

IBM HACKATHON PROJECT

ECO-LIFESTYLE AGENT

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OUTLINE

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- Technology used
- Wow factor
- End users
- Result
- Conclusion
- Git-hub Link
- Future scope
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PROBLEM STATEMENT

Researchers, students, and professionals often struggle to stay updated with the rapidly growing volume of academic publications, technical articles, datasets, and evolving research trends. Manually reviewing, filtering, and synthesizing information across multiple domains is time-consuming and inefficient.

Proposed Solution:

An AI Research Agent that uses Natural Language Processing (NLP), Retrieval-Augmented Generation (RAG), to assist users in conducting efficient literature reviews, generating summaries, identifying research gaps, and recommending relevant papers, datasets, or collaborators.

TECHNOLOGY USED

IBM cloud lite services– For hosting and deploying the application.

Natural Language Processing (NLP) – To understand and analyze user queries.

Retrieval Augmented Generation (RAG) – For fetching real-time information and generating accurate responses.

IBM Granite model– To power intelligent language understanding and generation.

IBM CLOUD SERVICES USED

- IBM Cloud Watsonx AI Studio– For building and training AI models.
- IBM Cloud Watsonx AI runtime– For deploying and running models.
- IBM Cloud Agent Lab– For developing and testing AI agents.
- IBM Granite foundation model– As the base large language model for NLP tasks.

WOW FACTORS

This agent will significantly reduce research time, improve the quality of literature reviews, help early-stage researchers find direction, and foster interdisciplinary collaboration by making knowledge more accessible and actionable.

Unique features:

Semantic search across research papers, journals, and datasets

Auto-summarization of selected papers

Citation and reference analysis to trace influence

Recommendation of research papers based on a user's current topic

Trend analysis over time for specific keywords or domains.

Collaboration mapping: suggests potential co-authors or institutions based on similar research interests.

END USERS

- Academic Researchers
- Research Institutions and Universities
- Industry R&D Teams
- Educators

RESULTS

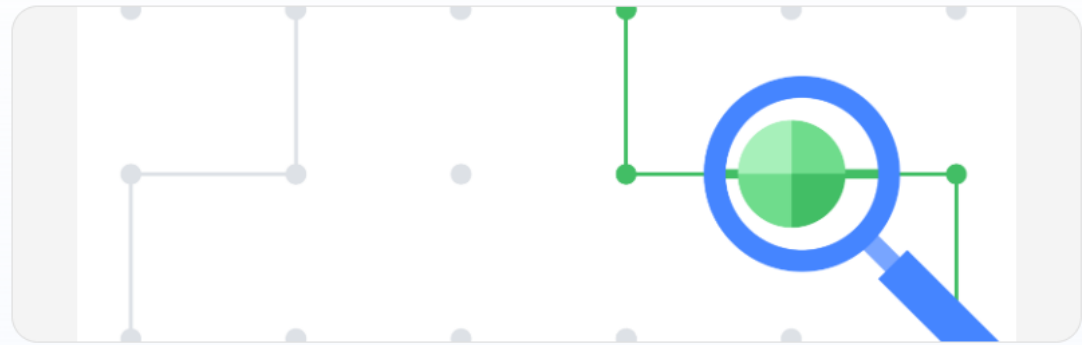
Agent preview



Eco-Lifestyle Agent 08:40 PM

Welcome to Eco-Lifestyle Agent

AI agent that gives green tips, tracks eco habits & promotes sustainable living.



Type something...



RESULTS

Agent preview

AS You: 08:53 PM

What is a sustainable way to manage kitchen waste?

Eco-Lifestyle Agent 08:53 PM

A sustainable way to manage kitchen waste is through composting. Composting turns your food scraps and other organic waste into nutrient-rich soil amendments for gardening. This reduces the amount of waste going to landfills and promotes a circular economy. You can start composting at home with a simple compost bin or pile in your backyard. If you live in an apartment or don't have space for a backyard compost, consider community composting programs or worm composting (vermicomposting) indoors.

► How did I get this answer?

AS You: 08:53 PM

Tell me green habits for students.

Eco-Lifestyle Agent 08:53 PM

Here are some eco-friendly habits students can adopt:

1. **Digital Notes and Documents:** Use digital devices for note-taking and storing documents instead of paper. This reduces paper waste and makes it easier to carry and organize information.

2. **Reusable Water Bottles and Containers:** Carry a reusable water bottle and food containers to

Type something...



RESULTS

Agent preview



You: 08:53 PM

Tell me green habits for students.



Eco-Lifestyle Agent 08:53 PM

Here are some eco-friendly habits students can adopt:

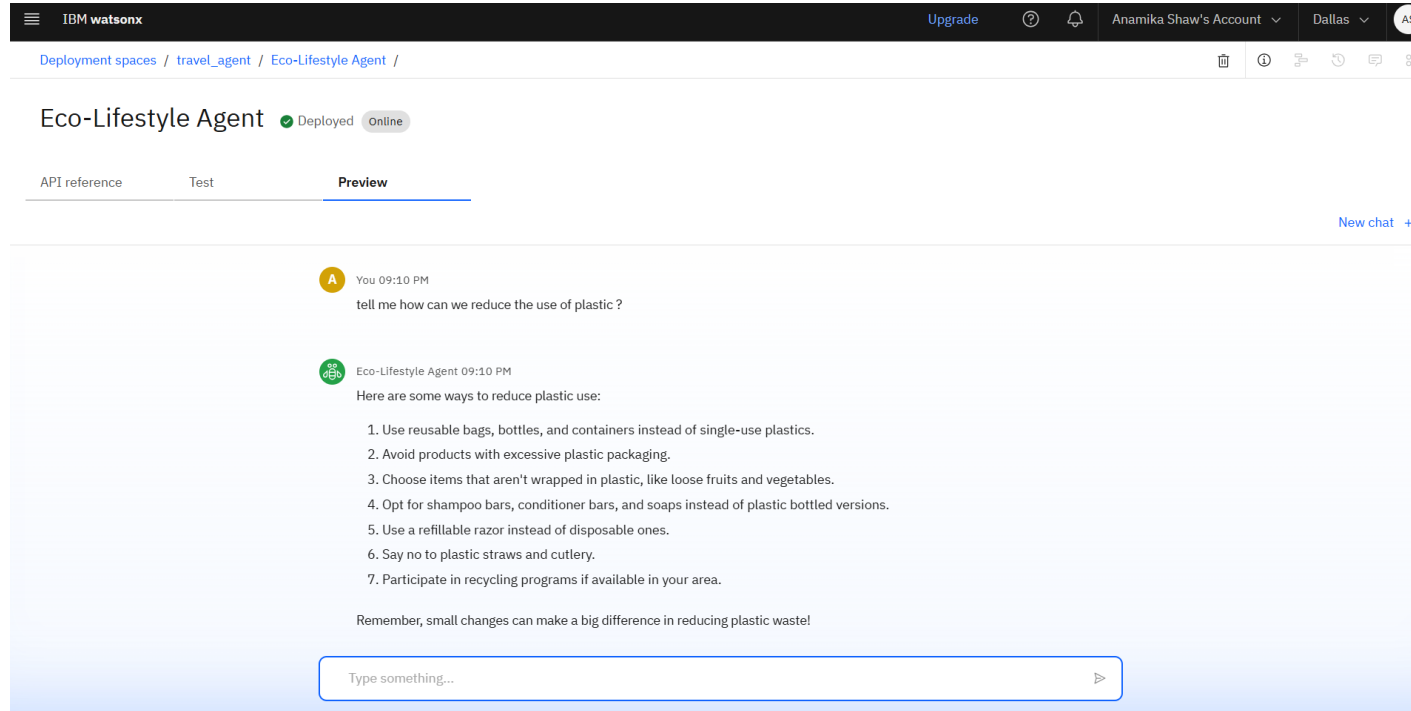
1. **Digital Notes and Documents:** Use digital devices for note-taking and storing documents instead of paper. This reduces paper waste and makes it easier to carry and organize information.
2. **Reusable Water Bottles and Containers:** Carry a reusable water bottle and food containers to avoid single-use plastics. Many schools and cafeterias offer discounts on drinks when students bring their own reusable bottles.
3. **Public Transport, Biking, or Walking:** Whenever possible, opt for public transportation, biking, or walking instead of driving. This reduces carbon emissions and promotes a healthier lifestyle.
4. **Energy-Efficient Electronics:** Use energy-efficient laptops and charge electronics only when needed. Unplug chargers when not in use to prevent "phantom loads."
5. **Recycling:** Make sure to recycle paper, plastic, glass, and metal properly. Check your school's recycling guidelines if unsure.
6. **Reduce Food Waste:** Plan meals to avoid food waste, compost organic waste, and be mindful

Type something...



RESULTS

Deployed Eco-lifestyle Agent



The screenshot displays the IBM watsonx user interface. At the top, a dark navigation bar includes the 'IBM watsonx' logo, an 'Upgrade' button, and user account information for 'Anamika Shaw's Account' in 'Dallas'. Below this, a breadcrumb trail shows the path: 'Deployment spaces / travel_agent / Eco-Lifestyle Agent /'. The main content area is titled 'Eco-Lifestyle Agent' with status indicators 'Deployed' and 'Online'. Three tabs are visible: 'API reference', 'Test', and 'Preview', with 'Preview' being the active tab. The chat interface shows a conversation where a user asks, 'tell me how can we reduce the use of plastic?'. The agent responds with a list of seven tips for reducing plastic use, followed by a reminder that small changes can make a big difference. A text input field at the bottom is labeled 'Type something...'. A 'New chat +' button is located in the top right corner of the chat area.

IBM watsonx Upgrade ? Anamika Shaw's Account Dallas AS

Deployment spaces / travel_agent / Eco-Lifestyle Agent /

Eco-Lifestyle Agent Deployed Online

API reference Test **Preview**

New chat +

A You 09:10 PM
tell me how can we reduce the use of plastic ?

Eco-Lifestyle Agent 09:10 PM
Here are some ways to reduce plastic use:

1. Use reusable bags, bottles, and containers instead of single-use plastics.
2. Avoid products with excessive plastic packaging.
3. Choose items that aren't wrapped in plastic, like loose fruits and vegetables.
4. Opt for shampoo bars, conditioner bars, and soaps instead of plastic bottled versions.
5. Use a refillable razor instead of disposable ones.
6. Say no to plastic straws and cutlery.
7. Participate in recycling programs if available in your area.

Remember, small changes can make a big difference in reducing plastic waste!

Type something... ➤

CONCLUSION

- The agent can generate reports, suggest hypotheses, and even draft sections of research papers.
- It saves time by automating repetitive tasks like citation management and data extraction.
- Research Agents enhance efficiency, accuracy, and innovation in both academic and industrial R&D.

GITHUB LINK

-  GitHub Repository: github.com/anamika-2004713325/Eco-Lifestyle-agent

FUTURE SCOPE

- Integration with smart home devices for energy tracking
- Carbon footprint visualization and reduction tips
- Real-time eco alerts (air quality, water usage, etc.)
- Community-based green challenges and leaderboards
- Personalized eco goals using AI learning
- Voice-based sustainability assistant
- Link to eco-friendly product recommendations

IBM CERTIFICATIONS

In recognition of the commitment to achieve professional excellence



Anamika Kumari Shaw

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/377fda59-e4da-469e-bbf3-f7bde548b675>



- Screenshot/credly certificate(getting started with AI)

IBM CERTIFICATIONS

In recognition of the commitment to achieve professional excellence



Anamika Kumari Shaw

Has successfully satisfied the requirements for:

Journey to Cloud: Envisioning Your Solution



Issued on: Jul 17, 2025

Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/e1e40bc3-fdcf-479b-8be6-34626d9183e3>



Attach your RAG LAB certificate here

IBM **SkillsBuild**

Completion Certificate



This certificate is presented to
Anamika Kumari Shaw

for the completion of

**Lab: Retrieval Augmented Generation with
LangChain**

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 15 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU