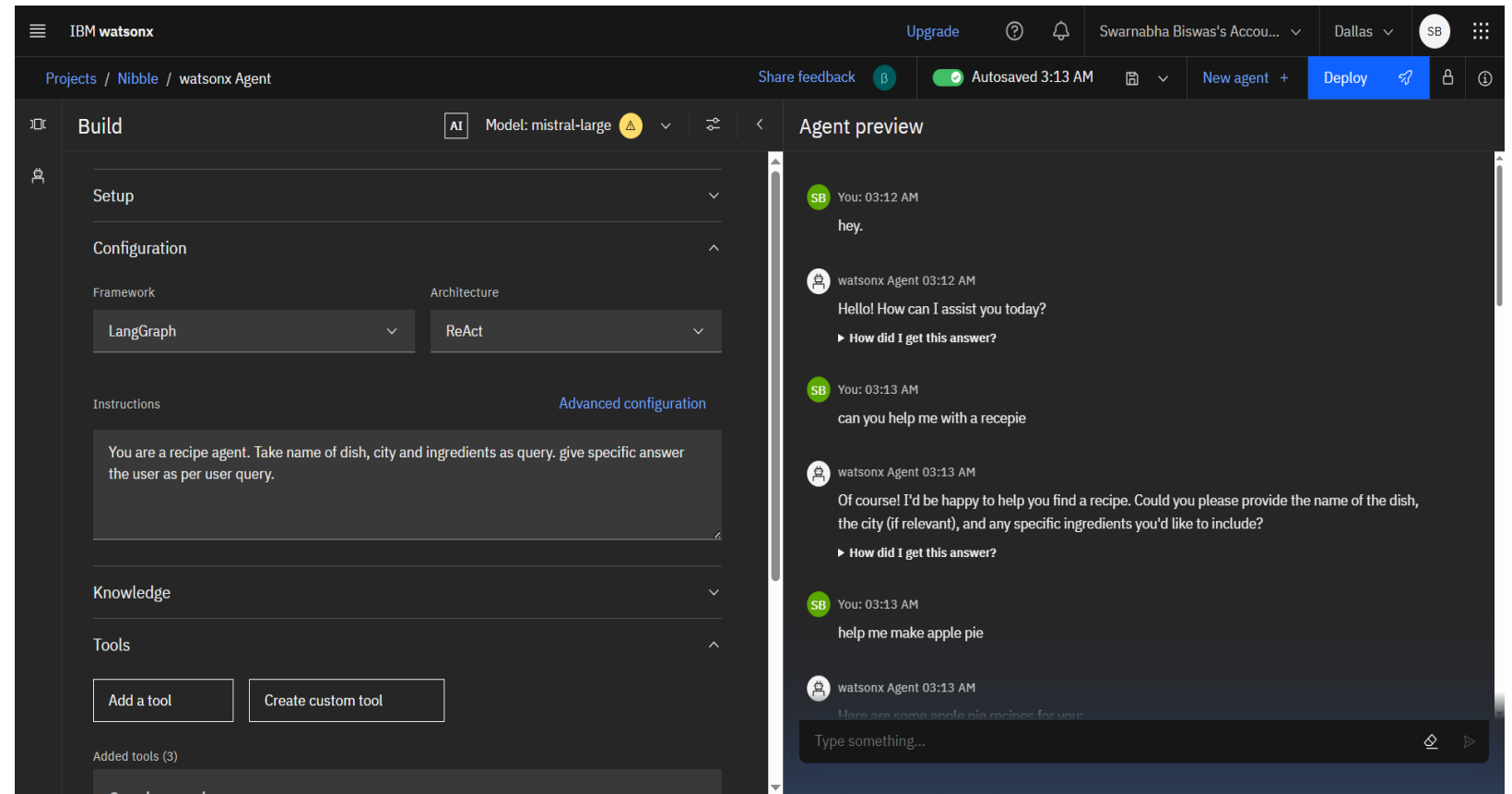
**Data:** Recipes, cuisines, meals and  
countries

# ALGORITHM & DEPLOYMENT

- **Conversation-driven** , Agent logic handles:
- Recipe Initialization → ask meal type (e.g., “Pasta”, “Curry”)
- Ingredient Validation → check what user has.
- Stepwise Cooking Guidance → interactive instructions

# RESULT

- Users can interact as follows:
- “Start Chicken Curry recipe.”  
“I don’t have garam masala — what else can I use?”
- Bot responds intelligently and contextually
- Simplifies complex multi-step cooking



# API'S

IBM watsonx

Upgrade ⓘ 🔔 Swarnabha Biswas's Accou... ▾ Dallas ▾ SB ⋮

Deployment spaces / Nibble dep / watsonx Agent /

watsonx Agent ✔ Deployed Online

API reference Test Preview

Endpoints for inferencing ⓘ

Private endpoint

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/9414374f-4c37-4565-a092-91c4fd5c8304/ai\_service?version=2021-05-01

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/9414374f-4c37-4565-a092-91c4fd5c8304/ai\_service?version=2021-05-01

Public endpoint

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/9414374f-4c37-4565-a092-91c4fd5c8304/ai\_service?version=2021-05-01

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/9414374f-4c37-4565-a092-91c4fd5c8304/ai\_service?version=2021-05-01

Bearer <token> ⓘ

IAM

[Learn more](#) about the 2021-05-01 version query parameter

Code snippets

cURL

Java

JavaScript

Python

Scala

About this deployment ×

Name ⓘ

watsonx Agent

Description ⓘ

Change this description to reflect your particular agent

Deployment Details

Deployment ID: 9414374f-4c37-45...

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 ⓘ

📄 watsonx Agent

6a930418-180e-48d9-adb1-58b325fed560



# CONCLUSION

- **Nibble** transforms the home-cooking experience by:
- Making recipes more interactive and accessible
- Offering dynamic help, not just static instructions
- Reducing kitchen mistakes due to confusion
- Empowering beginners and multitaskers alike
- It bridges the gap between cookbooks and intelligent real-time assistance.

# FUTURE SCOPE

Add voice-only cooking mode (Alexa-style)

Integrate with smart kitchen devices (ovens, timers)

Expand to dietary filters (vegan, keto, gluten-free)

Track pantry items or recommend based on ingredients

Multi-language support for regional Indian users

Save user preferences or last used recipes

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# REFERENCES

- IBM Watson Assistant documentation
- IBM Cloud services
- College admission policies (sample docs)

# IBM CERTIFICATIONS

In recognition of the commitment to achieve  
professional excellence



## Swarnabha Biswas

Has successfully satisfied the requirements for:

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### Getting Started with Artificial Intelligence

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# IBM CERTIFICATIONS

IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Swarnabha Biswas

for the completion of

**Lab: Retrieval Augmented Generation with  
LangChain**

(ALM-COURSE\_3824998)

According to the Adobe Learning Manager system of record

**Completion date:** 20 Jul 2025 (GMT)

**Learning hours:** 20 mins



**THANK YOU**