
IBM HACKATHON PROJECT

INTERVIEW TRAINER AI AGENT

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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. Users can input their resume or job title, and the agent provides targeted questions, model answers, and improvement tips. It supports both technical and soft skill assessment, ensuring a comprehensive interview prep experience. This AI-driven assistant builds user confidence, sharpens responses, and increases success rates in competitive hiring environments. Technology – Use of IBM Cloud Lite services / IBM Granite is mandatory.

PROPOSED SOLUTION

- The **AI Interview Trainer Agent** addresses the gap in interview preparation by using **Retrieval-Augmented Generation (RAG)** and **IBM Cloud Lite** services. The system offers a personalized and interactive mock interview experience by:
 - Accepting user resumes or profile inputs (job title, experience, skills)
 - Retrieving real-world questions from recruitment databases and professional networks
 - Generating technical and behavioral questions
 - Providing model answers, improvement tips, and a self-rating system
 - Supporting continuous learning through memory-based dialogue

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 AI Interview Trainer delivers **an immersive, smart, and adaptive interview simulation** experience.

Unique Features:

- **Tailored Q&A sessions** for each user based on role, skills & experience
- **Alternates between technical & behavioral questions**
- **Real-time model answers, feedback, and improvement tips**
- **Memory-enabled agent** that adapts with every session
- **RAG-powered retrieval** from job boards, HR sites, and company interviews
- **Self-assessment system** for confidence tracking
- *Future-ready for voice & multilingual support*

END USERS

- **Job Seekers** (freshers & experienced professionals)
- **Career Coaches & Placement Trainers**
- **Educational Institutions** for mock interview practice
- **Recruiters** to assess candidate preparedness

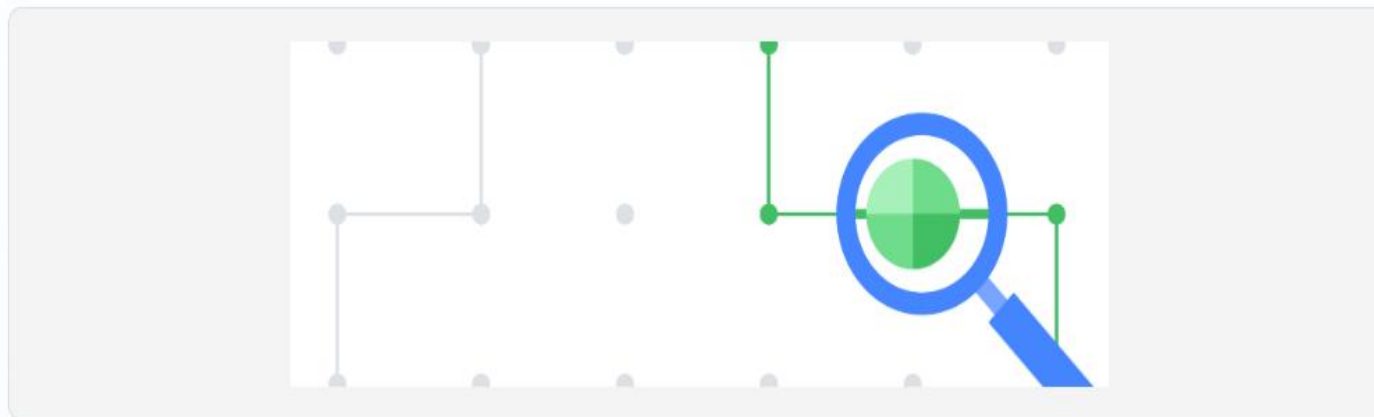
RESULTS



AI Interview Trainer 12:18 AM

Welcome to AI Interview Trainer

💡 "Help users practice and improve both technical (hard skills) and behavioral (soft skills) for jo



Type something...



RESULTS



You 01:16 AM

I'm applying for a Software Engineer role with 2 years of experience in Python and SQL. Can you ask me a technical question and evaluate my answer?



AI Interview Trainer 01:16 AM

Technical Question:

Describe how you would optimize a slow SQL query. Provide a specific example and explain your approach.

Sample Model Answer:

To optimize a slow SQL query, I would follow these steps:

1. **Analyze the Query Execution Plan:** Use `EXPLAIN` or `EXPLAIN ANALYZE` to understand how the database engine is executing the query. This can reveal bottlenecks such as full table scans, inefficient joins, or missing indexes.
2. **Indexing:** If the query involves columns used in `WHERE`, `JOIN`, or `ORDER BY` clauses, ensure that appropriate indexes are in place. For example, if I have a query like:

```
SELECT * FROM orders WHERE customer_id = 1234 AND order_date BETWEEN '2023-01-01' AND '2023-12-31';
```

I would create an index on `customer_id` and `order_date` columns:

```
CREATE INDEX idx_orders_customer_id_order_date ON orders (customer_id, order_date);
```

3. **Query Rewriting:** Sometimes, rewriting the query can improve performance. For instance, avoid using `SELECT *`, and only fetch necessary columns. Also, try to minimize the use of subqueries if possible.

Type something...



RESULTS



You 01:19 AM

Give me a behavioral interview question based on leadership, and help me structure a strong answer using the STAR method.



AI Interview Trainer 01:19 AM

Behavioral Question:

Describe a situation where you had to lead a team to achieve a challenging project goal. What was your role, the actions you took, and the outcome?

Structuring Your Answer Using the STAR Method:

Situation:

- Set the context by describing the project, your role within the team, and the challenges faced.
- Example: "In my previous role as a team lead, we were tasked with developing a new feature for our web application with a tight deadline of two months. Our team consisted of developers with varying levels of experience, and we had to integrate this feature with existing systems without disrupting ongoing projects."

Task:

- Explain what was required of you and your team.
- Example: "My task was to ensure the feature was delivered on time, within budget, and met all quality standards. This involved planning the development process, assigning tasks, and coordinating with other teams for integration."

Action:


- Detail the specific actions you took to lead the team.
- Example: "I started by breaking down the project into smaller, manageable tasks and assigned them based on team members' skills. I held daily stand-up meetings to track progress and address any roadblocks. To foster collaboration, I encouraged knowledge sharing sessions where team members could present their work and receive feedback. Additionally, I maintained open communication with stakeholders to manage expectations and gather necessary inputs."


Type something...









RESULTS

Deployed AI Agent

 IBM watsonx

Upgrade ?  krishnakant agrawal's Acco... Dallas KA

Deployment spaces / AI Interview Trainer / AI Interview Trainer /      

AI Interview Trainer ✔ Deployed Online

API reference Test **Preview**

New chat +

- Summarize the outcome, emphasizing what you learned and how it impacted the team or project.
- Example: "Through these actions, we successfully delivered the feature ahead of schedule. The project received positive feedback from stakeholders for its quality and timely completion. This experience reinforced the importance of clear communication, proactive problem-solving, and fostering a collaborative team environment. It also boosted team morale and strengthened our capabilities for future projects."

Improvement Tip:


To enhance your answer, include quantifiable results (e.g., "We completed the project 10 days ahead of schedule") and reflect on any challenges you faced during the process and how you overcame them. Showing self-awareness and continuous learning is crucial in behavioral interviews.


Self-Assessment Rating:

4 - Your structure is solid and covers the essential elements of the STAR method. To achieve a perfect score, consider adding more specific details or anecdotes that highlight your leadership qualities more vividly.

Please provide your structured answer, and I'll evaluate it based on the model and offer further guidance.

► How did I get this answer?



Type something... 

CONCLUSION

- The AI Interview Trainer Agent revolutionizes how candidates prepare for interviews. By leveraging IBM Granite and RAG,
- it delivers a **smart, structured, and supportive** experience.
- It enhances user readiness and bridges the gap between knowledge and interview performance.

GITHUB LINK

- <https://github.com/krishna23810>

FUTURE SCOPE

- Voice-Based Interview Simulation
- Multilingual Support
- Progress Analytics Dashboard
- Company-Specific Mock Interviews
- Smart scoring and personalized coaching suggestions
- Resume-based job recommendation with interview alignment

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



KRISHNAKANT AGRAWAL

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



Issued on: Jul 16, 2025
Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/55d4e74f-3b57-446f-bf9f-7bdf79abd850>





This certificate is presented to
KRISHNAKANT AGRAWAL

for the completion of
**Lab: Retrieval Augmented Generation with
LangChain**

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 26 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU