#### IBM HACKATHON PROJECT

#### **ECO LIFESTYLE AGENT**

**Presented By** 

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#### **OUTLINE**

- Problem Statement
- Proposed system/Solution
- Technology Used
- Algorithm & Deployment
- Result
- Conclusion
- Future scope
- IBM Certifications



## PROBLEM STATEMENT

- In today's rapidly changing environmental landscape, individuals often face confusion and lack of direction when it comes to adopting eco-friendly habits. Limited awareness, scattered information, and inconsistent access to reliable guidance make it difficult for people to make sustainable lifestyle choices in their daily routines.
- Despite increasing concern for the environment, many users are unaware of practical steps they can take to reduce their carbon footprint, manage household waste, or choose greener alternatives. Meanwhile, environmental organizations and government bodies struggle to reach a broader audience due to limited engagement and awareness channels.
- There is a pressing need for a dedicated Eco Lifestyle Agent that bridges this gap by offering personalized, accurate, and timely eco-guidance. This Al-powered assistant helps users discover actionable sustainability tips, find local recycling solutions, learn about government schemes, and receive product recommendations to support their green journey—making sustainable living easy, informed, and accessible to everyone.



# PROPOSED SOLUTION

The **Eco Lifestyle Agent** is a smart, Al-powered assistant that guides users toward sustainable living by offering personalized tips, local recycling info, eco-product suggestions, and government scheme awareness. Built using **RAG architecture** and **IBM Granite models**, it retrieves trusted environmental data to deliver real-time, actionable guidance.

#### Goals of the System:

- Simplify eco-friendly living through user-friendly suggestions
- TEncourage daily green habits with personalized tips
- Bridge the awareness gap using verified data sources
- Use AI to deliver accurate, contextual responses
- Offer location-specific recycling and sustainability support
- Raise awareness about eco-initiatives and programs



# **TECHNOLOGY USED**

- IBM cloud lite services
- Natural Language Processing (NLP)
- Retrieval Augmented Generation (RAG)
- IBM Granite model



#### **IBM CLOUD SERVICES USED**

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



#### **ALGORITHM & DEPLOYMENT**

The Eco Lifestyle Agent uses **RAG** (Retrieval-Augmented Generation) with **IBM** Granite to provide personalized, real-time eco-guidance.

#### **☆**Algorithm Used:

 The system uses Retrieval-Augmented Generation (RAG) with IBM Granite to provide real-time, personalized eco-guidance by retrieving relevant content and generating natural responses

#### Data Input:

- User queries in natural language
- Curated eco-content: tips, recycling info, government schemes

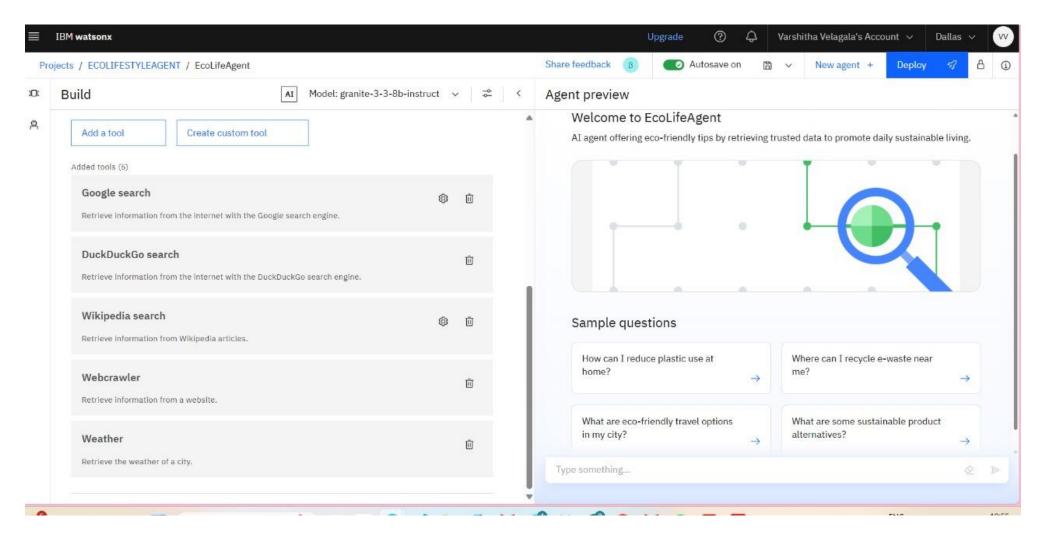
#### Process Flow:

- Embed user query
- Retrieve top-matching eco documents
- Generate context-aware response using IBM Granite
- Display suggestion with optional sources

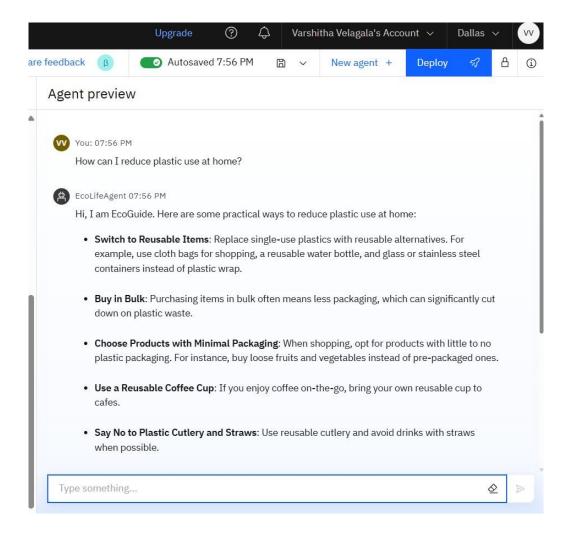
#### **Deployment Tools:**

- IBM Watsonx Al Studio
- IBM Watsonx AI Runtime
- IBM Cloud Agent LabIBM Granite Foundation Model

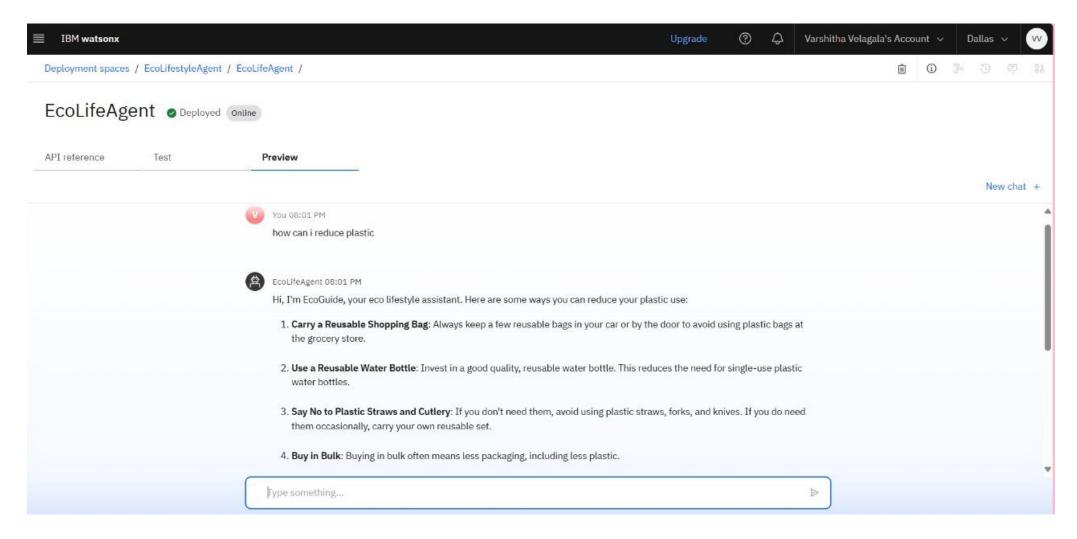






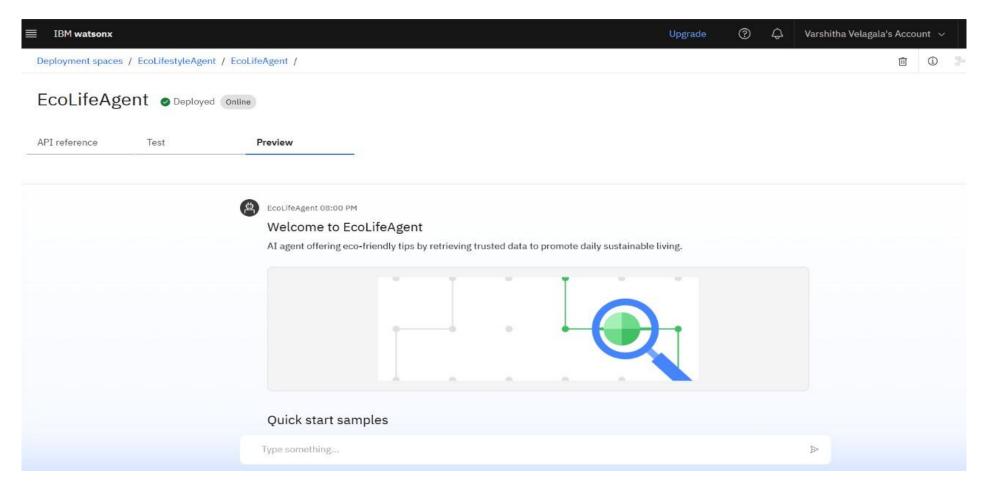








#### Deployed AI Agent





## CONCLUSION

- The Eco Lifestyle Agent empowers users to make sustainable choices through personalized, Al-driven eco-guidance, simplifying access to trusted environmental information.
- It promotes daily green habits, increases environmental awareness, and bridges the gap between users and reliable sustainability resources using IBM's RAG and Granite technologies.
- The system makes sustainability more accessible, practical, and impactful for everyday life.



## **FUTURE SCOPE**

- AI-Powered Environmental Q&A and Tips Expansion
- Voice and Multilingual Support
- Integration with Government & NGO Portals
- Mobile App with Offline Mode
- Blockchain for Green Certifications
- Community Engagement Ecosystem



## **IBM CERTIFICATIONS**





In recognition of the commitment to achieve professional excellence



# varshitha velagala

Has successfully satisfied the requirements for:

Journey to Cloud: Envisioning Your Solution



Issued on: Jul 18, 2025 Issued by: IBM SkillsBuild

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#### IBM SkillsBuild

#### Completion Certificate



This certificate is presented to

Varshitha velagala

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



# THANK YOU

