CAPSTONE PROJECT

Interview Trainer Agent Using IBM Cloud

Presented By:

1. Bhavana Mythri M-Bannari Amman Institute of Technology-Information Science and Engineering



OUTLINE

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PROBLEM STATEMENT

An Interview Trainer Agent, powered by RAG (Retrieval-Augmented Generation), 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.



PROPOSED SOLUTION

Proposed Solution (Interview Trainer Agent):

The proposed system addresses the challenge of interview preparation by providing personalized, AI-powered mock interview experiences. It uses Retrieval-Augmented Generation (RAG) and IBM Cloud foundation models to generate context-aware questions and preparation tips. The solution includes the following components:

Data Collection:

- Accept user inputs like job role, resume, and experience level.
- Retrieve relevant interview questions and resources from trusted platforms.

Data Preprocessing:

- Extract and organize job-specific data.
- Clean and format content to suit different domains.

Al Model (RAG + Foundation Model):

- Use RAG to fetch relevant interview content.
- Generate questions and suggestions using models like Mistral-Large or Granite.
- Cover both technical and behavioral areas.

Deployment:

- Deploy the agent via IBM Watsonx.ai sandbox.
- Provide a web-based interface for user interaction.

Evaluation:

- Use feedback and relevance metrics to assess quality.
- Continuously refine outputs based on usage.

Result:

A functional AI agent delivering tailored interview questions, answers, and tips—accessible through IBM Cloud's Watsonx interface.



SYSTEM APPROACH

System Requirements:

- IBM Cloud Lite account
- Watsonx.ai access with Agentic Lab enabled
- Stable internet connection
- Basic web browser (Chrome/Firefox)

Libraries/Tools Required:

- IBM Watsonx.ai Agent Builder
- Foundation Model: Granite/Mistral
- RAG (Retrieval-Augmented Generation) architecture
- Python (for any custom integration, if needed)
- Jupyter Notebook (optional for testing and prototyping)



ALGORITHM & DEPLOYMENT

Algorithm Selection:

Uses RAG with Granite or Mistral-Large on IBM Watsonx.ai for generating personalized, role-based interview questions.

Data Input:

- Job title, resume, experience level
- Interview questions, HR guidelines, role-based skills
- Curated interview datasets for retrieval

Training Process:

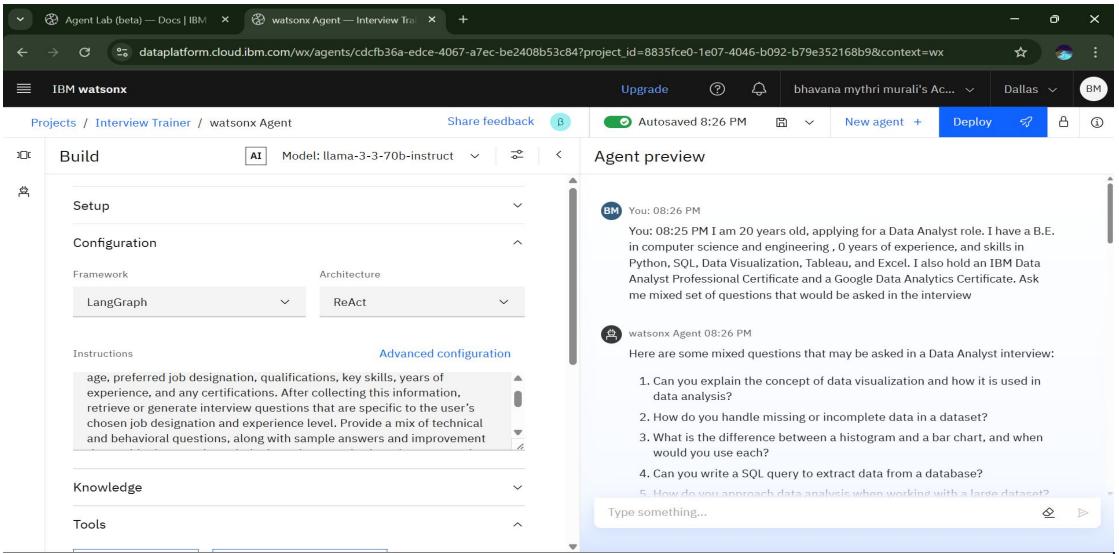
- Foundation models are pre-trained
- Fine-tune retrieval with job-specific content
- Use prompt templates and few-shot examples

Prediction Process:

- Retrieves relevant content based on user input
- Generates questions and answers using the model
- Supports real-time feedback and refinement

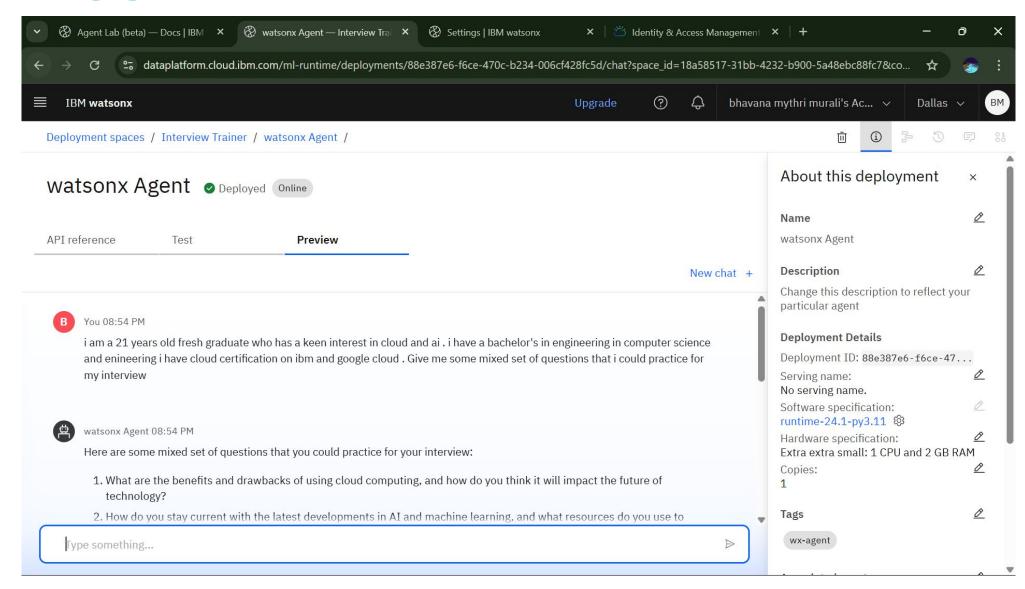


RESULT





RESULT





CONCLUSION

The Interview Trainer Agent effectively uses RAG and foundation models to generate personalized, role-based questions. It enhances interview readiness through real-time, interactive guidance. Minor challenges included prompt tuning and domain relevance. With improvements like voice support, the system shows strong potential in transforming interview preparation using AI.



FUTURE SCOPE

The system can be enhanced by integrating additional data sources such as company-specific interview trends and real-time job market data. Future improvements may include optimizing prompt strategies, enabling multilingual and voice-based interactions, and expanding to support more job roles and industries. Incorporating emerging technologies like speech recognition and emotion analysis can further improve the user experience, making the agent more interactive and adaptive to individual needs.



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This certificate is presented to

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for the completion of

Lab: Retrieval Augmented Generation with LangChain

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 25 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU

