
IBM HACKATHON PROJECT

AGENTIC CAREER COUNSELING COMPANION

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OUTLINE

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PROBLEM STATEMENT

Students often struggle to make informed career decisions due to fragmented access to guidance, limited self-awareness of academic strengths, and rapidly evolving industry landscapes. Traditional counseling methods lack personalization and scalability, leading to missed opportunities and career mismatches. The challenge is to develop an intelligent, autonomous agent that continuously monitors student performance, evolving interests, and real-time labor market trends to deliver tailored career pathway suggestions. This would empower students to make confident, future-ready decisions with minimal dependency on manual intervention.

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

The agent tailors its advice based on each student's interests, strengths, academic background, and career goals. It asks thoughtful, respectful questions to better understand the individual, avoiding generic, one-size-fits-all suggestions.

With IBM Granite's advanced AI capabilities, the agent not only suggests careers but also explains why they're a good fit. It adapts to the student's evolving interests through smart, interactive conversations

The assistant maps clear learning journeys for students, including recommended courses, certifications, internships, and soft skill development. It guides them from where they are now to where they want to be.

Designed to honor student choice, the agent respects cultural backgrounds, personal ambitions, and non-traditional career aspirations like entrepreneurship or creative arts. It empowers students, not pressures them.

The AI recognizes not just academic performance but also soft skills like creativity, leadership, and communication—helping every student find a path where they can thrive.

Available 24/7, the agent offers consistent support to students without depending on human counselors. It can scale across schools and regions, helping large student populations effectively.

This AI grows with the student. It updates its suggestions as interests shift or goals become clearer, offering fresh, relevant guidance every time.

With a warm, mentor-like tone, the assistant keeps students engaged and inspired. It supports them through uncertainty and helps them explore options confidently.

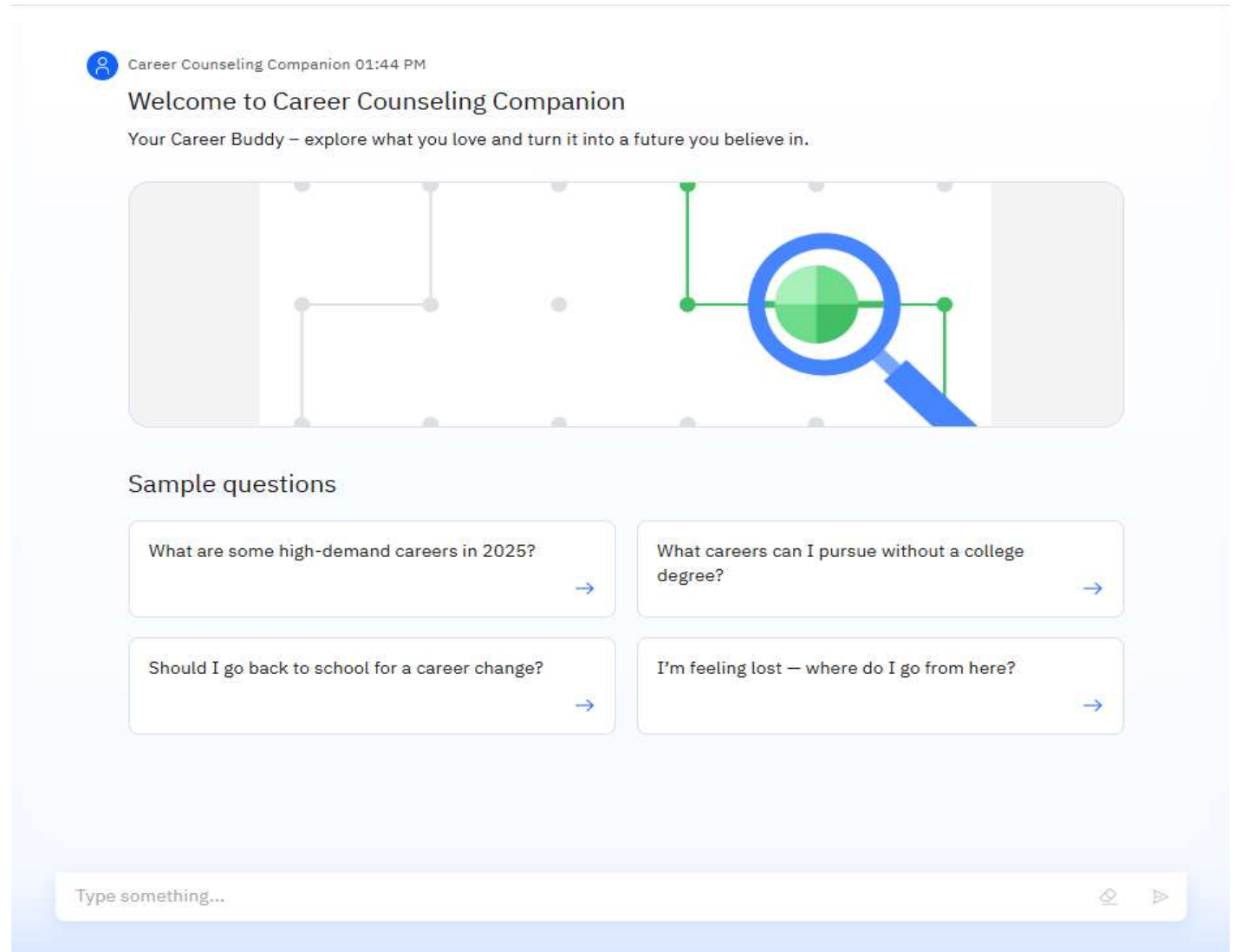
END USERS

- Students (Primary End Users)
- School & College Counselors / Educators
- Educational Institutions / Administrators
- Parents and Guardians
- Career Coaches / Private Counselors

RESULTS

This is a preview screen of the **Career Counseling Companion**, an AI-powered virtual advisor that helps users explore and plan career paths. The interface features a friendly welcome message and sample questions to guide users in asking about high-demand careers, career changes, or non-traditional paths. A clean layout with a search icon invites users to start chatting and get personalized guidance.

Agent preview



RESULTS

- This image shows a **live conversation example** between a student and the **Career Counseling Companion**. The AI begins by asking if the user is studying or working, then continues to narrow down the conversation based on the user's responses.

Agent preview

AC You: 01:00 PM
Hello

Career Counseling Companion 01:00 PM
Hello! How can I assist you today? Are you currently studying or working on anything that you'd like to discuss?
► **How did I get this answer?**

AC You: 01:00 PM
I am currently studying

Career Counseling Companion 01:00 PM
That's great! What are you studying? Knowing your field of study will help me provide more tailored advice.
► **How did I get this answer?**

AC You: 01:02 PM
B tech in computer science

Career Counseling Companion 01:02 PM
Thank you for letting me know! A B.Tech in Computer Science opens up a wide range of exciting career opportunities.

To give you the best advice, could you tell me more about what aspects of computer science you enjoy the most? For instance, are you interested in software development, data analysis, cybersecurity, artificial intelligence, or perhaps another area?
► **How did I get this answer?**

AC You: 01:02 PM
yes AI

RESULTS

This preview highlights how the AI delivers smart, personalized, and real-time guidance based on both user input and live industry data.

Agent preview

yes AI



Career Counseling Companion 01:02 PM

That's fantastic! Artificial Intelligence (AI) is a rapidly growing field with immense potential.

Given your interest in AI, you might want to consider roles such as:

1. **AI Engineer:** Develop and implement machine learning models and algorithms.
2. **Machine Learning Engineer:** Build and optimize machine learning systems.
3. **Data Scientist:** Analyze and interpret complex digital data to assist a business in its decision-making processes.
4. **Research Scientist:** Conduct research to design and develop new AI technologies.
5. **AI Ethicist:** Address ethical implications of AI and ensure its responsible use.

To pursue these roles, you could consider further education in AI, machine learning, or related fields. Certifications from platforms like Coursera, edX, or Udacity can also be beneficial.

Would you like more information on any of these roles or educational paths? Or perhaps you're curious about current job market trends in AI?

► **How did I get this answer?**



You: 01:03 PM

yes tell me about current job market



Career Counseling Companion 01:03 PM

To provide you with the most accurate information, I'll use Retrieval-Augmented Generation (RAG) to reference current job outlooks for AI-related roles.

According to recent labor market trends, the demand for professionals skilled in AI and machine learning is booming. Here are some key points:

1. **High Demand:** AI specialists are in high demand across various industries, including tech, finance, healthcare, and

Type something...



RESULTS

The screenshot displays the IBM Watsonx interface for the 'Career Counseling Companion' deployment. The top navigation bar includes the IBM Watsonx logo, an 'Upgrade' button, a help icon, a notification bell, and user account information for 'Abhay thakur's Account' in the 'Dallas' region. The breadcrumb trail shows the path: 'Deployment spaces / Crop_ai / Career Counseling Companion'. The main header for the deployment is 'Career Counseling Companion', with status indicators for 'Deployed' (green dot) and 'Online' (grey dot). Below this, there are tabs for 'API reference', 'Test', and 'Preview', with 'Preview' being the active tab. The chat interface shows a welcome message from 'Career Counseling Companion 01/18/2024' and a description: 'Your Career Buddy – explore what you love and turn it into a future you believe in.' An illustration of a career path with a magnifying glass is shown. Under the 'Quick start samples' section, there are four sample queries, each with a right-pointing arrow: 'What are some high-demand careers in 2025?', 'What careers can I pursue without a college degree?', 'Should I go back to school for a career change?', and 'I'm feeling lost – where do I go from here?'. At the bottom, there is a text input field with the placeholder 'Type something...' and a send button.

IBM watsonx

Upgrade ? Abhay thakur's Account Dallas AT

Deployment spaces / Crop_ai / Career Counseling Companion

Career Counseling Companion Deployed Online

API reference Test **Preview**

New chat +

Career Counseling Companion 01/18/2024

Welcome to Career Counseling Companion

Your Career Buddy – explore what you love and turn it into a future you believe in.

Quick start samples

What are some high-demand careers in 2025? →

What careers can I pursue without a college degree? →

Should I go back to school for a career change? →

I'm feeling lost – where do I go from here? →

Type something... ➤

CONCLUSION

- The **Career Counseling Companion AI** is a powerful, student-centered virtual advisor designed to transform how learners plan their futures. By combining real-time labor market data, personalized insights, and respectful dialogue, this AI empowers students to make informed, confident career decisions. Whether they're just beginning their journey or seeking a career shift, the assistant adapts to their goals, interests, and academic strengths—guiding them step by step toward a fulfilling and future-ready path. It's not just a tool, but a trusted career buddy for every student.

GITHUB LINK

- <https://github.com/AbhaySinghThakur271/Career-Counseling-Companion-AI-agent>

FUTURE SCOPE

- Integration with Academic Portals
- Voice-Activated Research Assistant
- Support multiple languages and adapt to regional career trends and education systems.
- Offer hybrid support by integrating AI suggestions with live counselor feedback for complex queries.
- Notify students about entrance exams, scholarships, deadlines, and eligibility criteria.
- Launch as an Android/iOS app for easier student access anytime, anywhere.

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



Abhay Singh Thakur

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



Issued on: Jul 17, 2025
Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/bc60ccd8-50bb-4265-ad8d-fe1eaffa8cfc>



IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Abhay Thakur

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