
IBM PROJECT

TRAVEL PLANNER 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

Planning a trip involves several challenges, such as searching for destinations, transportation, accommodations, and activities. This process is time-consuming and often overwhelming due to the vast amount of information available. A Travel Planner Agent is needed to simplify this process by using AI to generate personalized itineraries, provide real-time recommendations, and ensure a smooth travel experience while considering user preferences, budget, and constraints.

PROPOSED SOLUTION

Data Collection

- Gather historical and real-time data on destinations, accommodations, and transport options.
- Integrate **IBM Weather Company APIs** for weather updates.
- Use **Google Maps API** for location, routes, and travel time.
- Collect user preferences like budget, duration, travel style, and activities.

Preprocessing

- Clean and organize travel-related data for easy access.
- Extract key features such as cost, location ratings, weather conditions, and transport availability.
- Categorize activities and destinations based on user preferences.

AI Model

- Using **IBM Granite Foundation Models** and **Watson Assistant**, the system:
- Interprets natural language queries from users.
- Generates personalized itineraries including travel, stay, and activities.
- Optimizes plans using weather, time, and cost constraints.
- Provides real-time suggestions for modifications.

PROPOSED SOLUTION

Deployment

- Hosted on **IBM Cloud Lite** for easy scalability.
- Integrated chatbot interface with IBM Watson Assistant for smooth user interaction.
- Accessible across devices with fast and reliable responses.

Evaluation

- Continuous feedback collection from users.
- Metrics: travel plan accuracy, personalization level, and user satisfaction.
- Real-world testing with different user groups (individual travelers, agencies, corporates).

Result

- **Efficient and Optimized Travel Plans** generated in minutes.
- **Reduced planning time** from hours to minutes.
- **Enhanced satisfaction** with tailored itineraries.
- **Dynamic adaptability** for real-time changes during trips.

SYSTEM APPROACH

❖ System Requirements

- **Frontend:** React.js for building an interactive user interface
- **Backend:** Node.js with Express.js for handling requests
- **Database:** MongoDB / IBM Cloud DB for storing user input and generated itineraries
- **Cloud Platform:** IBM Cloud Lite for hosting and scalability
- **AI Services:** IBM Granite AI models with RAG for data retrieval and itinerary generation

❖ Libraries Required

- **Frontend:** Tailwind CSS (for styling), Axios (for API calls)
- **Backend:** Express.js, Mongoose (for database integration)
- **AI/NLP:** IBM Watson SDK, LangChain (for RAG orchestration)
- **Utility:** JSON handling libraries, dotenv for environment management

ALGORITHM & DEPLOYMENT

❖ Selection

- Uses RAG (Retrieval-Augmented Generation) with **IBM Granite AI** for accurate and context-aware itineraries.

❖ Data Input

- **User Preferences:** Budget, dates, destination type, activities.
- **External Sources:** IBM Weather APIs (weather), Google Maps API (routes), accommodation & travel databases, review platforms.

❖ Training Process

- Fine-tuned on **travel datasets**.

❖ Generation Process

- Retrieves and filters data based on user input.
- Generates a **day-wise optimized itinerary** with transport, stay, and activities.
- Balances **budget, comfort, and time efficiency**.
- Provides real-time adjustments if conditions change.

ALGORITHM & DEPLOYMENT

❖ Deployment

- Frontend: React.js
- Backend: Node.js with Express.js
- Database: MongoDB / IBM Cloud DB
- Hosting: IBM Cloud Lite

RESULT

- **Efficient and Optimized Travel Plans** generated in minutes.
- **Reduced planning time** from hours to minutes.
- **Enhanced satisfaction** with tailored itineraries.
- **Dynamic adaptability** for real-time changes during trips.


RESULT

Deployment spaces / Agentic_AI / Sous Chef /

Sous Chef 🟢 Deployed Online

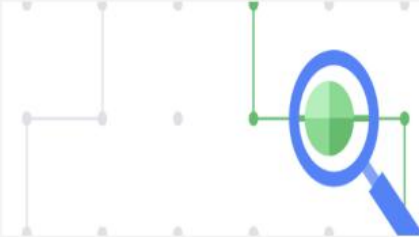
API reference Test **Preview**

New chat +

 SOUS CHEF 2023 / API

Welcome to Sous Chef

Generating tasty recipe ideas based on the ingredients they have available.



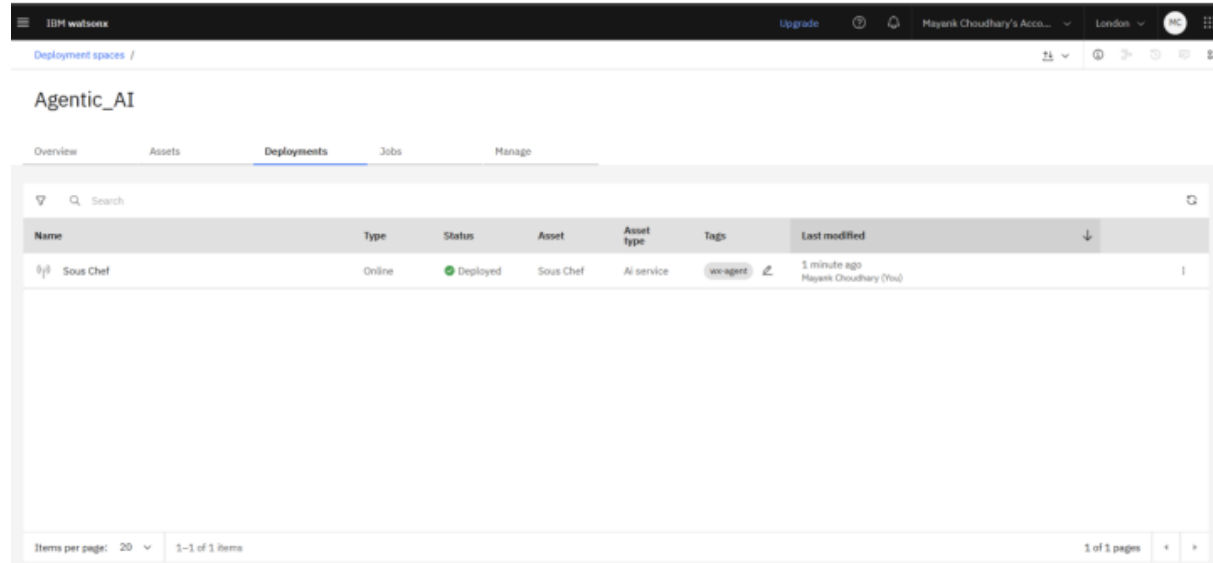
Quick start samples

I'm in Boston, MA. I have chicken breast, bell peppers, onions, and rice in my fridge. What are some recipe ideas?

I'm looking for a quick dinner idea using ground beef, tomatoes, and pasta. Can you suggest a few options?

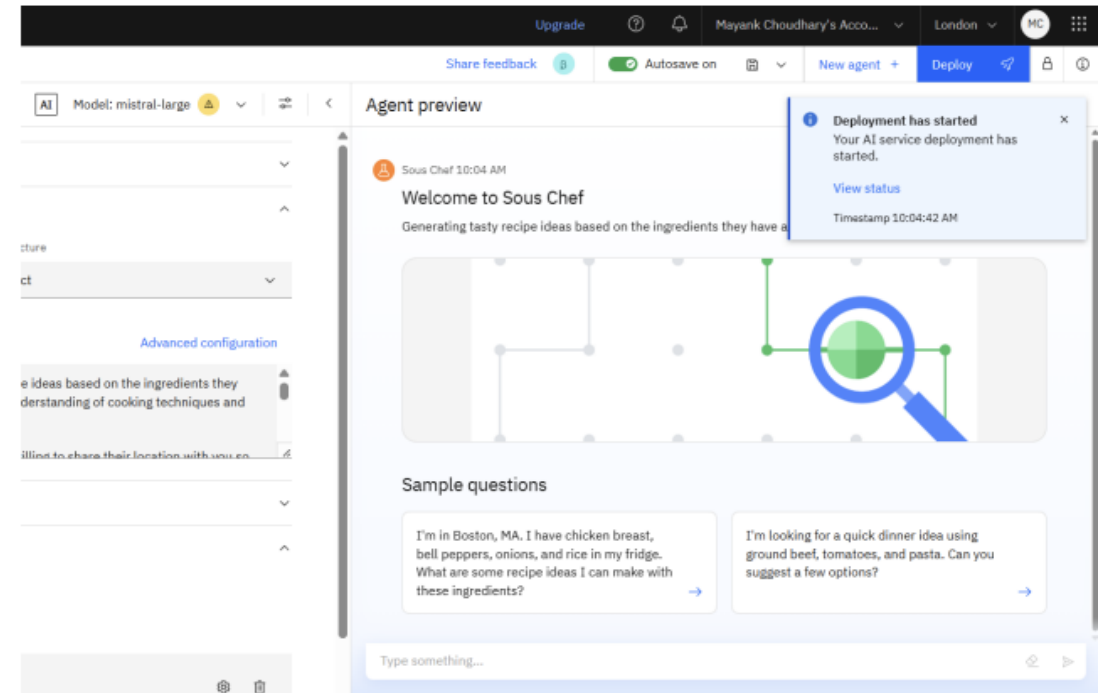
Type something...

RESULT



The screenshot shows the IBM watsonx interface for the 'Agentic_AI' deployment. The 'Deployments' tab is active, displaying a table with one entry: 'Sous Chef'. The table columns are Name, Type, Status, Asset, Asset type, Tags, and Last modified. The 'Sous Chef' entry is marked as 'Online' and 'Deployed', with a status of 'AI service' and a tag of 'v1-agent'. It was last modified '1 minute ago' by 'Mayank Choudhary (You)'. The interface includes a search bar, a table with a download icon, and pagination controls at the bottom showing '1 of 1 items'.

Name	Type	Status	Asset	Asset type	Tags	Last modified
Sous Chef	Online	Deployed	Sous Chef	AI service	v1-agent	1 minute ago Mayank Choudhary (You)



The screenshot shows the 'Agent preview' interface for the 'Sous Chef' agent. The interface includes a top navigation bar with 'Upgrade', 'Autosave on', 'New agent +', and 'Deploy' buttons. The main content area displays a 'Welcome to Sous Chef' message, followed by a diagram of the agent's workflow. A blue magnifying glass icon highlights a specific step in the workflow. Below the diagram, there are 'Sample questions' for the agent to process. A notification box in the top right corner indicates that the deployment has started.

Deployment has started
Your AI service deployment has started.
[View status](#)
Timestamp 10:04:42 AM

Welcome to Sous Chef
Generating tasty recipe ideas based on the ingredients they have a

Sample questions

I'm in Boston, MA. I have chicken breast, bell peppers, onions, and rice in my fridge. What are some recipe ideas I can make with these ingredients? →

I'm looking for a quick dinner idea using ground beef, tomatoes, and pasta. Can you suggest a few options? →

RESULT

Agent preview

 You: 02:55 PM

Show me recent research on artificial intelligence.

 Research Agent 02:55 PM

Here are some recent research articles and news on artificial intelligence:

1. **MIT News:** In a new study, researchers discover the root cause of a type of bias in LLMs, paving the way for more accurate and reliable AI systems. [Read more](#)
2. **arXiv:** Harnessing AI Agents to Advance Research on Refugee Child Mental Health. [Read more](#)
3. **Stanford HAI:** News on how artificial intelligence improves patient care and expands research capacity. [Read more](#)
4. **Journal of Artificial Intelligence Research:** Current Issue on machine learning, natural language, planning and scheduling, robotics and vision, and uncertainty in AI. [Read more](#)
5. **ScienceDaily:** A team of researchers has shown that even small-scale quantum computers can enhance machine learning performance. [Read more](#)
6. **McKinsey:** The latest McKinsey Global Survey on AI finds that organizations are beginning to take steps that drive bottom-line impact. [Read more](#)
7. **Apple Machine Learning Research:** Overview of the latest advancements in machine learning and artificial intelligence. [Read more](#)

Type something...



Agent preview

 You: 02:56 PM

Help me write an introduction for a paper on electric vehicles.

 Research Agent 02:56 PM

Here are some recent research articles and news on artificial intelligence:

1. **MIT News:** In a new study, researchers discover the root cause of a type of bias in LLMs, paving the way for more accurate and reliable AI systems. [Read more](#)
2. **arXiv:** Harnessing AI Agents to Advance Research on Refugee Child Mental Health. [Read more](#)
3. **Stanford HAI:** News on how artificial intelligence improves patient care and expands research capacity. [Read more](#)
4. **Journal of Artificial Intelligence Research:** Current Issue on machine learning, natural language, planning and scheduling, robotics and vision, and uncertainty in AI. [Read more](#)
5. **ScienceDaily:** A team of researchers has shown that even small-scale quantum computers can enhance machine learning performance. [Read more](#)
6. **McKinsey:** The latest McKinsey Global Survey on AI finds that organizations are beginning to take steps that drive bottom-line impact. [Read more](#)
7. **Apple Machine Learning Research:** Overview of the latest advancements in machine learning and artificial intelligence. [Read more](#)

Type something...



RESULT

The screenshot shows the IBM Watsonx interface for a deployment named 'Sous Chef'. The deployment is in a 'Deployed' state and is 'Online'. The main content area is divided into 'Endpoints for inferencing' and 'Code snippets'. The 'Endpoints for inferencing' section lists private and public endpoints with their respective URLs and a 'Bearer token' field. The 'Code snippets' section provides a table of code snippets for different languages (cURL, Java, JavaScript, Python, Scala) and a note about setting the 'SAP_KEY' variable. A sidebar on the right provides details about the deployment, including its name, description, deployment ID, serving name, software specification (runtime-24.1-py3.11), hardware specification (Extra extra small: 1 CPU and 2 GB RAM), and tags.

IBM watsonx Upgrade Mayank Choudhary's Account London MC

Deployment spaces / Agentlic_AI / Sous Chef

Sous Chef Deployed Online

API reference Test Preview

Endpoints for inferencing

Private endpoint

https://eu-gb.ml.cloud.ibm.com/ml/v4/deployments/869a8e99-d93e-48b3-987d-227e8863a86d/xi_service?version=2021-05-01

https://eu-gb.ml.cloud.ibm.com/ml/v4/deployments/869a8e99-d93e-48b3-987d-227e8863a86d/xi_service?version=2021-05-01

Public endpoint

https://eu-gb.ml.cloud.ibm.com/ml/v4/deployments/869a8e99-d93e-48b3-987d-227e8863a86d/xi_service?version=2021-05-01

https://eu-gb.ml.cloud.ibm.com/ml/v4/deployments/869a8e99-d93e-48b3-987d-227e8863a86d/xi_service?version=2021-05-01

Learn more about the 2021-05-01 version query parameter

Code snippets

cURL	Java	JavaScript	Python	Scala
# NOTE: you must set SAP_KEY below using information retrieved from your IBM Cloud account (https://eu-gb.developer.cloud.ibm.com/docs/content/watsonx/analyze-curl)				

About this deployment

Name: Sous Chef

Description: Generating tasty recipe ideas based on the ingredients they have available.

Deployment Details

Deployment ID: 869a8e99-d93e-48b3-987d-227e8863a86d

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

Tags: no-agent

Associated asset: Sous Chef

3b3396fd-ee21-4fc4-b8f5-d7c7b2284444

Last modified

Deployed AI Agent

The screenshot shows the IBM Watsonx interface for a deployment named 'Research Agent'. The deployment is in a 'Deployed' state and is 'Online'. The main content area is divided into 'API reference', 'Test', and 'Preview' tabs. The 'Preview' tab is active, showing a chat interface with a user message and an agent response. The user message is 'Give me a simple hypothesis about plants and sunlight.'. The agent response is 'Here are some simple hypotheses about plants and sunlight: 1. Hypothesis: Plants grow taller when they receive more sunlight. 2. Hypothesis: Light helps plants grow.' The chat interface includes a 'New chat' button and a 'Type something...' input field.

IBM watsonx Upgrade Drishil Chakraverty's Account London MC

Deployment spaces / Hosted / Research Agent

Research Agent Deployed Online

API reference Test Preview

New chat

You 03:02 PM

Give me a simple hypothesis about plants and sunlight.

Research Agent 03:02 PM

Here are some simple hypotheses about plants and sunlight:

1. Hypothesis: Plants grow taller when they receive more sunlight.

- Independent Variable: Amount of sunlight received.
- Dependent Variable: Height of the plants.
- Source: Brainity

2. Hypothesis: Light helps plants grow.

- Prediction: If I put my plants in the warm sun, they will grow faster.
- Source: LinkedIn - Lukas Wimmer

Microsoft: If plants receive more sunlight, then they will grow taller than those that receive less light.

Type something...

CONCLUSION

The AI-powered Travel Planner Agent successfully automates the process of trip planning. It provides travelers with **optimized, personalized, and adaptable itineraries**, improving overall efficiency and travel satisfaction. The system not only saves time but also ensures better decision-making by considering real-time data and user preferences.

FUTURE SCOPE

- Multilingual support for global travelers.
- Voice-activated assistant for hands-free planning.
- Integration with AR/VR for immersive previews of destinations.
- Budget optimization using financial AI tools.
- Expansion into business travel management and concierge services.
- Collaboration features for group travel planning.

REFERENCES

- GitHub Link: https://github.com/Bariyashaikh/IBM_skillbuild_inetrnship
- IBM Watson Assistant Documentation: <https://cloud.ibm.com/docs/watson-assistant>
- IBM Cloud Object Storage Guide: <https://cloud.ibm.com/docs/cloud-object-storage>
- IBM Watsonx.ai Studio Overview: <https://cloud.ibm.com/docs/watsonx-ai>

IBM CERTIFICATIONS

In recognition of the commitment to achieve
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Bariya Shaikh

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Getting Started with Artificial Intelligence



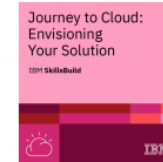
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Journey to Cloud: Envisioning Your Solution

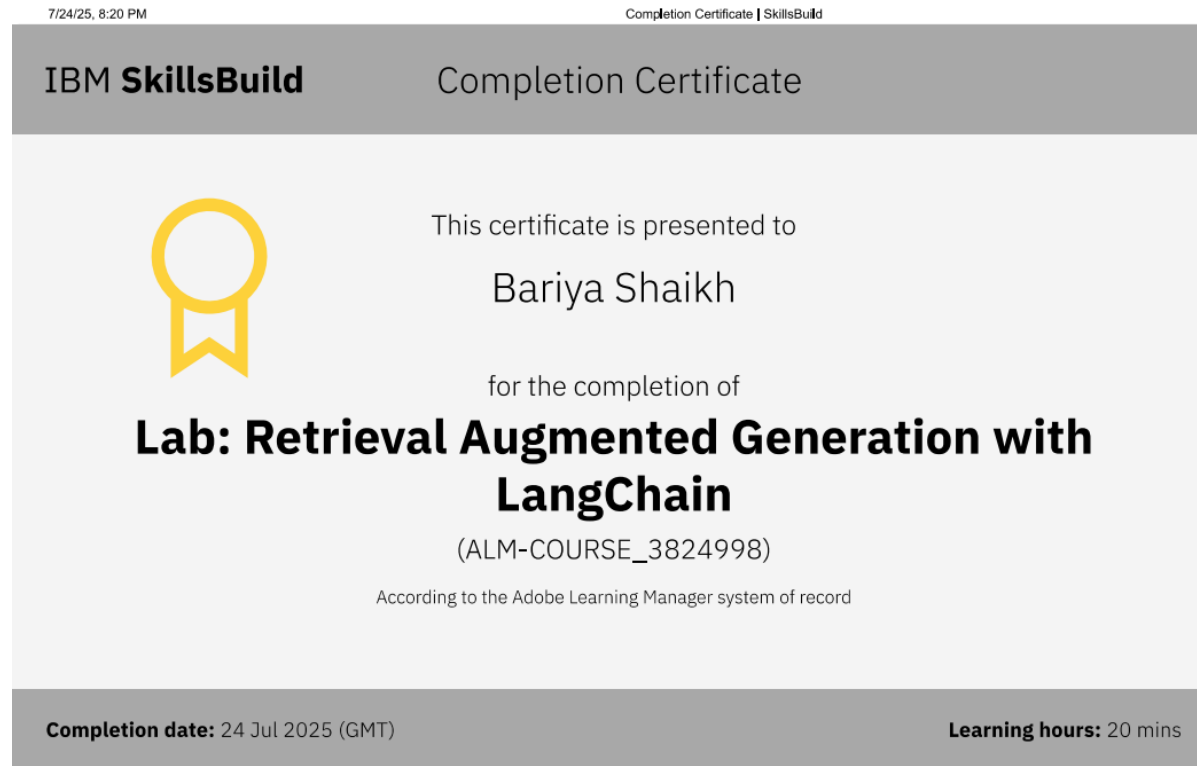


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THANK YOU