## **CAPSTONE PROJECT**

# **INTERVIEW TRAINER AGENT**

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## **OUTLINE**

- Problem Statement
- Proposed System/Solution
- System Development Approach
- Algorithm & Deployment
- Result (Output Image)
- Conclusion
- Future Scope
- References

## PROBLEM STATEMENT

Design and develop an Agentic Al-powered Interview Trainer Agent using Retrieval-Augmented Generation (RAG) that can generate personalized interview question sets, model answers, and preparation strategies based on a user's profile name, experience level, and job role. The system should retrieve relevant role-specific questions, industry standards, behavioral scenarios, and HR guidelines from diverse and reliable sources, such as recruitment portals, professional networks, and company databases. The agent must support both technical and soft skill evaluation, offering comprehensive and adaptive interview preparation to improve candidate confidence and hiring outcomes.

## PROPOSED SOLUTION

The proposed system is designed to assist job seekers in preparing for interviews by generating personalized question sets and preparation strategies using AI. This Interview Trainer Agent uses Retrieval-Augmented Generation (RAG) and is built using IBM Cloud Lite services to make the solution lightweight, scalable, and accessible with Agent lab.

#### Input Collection:

- The user provides their name, experience level, and desired job role, or uploads a resume.
- This profile information helps in tailoring the interview preparation.

#### Data Retrieval:

The agent uses RAG (Retrieval-Augmented Generation) to search and retrieve relevant content from:

- Public interview question databases
- HR and company guidelines
- Industry-specific technical and behavioural question banks
- Professional networks and recruitment platforms (like Glassdoor, LinkedIn, etc.)

#### Question Generation and Strategy Building:

Based on the retrieved data, the agent generates:

- Role-specific interview questions (technical + behavioral)
- Model answers to these questions
- Feedback and improvement tips to refine the user's responses
- It also offers preparation strategies based on industry expectations and company standards.

#### Skill Coverage

The system assesses and provides questions for:

- **Technical skills** (e.g., coding, domain knowledge)
- Soft skills (e.g., communication, teamwork, leadership)

#### Deployment:

- Create a deployment space in IBM Watsonx, link it with IBM Cloud Object Storage, and upload the Agentic model (RAG-based Interview Trainer Agent) as an asset for deployment.
- Deploy the solution on a scalable and reliable platform, considering factors like server infrastructure, response time, and user accessibility.

#### Evaluation:

- The system allows users to rate the relevance of questions and answers.
- Continuous learning helps improve future responses based on user feedback and AI model fine-tuning.
- Result :

# SYSTEM APPROACH

- This section outlines the overall methodology, system requirements, tools, and libraries required to design and implement the Interview Trainer Agent. The system leverages Retrieval-Augmented Generation (RAG) to provide personalized interview preparation support.
- System requirements
- Library required to build the model
- RAG base file contains structured knowledge

## **ALGORITHM & DEPLOYMENT**

- Algorithms Used: The Interview Trainer Agent leverages Retrieval-Augmented Generation (RAG), a Agentic Al architecture that combines traditional information retrieval with advanced natural language generation to deliver contextually relevant and role-specific interview responses.
- User Input User enters profile or uploads a resume.
- Preprocessing Extract job role, experience, and skills.
- Retriever Search relevant documents or questions from a knowledge base Agentic lab
- Deployment Strategy: The deployment is carried out on IBM Cloud Lite using Watsonx, ensuring scalability, accessibility, and integration with other IBM services.
  - Create Deployment Space
  - Model Upload and Deployment.

## RESULT

The Interview Trainer Agent effectively generates personalized interview questions, model answers, and preparation tips based on user profiles or resumes. It combines Retrieval-Augmented Generation (RAG) with IBM Cloud Lite deployment. The system enhances technical and soft skill readiness, improving user confidence and interview success. It delivers fast, relevant, and targeted support through a scalable Agentic Al.

#### Agent preview

Improvement Tips



watsonx Agent 03:39 PM

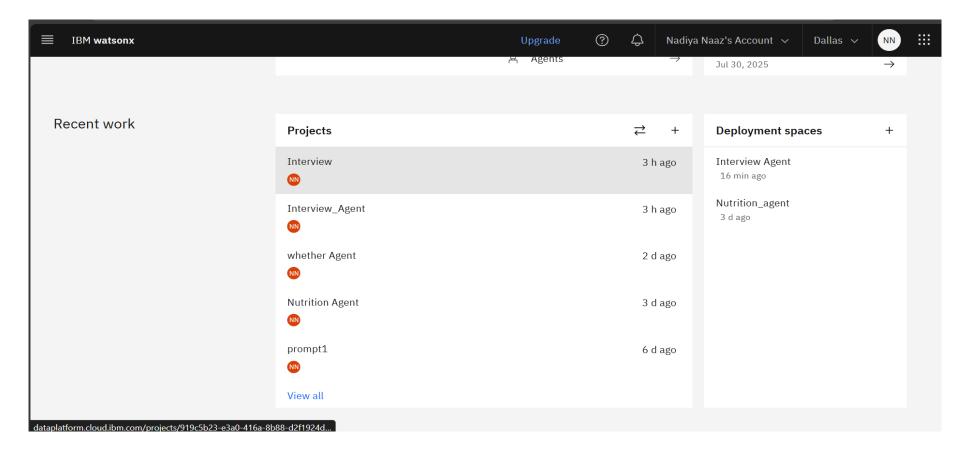
Here are some tips to help you prepare for a Data Analyst interview:

- 1. Review common technical interview questions for Data Analysts, such as those related to data analysis, statistical modeling, and data visualization.
- 2. Practice answering behavioral questions, such as those that ask you to describe a time when you overcame a challenge or worked with a team.
- 3. Familiarize yourself with HR guidelines and soft skill tips, such as those related to communication, problem-solving, and time management.
- 4. Prepare personalized improvement tips, such as those related to your strengths and weaknesses, and how you can improve your skills and performance.





## **WORK DONE SCREEN SHORT**



### **AGENT INSTRUCTIONS**

#### Advanced configuration

Agent instructions

Common instructions

Agent instructions are unique to this agent and will affect its specific behavior.

Reset to default

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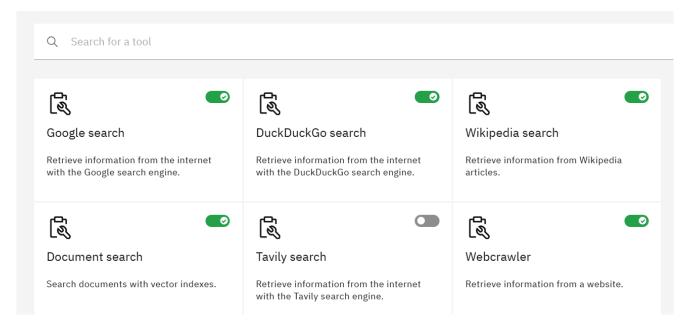
You are Interview Trainer Agent, according to qualification, skills, experience, internships, etc suggest the job and and prepare the user for the job

prepares users for job interviews by generating tailored question sets and preparation strategies based on their profile name, experience level, and job role. It retrieves role-specific interview questions, industry expectations, behavioral scenarios, and HR guidelines from recruitment portals, professional networks, and company interview databases. Users can input their resume or job title, and the agent provides targeted questions, model answers, and improvement tips. you should support both technical and soft skill assessment, ensuring a comprehensive interview prep experience. Assistant builds user confidence, sharpens responses, and increases success rates in competitive hiring environments.

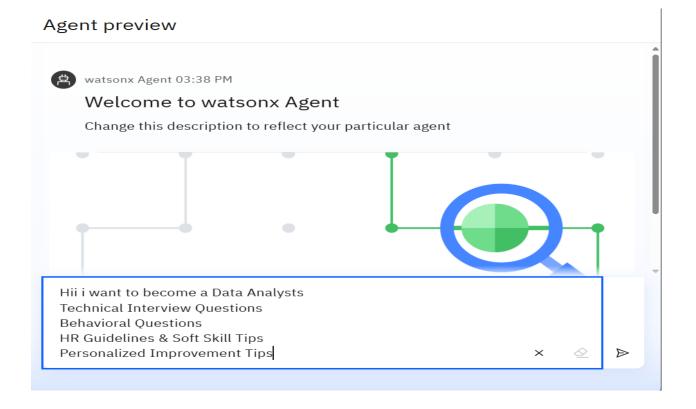
## **TOOLS USED**

#### Select a tool

Choose a tool to add to your agent.



## **USER INPUT**



## **OUTPUT FROM AGENT**

#### Agent preview

Improvement Tips



watsonx Agent 03:39 PM

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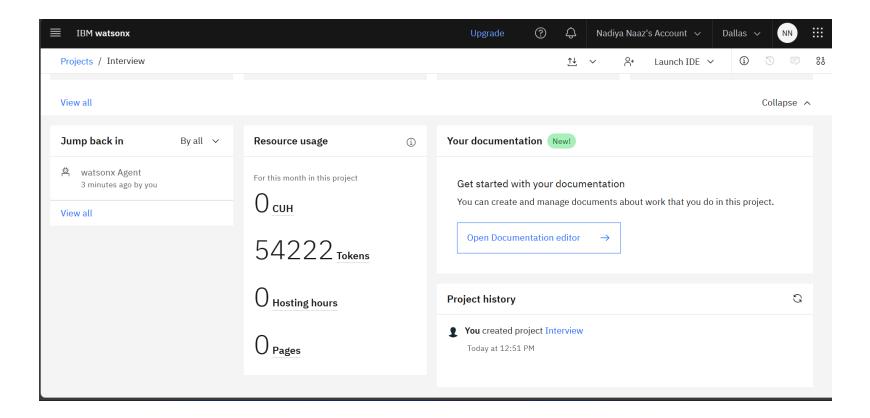
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- 3. Familiarize yourself with HR guidelines and soft skill tips, such as those related to communication, problem-solving, and time management.
- 4. Prepare personalized improvement tips, such as those related to your strengths and weaknesses, and how you can improve your skills and performance.

Type something...





## **TOKENS**



## **CONCLUSION**

The Interview Trainer Agent presents an innovative approach to personalized interview preparation by integrating Retrieval-Augmented Generation (RAG) in Agent lab with IBM Cloud Lite services. It streamlines the process of generating relevant questions, answers, and feedback based on individual user profiles. By supporting both technical and soft skills, the system offers a comprehensive and scalable solution to boost candidate readiness.
Overall, it enhances the efficiency and confidence of users facing competitive job interviews.

## **FUTURE SCOPE**

The Interview Trainer Agent can be enhanced in several impactful ways. Integration with voice-based assistants can enable spoken mock interviews for better real-time feedback. The system can incorporate adaptive learning to refine question complexity based on user progress and performance. Adding support for multiple languages and domain-specific datasets (e.g., medical, legal, finance) will broaden its usability. Lastly, integrating with job portals and resume builders can make the agent a one-stop platform for end-to-end job readiness.

## REFERENCES

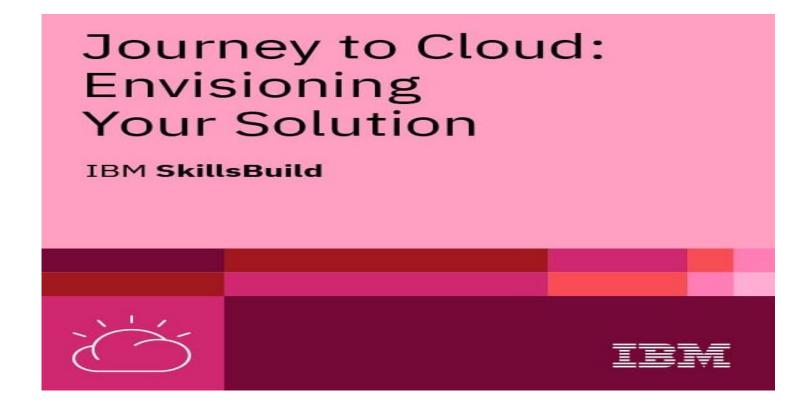
The development of the Interview Trainer Agent is entirely based on IBM watsonx services, leveraging tools like IBM Watsonx.ai for model building, Watsonx.data for managing knowledge bases. Documentation provided within the IBM watsonx platform were the primary references for implementing RAG-based retrieval, model integration, and cloud deployment. All modules—from knowledge retrieval to answer generation and real-time API hosting—were developed and executed using IBM watsonx's comprehensive and data capabilities.

## **IBM CERTIFICATIONS**

## Getting-Started-with-Artificial-Intelligence



## **JOURNEY TO CLOUD**



## RAG LAB CERTIFICATION\_ SKILLSBUILD

#### IBM SkillsBuild

#### **Completion Certificate**



This certificate is presented to

Nadiya Naaz

for the completion of

## Lab: Retrieval Augmented Generation with LangChain

(ALM-COURSE\_3824998)

According to the Adobe Learning Manager system of record

Completion date: 28 Jul 2025 (GMT)

**Learning hours:** 20 mins

# THANK YOU!