
IBM HACHATHON PROJECT

ECO LIFESTYLE AGENT

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OUTLINE

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

PROBLEM STATEMENT

Problem: Problem Statement No.6 – Eco Lifestyle Agent

People often struggle to adopt eco-friendly habits because reliable information about sustainable practices, recycling, green products, and government schemes is scattered and hard to access.

They need personalized, easy-to-understand guidance — but searching through various websites and policies is time-consuming and inconsistent.

Proposed Solution:

An AI-powered Eco Lifestyle Agent built using Retrieval-Augmented Generation (RAG) and IBM Granite model that provides personalized, real-time answers to questions like:

- “How can I reduce plastic use at home?”
- “What are eco-friendly travel options in my city?”
- “Which government schemes support solar energy?”

This assistant helps people make small changes with big environmental impact.

TECHNOLOGY USED

- IBM Watsonx.ai – To build, prompt, and deploy the AI agent
- IBM Granite Foundation Model – For generating personalized responses
- Retrieval-Augmented Generation (RAG) – To fetch accurate, context-rich information
- LangGraph + ReAct architecture – For structured and explainable agent behavior
- IBM Cloud Lite – Used for deploying models, agents, and storing assets

IBM CLOUD SERVICES USED

- IBM Cloud Watsonx AI Studio
- IBM Cloud Watsonx AI runtime
- IBM Cloud Agent Lab
- IBM Granite foundation model
- IBM Cloud Object Storage
- IBM IAM & API Keys

WOW FACTORS

- No-code setup – built using IBM Watsonx's intuitive Agent Lab
- Personalized, real-time eco-advice powered by Granite foundation model
- RAG integration retrieves trusted environmental data instantly
- User-friendly and accessible – anyone can ask simple questions
- Focused on Indian users – includes local schemes and practices
- Lightweight, scalable, and deployable within minutes using IBM Cloud Lite
- Built entirely on free-tier tools, making it highly cost-effective

END USERS

- Environment-conscious individuals seeking sustainable living tips
- School and college students learning about eco-responsibility
- NGOs and social workers promoting green initiatives
- Government eco-policy campaigners
- Urban households aiming to reduce waste and energy usage
- Local community groups running awareness drives
- Educators teaching environmental science or green practices

RESULTS

The screenshot displays the IBM watsonx Agent Lab interface in a web browser. The browser's address bar shows the URL: `datapatform.cloud.ibm.com/wx/agents?context=wx&project_id=ee0a1caa-471c-4379-914d-e57f66717eb2`. The page header includes the IBM watsonx logo, an 'Upgrade' button, a help icon, a notification bell, the user's account 'Chetan Kulkarni's Account', the location 'Dallas', and a profile icon 'CK'.

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

Build Section:

- Setup:**
 - Name:** 'watsonx Agent'
 - Description:** A text area with the placeholder 'Change this description to reflect your particular agent' and a character count of 56/100.
 - Icon:** A selection of icons, including a robot head and a magnifying glass over a circuit.
 - Placeholder image:** A larger preview of the selected icon.
 - Quick start questions:** A section for adding up to 4 quick start questions that users can select.

Agent preview Section:

- watsonx Agent 04:30 PM:** A header for the agent's output.
- Welcome to watsonx Agent:** A greeting message.
- Change this description to reflect your particular agent:** A prompt for the user to customize the agent's description.
- Visual Representation:** A diagram showing a network of nodes connected by lines, with a magnifying glass icon highlighting a specific node.
- Input Field:** A text input field with the placeholder 'type something...' and a send button.

The bottom of the screen shows a Windows taskbar with various application icons, a search bar, and system information including the temperature (23°C), weather (Mostly clear), and the date/time (4:32 PM, 8/4/2025).

RESULTS

The screenshot displays the IBM watsonx Agent web interface in a browser window. The address bar shows the URL: `datapatform.cloud.ibm.com/ml-runtime/deployments/ad5f3f05-217b-46ee-862b-b37b20ee85b0/chat?space_id=e9e33746-93ba-4192-ba51-fd924ff1a00b&context=wx&flush...`. The page header includes the IBM watsonx logo, an 'Upgrade' button, and user information for 'Chetan Kulkarni's Account' in 'Dallas'.

The breadcrumb navigation path is: `Deployment spaces / Eco_Lifestyle_Agent / watsonx Agent /`. The main heading is 'watsonx Agent' with a green checkmark and 'Deployed' status, and a grey 'Online' badge.

Below the heading are three tabs: 'API reference', 'Test', and 'Preview' (which is active). A 'New chat +' button is located in the top right corner of the chat area.

The chat history shows a user message at 05:41 PM: 'best commuting ways in pune'. The watsonx Agent response at 05:41 PM is as follows:

The best commuting ways in Pune include:

1. Two-wheelers: They are the most convenient mode of transport in Pune.
2. Public transport: Pune has a well-developed public transport system, including buses and trains.
3. Maharashtra transport bus: It is a cheap and comfortable way to travel from Pune to Mumbai and back.
4. KSRTC Airavat bus: It is a good option for traveling from Bangalore to Pune and back.
5. Metro: Pune has a metro system that connects different parts of the city.
6. Local bus service: It is a cheap and convenient way to travel within the city.

It's always a good idea to check the current traffic and road conditions before embarking on your journey and to plan your route accordingly. Additionally, you can use online resources such as Google Maps or traffic apps to get the most up-to-date information and to find the best route for your commute.

At the bottom of the chat area is a text input field with the placeholder 'Type something...' and a send button (a right-pointing triangle).

The Windows taskbar at the bottom shows the search bar, several application icons, and system information: 23°C Mostly clear, 5:42 PM, 8/4/2025.

RESULTS

The screenshot displays the IBM watsonx Agent web interface in a browser window. The browser's address bar shows the URL: `dataplatfom.cloud.ibm.com/ml-runtime/deployments/ad5f3f05-217b-46ee-862b-b37b20ee85b0/chat?space_id=e9e33746-93ba-4192-ba51-fd924ff1a00b&context=wx&flush...`. The page header includes the IBM watsonx logo, an 'Upgrade' button, and user information for 'Chetan Kulkarni's Account' in 'Dallas'. The breadcrumb trail indicates the path: 'Deployment spaces / Eco_Lifestyle_Agent / watsonx Agent'.

The main content area is titled 'watsonx Agent' with a green checkmark and 'Deployed' status, and a grey 'Online' button. Below this are three tabs: 'API reference', 'Test', and 'Preview', with the 'Preview' tab selected. A 'New chat +' button is located in the top right corner of the chat area.

The chat history shows a user message at 05:41 PM asking 'how to reduce plastic ways'. The watsonx Agent responds at 05:41 PM with the text 'Here are some ways to reduce plastic waste:' followed by a numbered list of eight suggestions:

1. Avoid single-use plastics: Refuse single-use plastics like straws, bags, and water bottles.
2. Use reusable bags: Carry reusable bags for grocery shopping and other purposes.
3. Choose products with minimal packaging: Opt for products with minimal or biodegradable packaging.
4. Use a refillable water bottle: Instead of buying bottled water, use a refillable water bottle.
5. Avoid microbeads: Choose personal care products that are free from microbeads, which can harm the environment.
6. Compost: Compost food waste and yard trimmings to reduce the amount of waste sent to landfills.
7. Buy in bulk: Buy items like nuts, grains, and cleaning supplies in bulk to reduce packaging waste.
8. Use rags instead of paper towels: Use rags or cloth towels instead of paper towels for cleaning and drying.

At the bottom of the chat area is a text input field with the placeholder 'Type something...' and a send button (a right-pointing triangle). The Windows taskbar is visible at the very bottom, showing the search bar, taskbar icons, and system tray information including the temperature (23°C), weather (Mostly clear), and time (5:42 PM 8/4/2025).

RESULTS

Deployed AI Agent

The screenshot displays the IBM watsonx web interface. The browser address bar shows the URL: `dataplatfom.cloud.ibm.com/ml-runtime/spaces/e9e33746-93ba-4192-ba51-fd924ff1a00b/deployments?context=wx`. The page title is "Eco_Lifestyle_Agent". Below the title, there are tabs for "Overview", "Assets", "Deployments" (which is active), "Jobs", and "Manage". The "Deployments" tab shows a table with one deployment:

Name	Type	Status	Asset	Asset type	Tags	Last modified
Watsonx Agent	Online	Deployed	watsonx Agent	AI service	wx-agent	39 seconds ago Chetan Kulkarni (You)

At the bottom of the interface, there is a status bar showing "Items per page: 20", "1-1 of 1 items", and "Desktop 1". The Windows taskbar at the very bottom shows the time as 5:28 PM on 8/4/2025.

CONCLUSION

- The Eco Lifestyle Agent empowers individuals to make environmentally conscious choices through AI-driven, real-time guidance.
- By combining IBM Watsonx, Granite model, and RAG architecture, the assistant delivers relevant, localized, and practical tips for sustainable living.
- It bridges the gap between intention and action by making eco-friendly decisions easy, personalized, and accessible for all – without requiring any technical expertise.
- The project demonstrates how AI can drive social impact by encouraging small habits that lead to a greener planet.

FUTURE SCOPE

- Add voice assistant capabilities for hands-free eco queries
- Integrate GPS to offer location-specific recycling or transport tips
- Expand knowledge base with live environmental news and updates
- Suggest eco-friendly product alternatives via e-commerce APIs
- Add multilingual support to reach regional audiences in India
- Track user impact (e.g., plastic saved, emissions reduced) over time
- Connect with IoT-enabled smart homes for automated green actions

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



Chetan Kulkarni

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



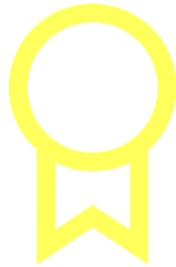
Issued on: Jul 15, 2025
Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/afe42d03-d1e0-4e17-bab8-1b0d46690a41>



IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Chetan Kulkarni

for the completion of

Lab: Retrieval Augmented Generation with LangChain

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 14 Jul 2025 (GMT)

Learning hours: 20 mins

GITHUB LINK

- Github link : https://github.com/kulkarnichetan/Eco_Lifestyle_Agent



THANK YOU