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# IBM HACKATHON PROJECT

## TRAVEL AI AGENT

**Presented By:**  
**Student name :**  
**College Name & Department :**

# OUTLINE

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

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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.

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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 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.

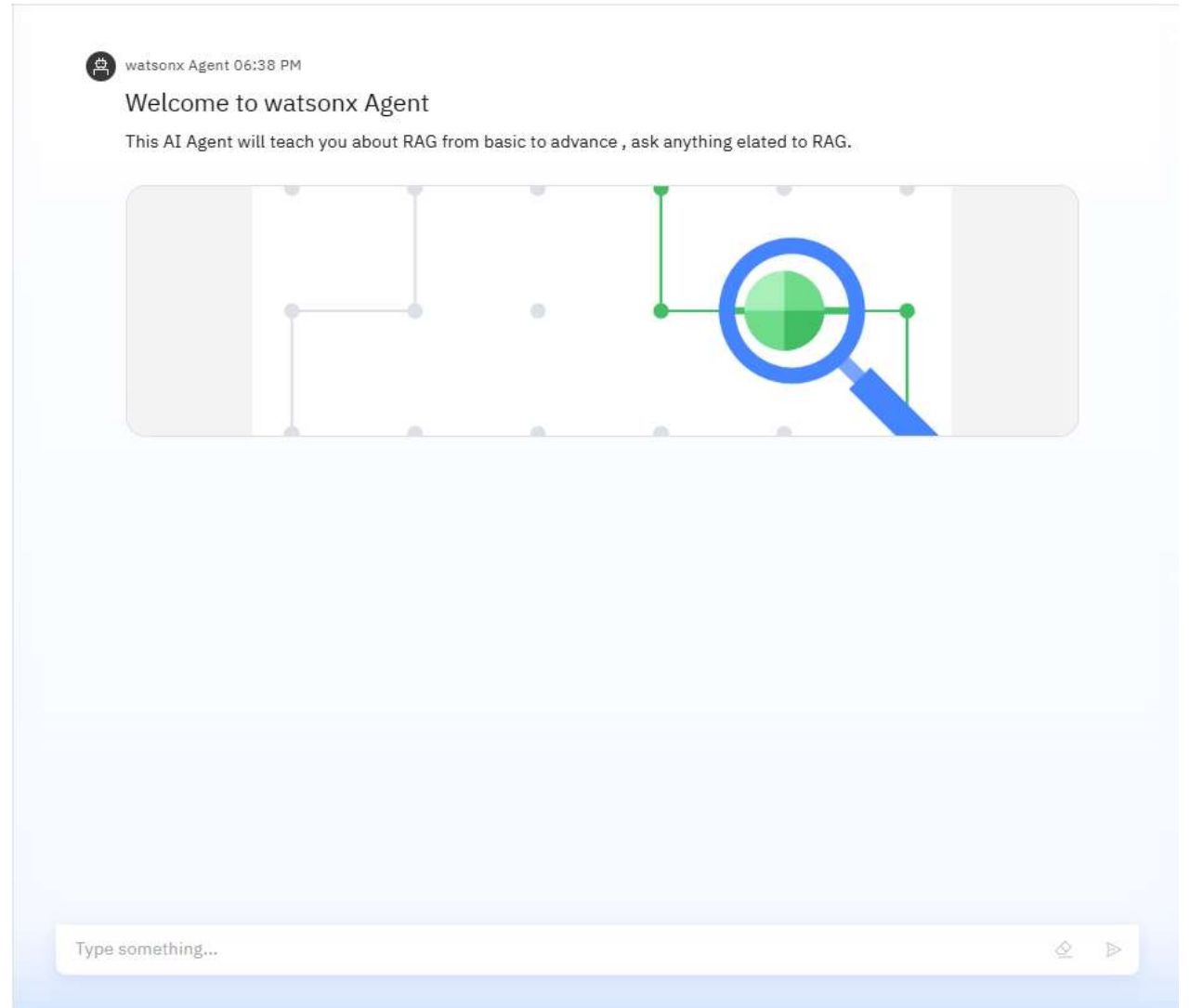
Collaboration mapping: suggests potential co-authors or institutions based on similar research interests.

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## END USERS

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

# RESULTS






# RESULTS


Project ID:

97026276-72e9-435c-a0ad-f79bb78edc27

Link:

[https://eu-gb.dataplatform.cloud.ibm.com/analytics/notebooks/v2/54525309-e005-4db5-8a76-17b4fdcf2a1/view?access\\_token=29deceddfc22582b1507949095a9f2330ac140823b6dd6f298c6b36021454b4b&context=wx](https://eu-gb.dataplatform.cloud.ibm.com/analytics/notebooks/v2/54525309-e005-4db5-8a76-17b4fdcf2a1/view?access_token=29deceddfc22582b1507949095a9f2330ac140823b6dd6f298c6b36021454b4b&context=wx)

 You: 06:29 PM  
explain me about RAG in detail

 watsonx Agent 06:29 PM  
RAG (Retrieval-Augmented Generation) is a type of artificial intelligence (AI) technology that combines the strengths of natural language processing (NLP) and information retrieval (IR) to generate human-like text based on a given prompt or topic. It works by first retrieving relevant information from a large database or knowledge graph, and then using this information to generate coherent and contextually relevant text.

The key components of RAG include:

1. Knowledge Graph: A large database that stores a vast amount of knowledge in the form of entities, relationships, and concepts.
2. Retrieval Module: This module is responsible for retrieving relevant information from the knowledge graph based on the input prompt or topic.
3. Generation Module: This module uses the retrieved information to generate human-like text that is coherent and contextually relevant.

RAG has many applications, including but not limited to:

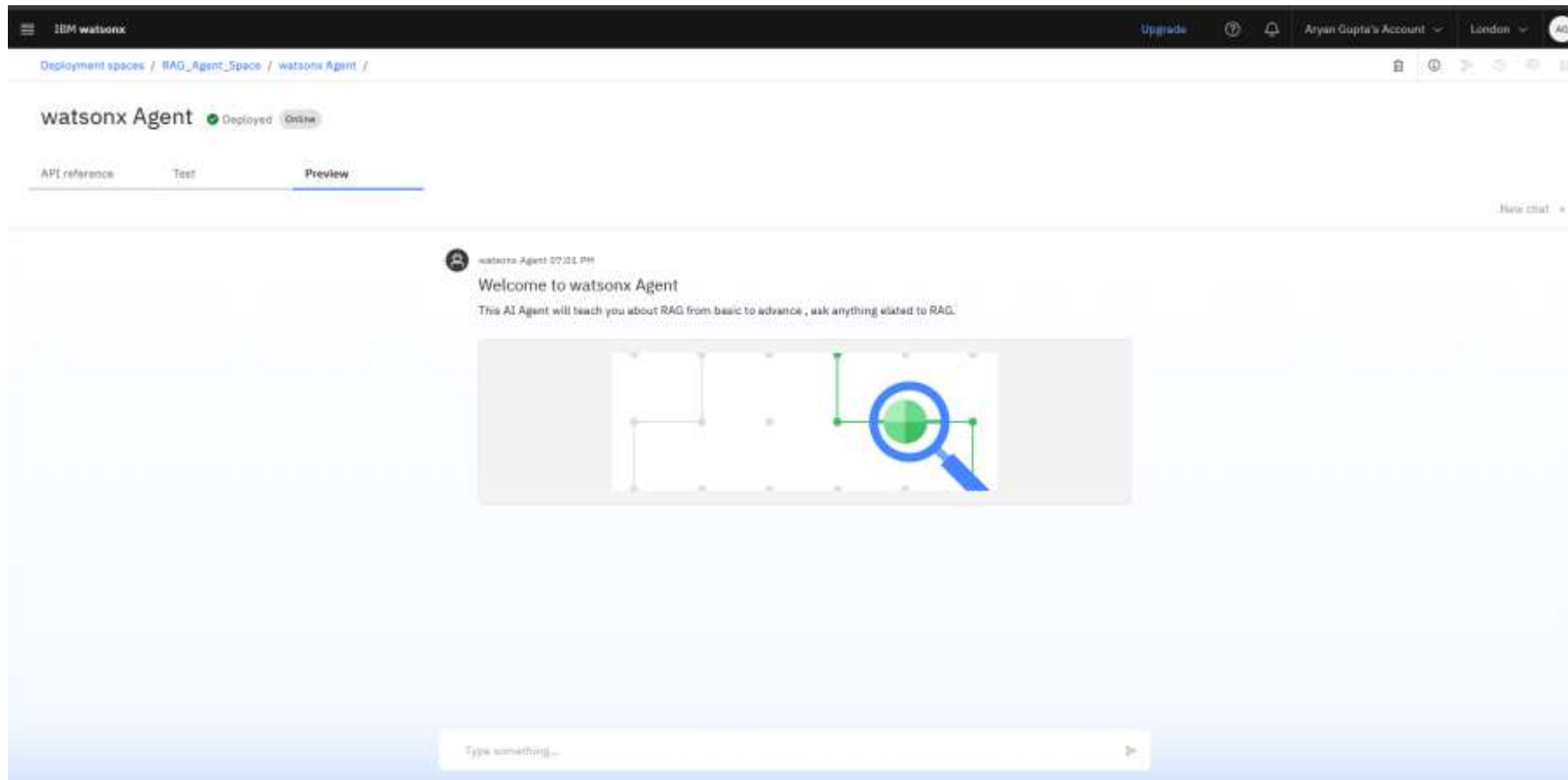
1. Text Summarization: RAG can be used to summarize long documents or articles into shorter, more digestible pieces of text.
2. Question Answering: RAG can be used to answer questions by retrieving relevant information from the knowledge graph and generating a response.
3. Chatbots: RAG can be used to power chatbots that can have human-like conversations with users.
4. Content Generation: RAG can be used to generate content, such as articles, blog posts, or social media posts, based on a given topic or prompt.

Overall, RAG is a powerful technology that has the potential to revolutionize the way we interact with machines and access information.

► How did I get this answer?

# RESULTS

## Deployed AI Agent



# CONCLUSION

- □ The RAG agent can retrieve relevant knowledge, ground its responses in source documents, and generate accurate answers for complex queries.
- ⚙️ □ It saves time by automating tasks like context retrieval, citation-aware answering, and document-based question handling.
- 📈 RAG agents enhance reliability, traceability, and performance in domains like research, law, healthcare, and enterprise intelligence.

## GITHUB LINK

- <https://github.com/aryangupta-455/>
- <https://github.com/aryangupta-455/IBM-cloud>

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# FUTURE SCOPE

- Multilingual Research Support
- Voice-Activated Research Assistant
- Real-Time Collaboration Features
- Research Gap and Novel Topic Identification
- Integration with Publishing Platforms
- AI-Assisted Paper Drafting

# IBM CERTIFICATIONS

In recognition of the commitment to achieve  
professional excellence



## ARYAN GUPTA

Has successfully satisfied the requirements for:

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### Getting Started with Artificial Intelligence

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Issued on: Jul 21, 2025  
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**IBM SkillsBuild**

Completion Certificate



This certificate is presented to

**ARYAN GUPTA**

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**