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# **CAPSTONE PROJECT**

## **TRAVEL PLANNER AGENT USING IBM WATSONX**

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# OUTLINE

- Problem Statement
- Technology used
- Wow factor
- End users
- Result
- Conclusion
- Future scope
- Git-hub Link
- IBM Certifications

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# PROBLEM STATEMENT

Researchers, students, and professionals often struggle to stay updated with the rapidly growing volume of academic publications, technical articles, datasets, and evolving research trends. Manually reviewing, filtering, and synthesizing information across multiple domains is time-consuming and inefficient.

## Proposed Solution:

An AI Research Agent that uses Natural Language Processing (NLP), Retrieval-Augmented Generation (RAG), to assist users in conducting efficient literature reviews, generating summaries, identifying research gaps, and recommending relevant papers, datasets, or collaborators.

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# TECHNOLOGY USED

- IBM cloud lite services
- Natural Language Processing (NLP)
- Retrieval Augmented Generation (RAG)
- IBM Granite model

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# IBM CLOUD SERVICES USED

- IBM Cloud Watsonx AI Studio
- IBM Cloud Watsonx AI runtime
- IBM Cloud Agent Lab
- IBM Granite foundation model

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# WOW FACTORS

This agent will significantly reduce research time, improve the quality of literature reviews, help early-stage researchers find direction, and foster interdisciplinary collaboration by making knowledge more accessible and actionable.

Unique features:

Semantic search across research papers, journals, and datasets

Auto-summarization of selected papers

Citation and reference analysis to trace influence

Recommendation of research papers based on a user's current topic

Trend analysis over time for specific keywords or domains.

Collaboration mapping: suggests potential co-authors or institutions based on similar research interests.

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# END USERS

- Academic Researchers
- Research Institutions and Universities
- Industry R&D Teams
- Educators

# RESULTS

The screenshot displays the IBM watsonx Agent Lab interface. The top navigation bar includes the IBM watsonx logo, an 'Upgrade' button, a help icon, a notification bell, and the user's account information (Suraj Nimbalkar's Account, Dallas, and a profile icon labeled SN). The main header shows the project path: Projects / Travel\_Agent / Agent Lab, along with a 'Share feedback' button, an 'Unsaved' status indicator, a 'New agent +' button, and a 'Deploy' button.

The interface is divided into two main panels. The left panel, titled 'Build', contains several sections: 'Setup', 'Configuration', 'Instructions', and 'Knowledge'. The 'Configuration' section shows the 'Framework' set to 'LangGraph' and the 'Architecture' set to 'ReAct'. The 'Instructions' section contains a text box with the following text: 'I'm your Travel Planner Agent, designed to make your travel planning smart, easy, and personalized. Whether you're dreaming of a quick weekend escape or a long international adventure, I'm here to guide you through every step.' Below this is a 'Knowledge' section with a 'Vector index' dropdown menu and a 'Clear chat' button. The right panel, titled 'Agent preview', shows a chat history. The first message is from the user (SN) at 11:01 AM: 'Give me a 4 days travel plan from Mumbai to Goa'. The second message is from the Travel\_Agent at 11:01 AM: 'Here's a 4-day travel plan from Mumbai to Goa:'. The plan is organized into two days: 'Day 1: Mumbai to Goa' and 'Day 2: Goa'. Each day has a list of activities. At the bottom of the chat history, there is a text input field with the placeholder 'Type something...' and a 'YouTube' button.

**Build Panel:**

- Setup:** AI Model: llama-3-3-70b-instruct
- Configuration:**
  - Framework: LangGraph
  - Architecture: ReAct
- Instructions:** I'm your Travel Planner Agent, designed to make your travel planning smart, easy, and personalized. Whether you're dreaming of a quick weekend escape or a long international adventure, I'm here to guide you through every step.
- Knowledge:** Vector index: Select or create vector index

**Agent preview Panel:**

**You:** 11:01 AM  
Give me a 4 days travel plan from Mumbai to Goa

**Travel\_Agent:** 11:01 AM  
Here's a 4-day travel plan from Mumbai to Goa:

**Day 1: Mumbai to Goa**

- Take a morning flight from Mumbai to Goa
- Check-in to your hotel and freshen up
- Visit the famous Calangute Beach and enjoy water sports
- In the evening, explore the local market and try some street food

**Day 2: Goa**

- Start the day with a delicious breakfast
- Visit the Fort Aguada and enjoy the scenic views
- Head to the Baga Beach and enjoy the sunset
- In the evening, enjoy a traditional Goan dinner and watch a cultural performance

**Input:** Type something... **YouTube**



# RESULTS

The screenshot displays the IBM Watsonx Agent Lab interface. The top navigation bar includes the IBM Watsonx logo, an 'Upgrade' button, a help icon, a notification bell, and the user's account information (Suraj Nimbalkar's Account, Dallas, and a profile icon labeled SN). The breadcrumb trail shows 'Projects / Travel\_Agent / Agent Lab'. The main interface is divided into two panels: 'Build' on the left and 'Agent preview' on the right.

**Build Panel:**

- Model:** llama-3-3-70b-instruct
- Framework:** LangGraph
- Architecture:** ReAct
- Instructions:** I'm your Travel Planner Agent, designed to make your travel planning smart, easy, and personalized. Whether you're dreaming of a quick weekend escape or a long international adventure. I'm here to guide your through every step. [Advanced configuration](#)
- Knowledge:** Vector index. [Clear chat](#). Select or create vector index.
- Footer note:** If you want to add a vector index to the agent, clear the agent preview chat.

**Agent preview Panel:**

- Day 3: Goa**
  - Take a day trip to the Dudhsagar Waterfalls
  - Enjoy a trek to the waterfalls and swim in the natural pool
  - On the way back, visit the Spice Plantation and learn about the local spices
  - In the evening, enjoy a relaxing massage at a local spa
- Day 4: Goa to Mumbai**
  - Spend the morning at leisure
  - Check-out of the hotel and head to the airport
  - Take a flight back to Mumbai
- Text:** This is just a sample itinerary and you can customize it according to your preferences and interests. You can also add or remove days, and include other activities like snorkeling, fishing, or visiting the local temples. Have a great trip!
- How did I get this answer?**
- User Input (SN):** You: 11:02 AM  
Suggest best hotels in Goa
- Input field:** Type something...

# RESULTS

Agent Lab (beta) — Docs | IBM watsonx

Agent Lab — Travel\_Agent | IBM

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dataplatfom.cloud.ibm.com/wx/agents?context=wx&project\_id=2b4b84c4-e0cb-47ff-8dc9-801c4f18409e

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IBM watsonx

Upgrade ? 🔔

Suraj Nimbalkar's Account ▾ Dallas ▾ SN

Projects / Travel\_Agent / Agent Lab

Share feedback B Unsaved 📁 ▾ New agent + Deploy 🚀

Build

AI Model: llama-3-3-70b-instruct 🔗 ⏪

Setup ▾

Configuration ▴

Framework Architecture

LangGraph ▾ ReAct ▾

Instructions [Advanced configuration](#)

I'm your Travel Planner Agent, designed to make your travel planning smart, easy, and personalized. Whether you're dreaming of a quick weekend escape or a long international adventure, I'm here to guide you through every step.

Build a chatbot that helps users:

Knowledge ▴

Vector index [Clear chat](#)

Select or create vector index ▾

If you want to add a vector index to the agent, clear the agent preview chat.

Agent preview

SN You: 11:02 AM

Suggest best hotels in Goa

Travel\_Agent 11:02 AM

Some of the best hotels in Goa include:

1. Ahilya by the Sea, Nerul

2. Ānamiva, Anjuna

3. Elsewhere, Ashvem

4. MansionHaus, Anjuna

5. Siolim House, Siolim

6. Le Méridien Goa, Calangute

7. The LaLiT Golf & Spa Resort Goa

8. Fairfield by Marriott Goa Benaulim

9. Hyatt Place Goa / Candolim

10. ITC Grand Goa Resort & Spa

11. The Leela Goa

12. Le Méridien Goa

13. Vaayu Waterman's Village

14. Hard Rock Hotel Goa

Type something... 📎 ➤

# RESULTS

## Deployed AI Agent:

The screenshot displays the IBM watsonx Agent Lab interface. The top navigation bar includes the text "Agent Lab (beta) — Docs | IBM watsonx" and a tab for "Travel\_Agent — Travel\_Agent | IB". The browser address bar shows the URL "dataplatfom.cloud.ibm.com/wx/agents/468be283-f1a1-4ba7-ac65-f6ce734b0ea3?project\_id=2b4b84c4-e0cb-47ff-8dc9-8...". The main interface is divided into three sections:

- Saved agents:** A list of agents under the heading "From Travel\_Agent". The "Travel\_Agent" is listed with the description "I'm your Travel Planner Agent, designed to make your travel ...".
- Build:** The configuration section for the "Travel\_Agent". It shows the "Setup" tab, the "Model: llama-3-3-70b-instruct", and fields for "Name" (Travel\_Agent), "Description" (I'm your Travel Planner Agent, designed to make your travel planning smart, easy, and personalized.), and "Icon" (a robot head icon). A "Placeholder image" is also visible at the bottom.
- Agent preview:** A preview of the agent's chat interface. It shows a message from "Travel\_Agent 11:12 AM" with the text "Welcome to Travel\_Agent" and "I'm your Travel Planner Agent, designed to make your travel planning smart, easy, and personalized." Below the message is a diagram of a travel plan with a magnifying glass icon. At the bottom is a text input field labeled "Type something..." and a send button.

# RESULTS

## Deployed AI Agent:

The screenshot shows the IBM Watsonx deployment interface for the **Travel\_Agent**. The browser address bar indicates the URL: `datapatform.cloud.ibm.com/ml-runtime/deployments/6c789232-d94f-480e-9d17-7201dceb1938/chat?space_id=2af7199...`. The interface includes a navigation bar with the IBM Watsonx logo, an "Upgrade" button, and user information for "Suraj Nimbalkar's Account" in the "Dallas" region. The main content area shows the deployment status as "Deployed" and "Online". Below this, there are tabs for "API reference", "Test", and "Preview", with the "Preview" tab selected. The chat interface displays a welcome message from the **Travel\_Agent** at 11:55 AM: "Welcome to Travel\_Agent. I'm your Travel Planner Agent, designed to make your travel planning smart, easy, and personalized." Below the message is a diagram of a network with a magnifying glass icon. At the bottom, there is a text input field labeled "Type something..." and a "New chat" button. On the right side, a sidebar titled "About this deployment" provides details about the agent, including its name, description, deployment ID, serving name, software and hardware specifications, and associated assets.

**Travel\_Agent** Deployed Online

API reference Test **Preview**

New chat +

**Travel\_Agent** 11:55 AM

Welcome to Travel\_Agent

I'm your Travel Planner Agent, designed to make your travel planning smart, easy, and personalized.

Type something...

**About this deployment**

**Name**  
Travel\_Agent

**Description**  
I'm your Travel Planner Agent, designed to make your travel planning smart, easy, and personalized.

**Deployment Details**  
Deployment ID: 6c789232-d94f-48...  
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**  
wx-agent

**Associated asset**  
Travel\_Agent

# RESULTS

## Deployed AI Agent:

The screenshot displays the IBM Watsonx interface for a deployed AI agent named **Travel\_Agent**. The agent is shown as **Deployed** and **Online**. The interface includes a chat window and a sidebar with deployment details.

**Chat Window:**

- User:** You 11:56 AM  
Give me 4 days plan for Mumbai to Goa
- Travel\_Agent:** 11:56 AM  
Here's a 4-day plan for a trip from Mumbai to Goa:  
  
Day 1: Mumbai to Goa
  - Take a flight or train from Mumbai to Goa
  - Check-in to your hotel and freshen up
  - Visit the famous Calangute Beach and enjoy the sunset
  - Try some local seafood and drinks at a nearby restaurant  
Day 2: North Goa

**Deployment Details (Sidebar):**

- About this deployment**
- Name:** Travel\_Agent
- Description:** I'm your Travel Planner Agent, designed to make your travel planning smart, easy, and personalized.
- Deployment Details:**
  - Deployment ID: 6c789232-d94f-480e-9d17-7201dceb1938
  - 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:** wx-agent
- Associated asset:** Travel\_Agent

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# CONCLUSION

- The agent can generate reports, suggest hypotheses, and even draft sections of research papers.
- It saves time by automating repetitive tasks like citation management and data extraction.
- Research Agents enhance efficiency, accuracy, and innovation in both academic and industrial R&D.

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# FUTURE SCOPE

- Multilingual Research Support
- Voice-Activated Research Assistant
- Real-Time Collaboration Features
- Research Gap and Novel Topic Identification
- Integration with Publishing Platforms
- AI-Assisted Paper Drafting

# IBM CERTIFICATIONS







This certificate is presented to

Suraj Nimbalkar

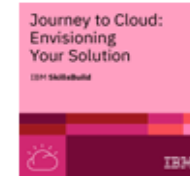
for the completion of

**Lab: Retrieval Augmented Generation with  
LangChain**

(ALM-COURSE\_3824998)

According to the Adobe Learning Manager system of record

In recognition of the commitment to achieve  
professional excellence



# Suraj Nimbalkar

Has successfully satisfied the requirements for:

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## Journey to Cloud: Envisioning Your Solution

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

Verify: <https://www.credly.com/badges/1e15c8c8-6f0a-4ff5-9703-40c486adc079>



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# GITHUB LINK

- Git hub link : [https://github.com/Suraz3123/Travel\\_Agent.git](https://github.com/Suraz3123/Travel_Agent.git)



# THANK YOU