

# CAPSTONE PROJECT

## TRAVEL PLANNER AGENT

### **Presented By:**

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# OUTLINE

- **Problem Statement**
- **Proposed System/Solution**
- **System Development Approach (Technology Used)**
- **Algorithm & Deployment**
- **Result (Output Image)**
- **Conclusion**
- **Future Scope**
- **References**

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# PROBLEM STATEMENT

The Challenge - A Travel Planner Agent is an AI-powered assistant that helps users plan trips efficiently and intelligently. It uses real-time data to suggest destinations, build itineraries, and recommend transport and accommodation options. By understanding user preferences, budgets, and constraints, it tailors personalized travel plans. Integrated with maps, weather updates, and local guides, it ensures a smooth travel experience. The agent can also manage bookings, alert users to changes, and optimize schedules on the go. This smart assistant transforms complex travel planning into a seamless, enjoyable process.

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# PROPOSED SOLUTION

- We developed a conversational AI Travel Planner chatbot using IBM Watsonx Agent.
- The bot responds to user queries about travel plans by considering budget, preferences, and destination.  
It uses LangGraph and ReAct frameworks and integrates Google Search to fetch relevant information about places, foods, and transport.

# SYSTEM APPROACH

## Technology Used:

1. IBM Cloud (Lite Tier)
2. Watsonx.ai → Prompt Lab → Gen AI Solution
3. Watsonx Agent (LangGraph + ReAct)
4. Tool Integrations:
  - i. Google Search
  - ii. DuckDuckGo
  - iii. Wikipedia Search
  - iv. Webcrawler
  - v. Weather Lookup
5. IBM Watsonx.ai Runtime (Deployment)

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# AGENT DESIGN & DEPLOYMENT

- Built with LangGraph and ReAct architecture
- Custom instruction prompt to guide agent behavior
- Tool added: Google Search API for real-time info
- Deployed using IBM Watsonx.ai Runtime
- Deployed using IBM Watsonx.ai Runtime

# RESULT

The screenshot displays the IBM watsonx Agent interface in a web browser. The browser's address bar shows the URL: `https://dataplatfom.cloud.ibm.com/wx/agents/e3b7891d-9aa2-4716-baa1-9feb9dbb3e36?project_id=f32849ae-f892-4f38-9206-445e7bc06d26&context=wx&ope...`. The browser's tab bar includes links to Gmail, YouTube, Maps, and several PDF files. The IBM watsonx header is visible, along with an 'Upgrade' button and user information for KETHAVATH TARUN NAIK. The interface is divided into three main sections: 'Saved agents', 'Build', and 'Agent preview'.

**Saved agents:** A list of agents, including 'From travel' and 'watsonx Agent' (with a description: 'Change this description to reflect your particular agent').

**Build:** The configuration area for the 'watsonx Agent'. It includes a 'Setup' section, a 'Configuration' section with 'Framework' (LangGraph) and 'Architecture' (ReAct) dropdowns, an 'Instructions' section with a text area containing: 'You are a smart AI Travel Planner Agent. Your goal is to help users plan their trips smoothly by considering: - User preferences (e.g., nature, beaches, temples, cities) - Budget - Number of travel days', and a 'Knowledge' section. At the bottom, there are buttons for 'Add a tool' and 'Create custom tool', and a list of 'Added tools (5)' including 'Google search' (with a description: 'Retrieve information from the internet with the Google search engine.').

**Agent preview:** A chat interface showing the agent's response to a user query. The user's message is: 'hi i want to travel to kochi from hyderabad and my budget is 15000 and i want explore overall kochi suggest me places,foods, beaches etc...'. The agent's response is: 'Based on the search results, here are some suggestions for your trip to Kochi: 1. Accommodation: You can find budget-friendly hotels in Kochi, with prices starting from around 7,000 - 15,000 yen (approximately 5,000 - 10,000 INR) per night for a single room. 2. Food: You can try traditional Kerala cuisine, which includes dishes like idlis, dosas, and vadas. You can also find budget-friendly restaurants and street food options. 3. Places to visit: Some popular places to visit in Kochi include the Fort Kochi, Mattancherry Palace, and the Kochi Beach. You can also take a boat ride in the backwaters of Kochi. 4. Transportation: You can take a flight from Hyderabad to Kochi, or take a train or bus. You can also rent a car or take a taxi to get around the city. Overall, with a budget of 15,000 INR, you can have a comfortable and enjoyable trip to Kochi. However, it's always a good idea to research and plan ahead to make the most of your trip. Here's a sample itinerary for your trip: Day 1: Arrival in Kochi and check-in to your hotel. Visit the Fort Kochi and Mattancherry Palace.' A text input field at the bottom of the chat area contains the placeholder text 'Type something...'.

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travel\_agent\_deploy1

OverviewAssetsDeploymentsJobsManage

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Name	Type	Status	Asset	Asset type	Tags	Last modified	↓
🔗 watsonx Agent	Online	✅ Deployed	watsonx Agent	Ai service	wx-agent🔗	60 seconds ago KETHAVATH TARUN NAIK (You)	⋮

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Travel\_Agent🟢DeployedOnline

API referenceTestPreview

Endpoints for inferencing ⓘ

Private endpoint

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/890f3377-d7e0-45ce-af6c-eb8999f5a06a/ai\_service?version=2021-05-01

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/890f3377-d7e0-45ce-af6c-eb8999f5a06a/ai\_service\_stream?version=2021-05-01

Public endpoint

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/890f3377-d7e0-45ce-af6c-eb8999f5a06a/ai\_service?version=2021-05-01

https://us-south.ml.cloud.ibm.com/ml/v4/deployments/890f3377-d7e0-45ce-af6c-eb8999f5a06a/ai\_service\_stream?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 \$API\_KEY below using information retrieved from your IBM Cloud account (https://dataplatform.cloud.ibm.com/docs/content/wsj/analyze-data/r...

export API\_KEY=<your API key>

About this deployment ×

Name

Travel\_Agent

Description

Change this description to reflect your particular agent

Deployment Details

Deployment ID: 890f3377-d7e0-45...

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

watsonx Agent

fef66364-b189-4672-9aa0-47098d24e61c

Last modified

58 seconds ago by KETHAVATH TARUN

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Gmail YouTube Maps bee 31.pdf Dell Lecture-Notes-4.pdf a Infosys Previous Yea...

IBM watsonx Upgrade ? 🔔 KETHAVATH TARUN NAIK'... Dallas KT

Deployment spaces / travel\_agent\_deploy1 / watsonx Agent /

Travel\_Agent ✓ Deployed Online

API reference Test **Preview**

New chat +

K You 05:15 PM

hi i want to travel to kochi from hyderabad and my budget is 15000 and i want explore overall kochi suggest me places,foods, beaches etc...

Travel\_Agent 05:15 PM

Based on the search results, it seems that there are several options for traveling to Kochi from Hyderabad within a budget of 15000. Here are a few suggestions:

1. Consider staying in budget-friendly accommodations such as hostels or guesthouses, which can cost between 1000-3000 per night.

2. Look for affordable transportation options such as buses or trains, which can cost between 1000-3000 for a one-way ticket.

3. Plan your itinerary to include free or low-cost activities such as visiting local markets, trying street food, and exploring the city's natural beauty.

4. Research and book your trip in advance to get the best deals on flights, accommodations, and activities.

Some specific places to visit in Kochi include:

type something... ➤

About this deployment ×

Name

Travel\_Agent

Description

Change this description to reflect your particular agent

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📄 watsonx Agent

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Last modified

1 minute ago by KETHAVATH TARUN

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# CONCLUSION

- The Travel Planner chatbot demonstrates the power of AI agents in providing real-time, personalized recommendations.
- Using IBM Watsonx and Agentic AI, we built a system that simplifies trip planning, making it accessible and cost-effective.

# FUTURE SCOPE

- Add multi-day itinerary generation
- Integrate with live flight/hotel booking APIs
- Add voice input/output using Speech Services
- Build a mobile/web interface for broader reach
- Store past trips for personalized recommendations

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# REFERENCES

- IBM Watsonx.ai Studio
- IBM Watsonx Agent Documentation
- IBM Cloud Deployment Space
- LangGraph & ReAct Framework
- Google Search Tool Integration

# IBM CERTIFICATIONS

## Getting started with Artificial Intelligence



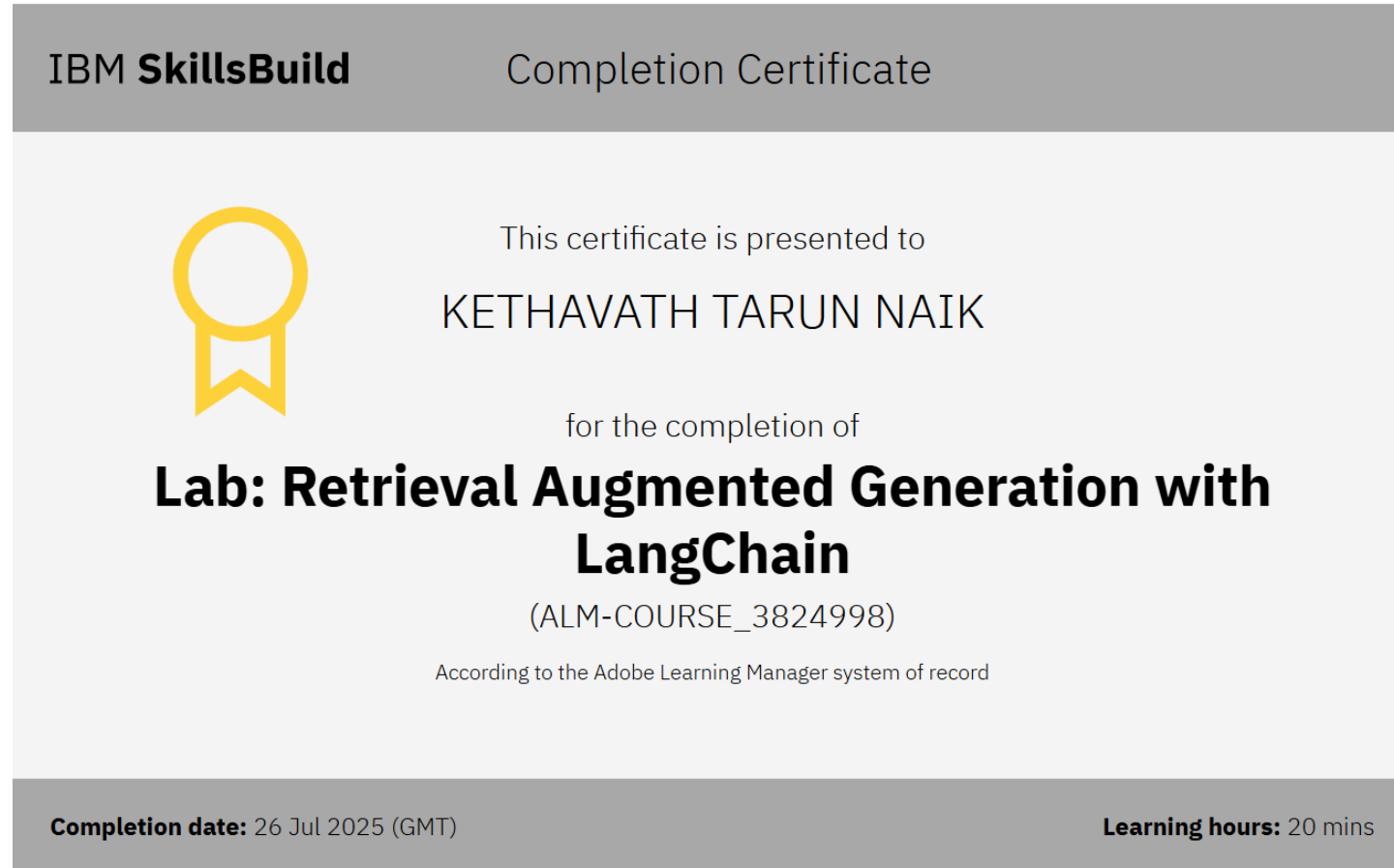
# IBM CERTIFICATIONS

- Journey to Cloud: Envisioning your Solution



# IBM CERTIFICATIONS

- RAG LAB







**THANK YOU**