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# CAPSTONE PROJECT

## AGENTIC CAREER COUNSELLING COMPANION

**Presented By:**  
**Kodali Lohitha - Vignan's Institute of Management and  
Technology for Women - CSE(AI&ML)**

# OUTLINE

- Problem Statement
- Proposed System
- System Approach
- Algorithm & Deployment
- Result
- Conclusion
- Future Scope
- References

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# PROBLEM STATEMENT

Students struggle with career decisions due to fragmented guidance, limited self-awareness of academic strengths, and rapidly changing industries. Traditional methods lack personalization and scalability, leading to missed opportunities and mismatches.

# PROPOSED SOLUTION

- The proposed solution involves developing an intelligent, autonomous AI agent hosted on IBM Cloud. This agent will address the challenges of fragmented guidance, limited self-awareness of strengths, and rapidly evolving industry landscapes faced by students in making career decisions.
- **Agent Capabilities and Functionality:**
- The agent operates as a dynamic, self-directed mentor. Its core functionality revolves around:
  - **Data Synthesis:** Continuously gathering and analyzing data related to student performance, evolving interests, and real-time labor market trends.
  - **Tailored Recommendations:** Utilizing its analytical capabilities to generate highly personalized and actionable career pathway suggestions for individual students.
  - **Autonomous Operation:** Designed to operate with minimal manual intervention, adapting its guidance based on continuous monitoring and user interaction.

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# SYSTEM APPROACH

The "Agentic Career Counseling Companion" leverages IBM Watsonx.ai Agent Lab to host its core AI agent, "GuidanceGuru". This agent is powered by the mistral-large foundation model and integrates various tools like Google Search, Web crawler for information retrieval and processing. The system operates within IBM Cloud Lite services, including Cloud Object Storage and Watsonx.ai Runtime. The agent is deployed as an AI Service, accessible via a Public Endpoint URL and secured with a User API Key. User interaction currently occurs through the "Agent preview" interface in Watsonx.ai.

# SYSTEM REQUIREMENTS

- **Software & Account:**

- Web Browser
- Active IBM Cloud Account (Lite Tier compatible)

- **IBM Cloud Services:**

- IBM Watsonx.ai (Core platform for agent)
- IBM Cloud Object Storage (Lite Plan)
- IBM Watsonx.ai Studio Service
- IBM Watsonx.ai Runtime Service
- Deployment Space

- **Foundation Model:**

- mistral-large (Configured within Watsonx.ai)

- **Integrated Tools:**

- Google Search
- DuckDuckGo Search
- Wikipedia Search
- Web crawler

- **Access & Authentication:**

- User API Key
- Public Endpoint URL (for agent access)

# ALGORITHM & DEPLOYMENT

- **Algorithm: AI Agent Deployment**
- **Objective:** To make the "GuidanceGuru" AI agent accessible as an AI service in IBM Watsonx.ai.
- **Input:** Configured AI Agent (Model, Instructions, Tools), IBM Cloud Services.
- **Steps:**
  1. **Initiate Deployment:** Trigger "Deploy" from Agent Lab.
  2. **API Key Management:** Generate a User API Key if needed, then reload interface for recognition.
  3. **Deployment Space Selection:** Choose or create a dedicated Deployment Space (e.g., "Agentic\_AI\_01").
  4. **Execute Deployment:** System packages the agent and provisions resources in the chosen space.
  5. **Monitor Status:** Track deployment progress from "Initializing" to "Online/Deployed".
  6. **Service Activation:** Public Endpoint URL and API Key become active for external access.
- **Output:** Deployed "GuidanceGuru" AI Agent Service with a Public Endpoint and User API Key.





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### Build

AI Model: mistral-large

#### Setup

Name: GuidanceGuru

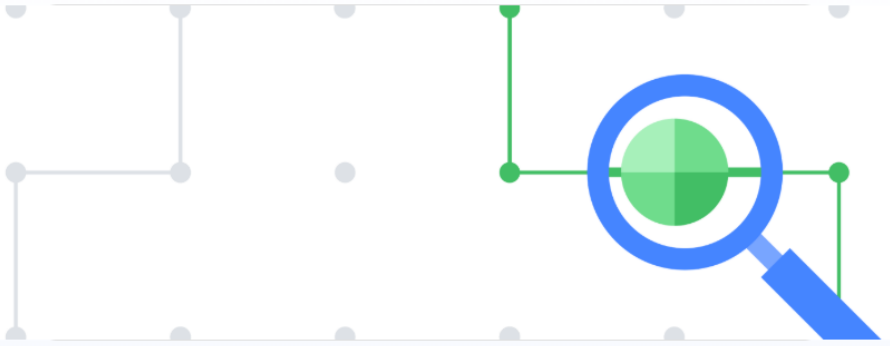
Description: AI agent designed to revolutionize student career decision-making. (67/100)

Icon: 

### Agent preview

Welcome to GuidanceGuru

AI agent designed to revolutionize student career decision-making.



Type something...

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AIModel: mistral-large⚠️ ▾⚙️<

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Instructions

Advanced configuration

Hello! I am your Career Counseling Companion. How can I assist you with your career journey today?

Knowledge ▾

Tools ▴

Add a toolCreate custom tool

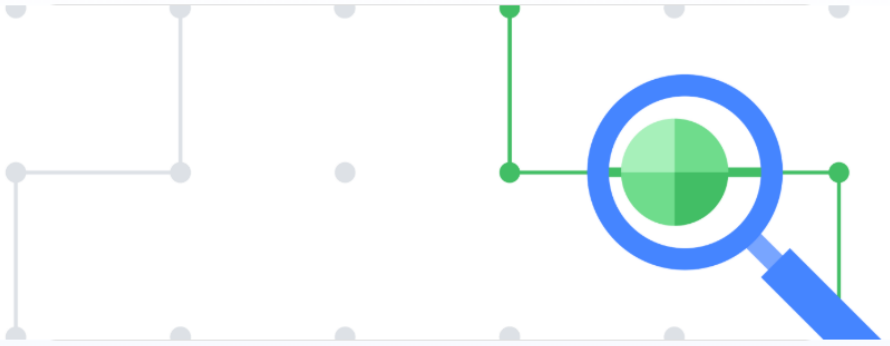
Added tools (1)

Google search⚙️🗑️

Agent preview

Welcome to GuidanceGuru

AI agent designed to revolutionize student career decision-making.



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Select a tool

Choose a tool to add to your agent.

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### Build

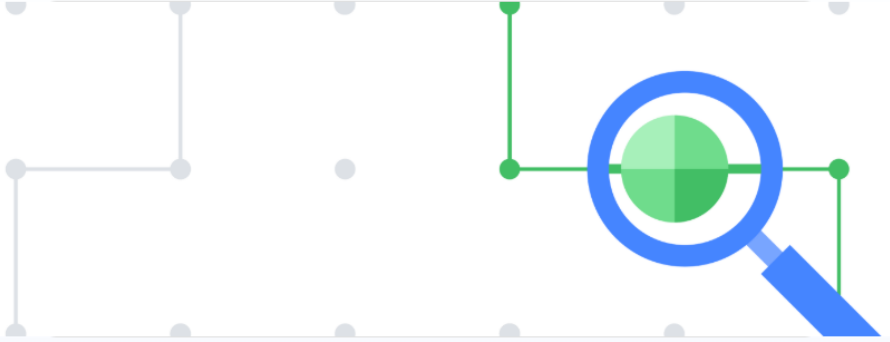
AI Model: mistral-large ⚠

Added tools (3)

- Google search**  
Retrieve information from the internet with the Google search engine.
- DuckDuckGo search**  
Retrieve information from the internet with the DuckDuckGo search engine.
- Wikipedia search**  
Retrieve information from Wikipedia articles.
- Webcrawler**  
Retrieve information from a website.

### Agent preview

Welcome to GuidanceGuru  
AI agent designed to revolutionize student career decision-making.



I'm interested in AI and have strong grades in math and computer science. What kind of career paths in AI are currently in high demand, and what skills should I focus on developing?

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BuildAIModel: mistral-large ⚠️⚙️<

Added tools (3)  
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**Google search**  
Retrieve information from the internet with the Google search engine.  
**DuckDuckGo search**  
Retrieve information from the internet with the DuckDuckGo search engine.  
**Wikipedia search**  
Retrieve information from Wikipedia articles.  
**Webcrawler**  
Retrieve information from a website.

Agent preview  
LK You: 09:36 PM  
I'm interested in AI and have strong grades in math and computer science. What kind of career paths in AI are currently in high demand, and what skills should I focus on developing?  
GuidanceGuru 09:36 PM  
**AI Career Paths in High Demand**  
1. **Machine Learning Engineer:**

- **Description:** Machine learning engineers design and implement machine learning models and algorithms. They work on projects that involve data analysis, model training, and deployment.
- **Source:** [Coursera](#)

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# RESULT

After successfully deploying your "GuidanceGuru" AI agent as an AI Service, you can interact with it to see its output.

**Access the Preview Interface:** Navigate to your deployed agent's page in IBM Watsonx.ai and click on the "Preview" tab.

**Input a Query:** Type a question or prompt into the input field provided in the "Agent preview".

**Receive the Result:** The agent will process your query, utilize its configured tools, and then generate a response, which will be displayed in the chat interface.

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GuidanceGuru ✔ Deployed Online

API referenceTestPreview

New chat +

🤖 GuidanceGuru 09:47 PM

Welcome to GuidanceGuru

AI agent designed to revolutionize student career decision-making.

Type something...

➤

About this deployment ×

Name

GuidanceGuru

Description

AI agent designed to revolutionize student career decision-making.

Deployment Details

Deployment ID: 9aed1e41-ef60-40...

Serving name: No serving name.

Software specification: runtime-24.1-py3.11 ⚙️

Hardware specification: Extra extra small: 1 CPU and 2 GB RAM

Copies: 1

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GuidanceGuru ✓ Deployed Online

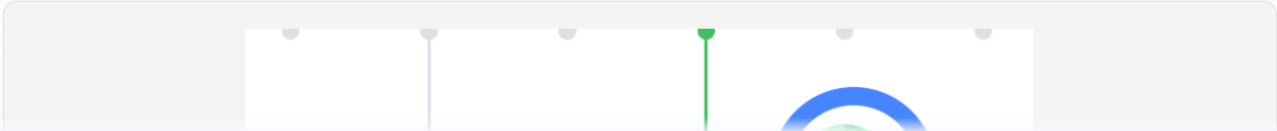
API reference Test **Preview**

New chat +

 GuidanceGuru 09:47 PM

Welcome to GuidanceGuru


AI agent designed to revolutionize student career decision-making.




I'm unsure about my career path, but I enjoy creative writing and social studies. Can you suggest some fields that combine these interests?

➤


About this deployment ×


**Name**  GuidanceGuru


**Description**  AI agent designed to revolutionize student career decision-making.


**Deployment Details**


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Serving name:  No serving name.


Software specification:  runtime-24.1-py3.11 ⚙️


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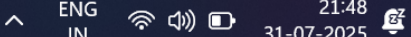
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API referenceTestPreview

New chat +

L You 09:48 PM

I'm unsure about my career path, but I enjoy creative writing and social studies. Can you suggest some fields that combine these interests?

🤖 GuidanceGuru 09:48 PM

Here are some career paths that combine creative writing and social studies:

1. **Journalism:** Journalists often need strong writing skills and a deep understanding of social and political issues. They

Type something...➤

About this deployment ×

Name

GuidanceGuru✎

Description

AI agent designed to revolutionize student career decision-making.✎

Deployment Details

Deployment ID: 9aed1e41-ef60-40...✎

Serving name:✎

No serving name.

Software specification:✎

runtime-24.1-py3.11⚙️

Hardware specification:✎

Extra extra small: 1 CPU and 2 GB RAM

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# CONCLUSION

The "Agentic Career Counseling Companion" project successfully leverages IBM Cloud Lite services and Watsonx.ai to deliver an intelligent, autonomous agent named "GuidanceGuru". It provides tailored career guidance, addressing critical student challenges and empowering students with future-ready career decisions.

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# FUTURE SCOPE

The future scope for the "Agentic Career Counseling Companion" involves advanced data integration for continuous student monitoring, leading to enhanced personalization and proactive guidance. Key advancements will focus on interactive user experiences, scalability, and ensuring ethical AI principles, to empower students more comprehensively.

# REFERENCES

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**Source:** Springer Lecture Notes in Networks and Systems (Peer-reviewed conference proceeding)

**2. Leung (2022)**

**Title:** *New Frontiers in Computer-Assisted Career Guidance Systems (CACGS)*

**Source:** *Frontiers in Psychology* (Scopus-indexed, Q1 journal)

**3. McCrory (2022)**

**Title:** *Theorising Agency for Socially Just Career Guidance*

**Source:** *British Journal of Guidance & Counselling* (Taylor & Francis)

**4. Rahman et al. (2023)**

**Title:** *Artificial Intelligence in Career Counseling: A Test Case with ResumAI*

**Source:** Preprint published on DergiPark (academic portal in Turkey)

**5. Faqih & Miah (2022)**

**Title:** *Designing an AI-Driven Talent Intelligence Solution*

**Source:** Preprint on arXiv. Useful for organizational/career systems

# IBM CERTIFICATIONS



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# IBM CERTIFICATIONS

IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Lohitha Kodali

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**