
CAPSTONE PROJECT

TRAVEL PLANNER AGENT

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OUTLINE

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

PROBLEM STATEMENT

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

PROPOSED SOLUTION

❑ Data Collection:

- User inputs about travel preferences such as location, duration, budget, and interests. Information retrieved from online sources.

❑ Data Processing:

- Convert user queries into structured information requests and use embedded knowledge to match destinations, accommodations, and activities.

❑ AI Agent Algorithm:

- Leverages Granite/Mistral foundation models for Natural Language Processing.
- Retrieves destination details, generates itineraries, and provides contextual travel advice.
- Uses Wikipedia and web search integration for up-to-date information.

❑ Deployment:

- Built in Watsonx.ai Studio's Agent Lab.
- Integrated with search tools (Wikipedia, Webcrawler, Google Search).
- Deployed via Watsonx.ai Runtime for interactive Q&A.

❑ Evaluation:

- Test with multiple user scenarios (budget trips, family vacations, adventure travel).
- Assess accuracy of itineraries and relevance of suggestions.

SYSTEM APPROACH

❑ System Requirements

- **Platform:** IBM Cloud Lite account
- **Services:**
 - Watsonx.ai Studio (for building the agent)
 - Watsonx.ai Runtime (for executing models)
- **Hardware:** Standard laptop/PC with stable internet connection
- **Storage:** IBM Object Storage (Free plan) for uploading documents
- **User Requirements:** Basic IBM Cloud login credentials

❑ Libraries/Tools Required

- **Mistral Foundation Model** for NLP
- **Watsonx.ai Agentic Lab** for agent creation and orchestration
- **NLTK/Transformers (pre-installed in IBM Cloud runtime)** for text preprocessing (if required)

ALGORITHM & DEPLOYMENT

- ❑ **Algorithm Selection:** The chosen approach is a **Granite-based NLP agent** with retrieval-augmented responses.
 - Selected because it handles natural language travel queries effectively.
 - Provides context-aware and personalized itinerary recommendations.
- ❑ **Data Input:**
 - User queries like:
 - “Plan a 5-day trip to Goa.”
 - “Suggest budget hotels in Bali near the beach.”
 - Online data from Wikipedia and web search results.
- ❑ **Training Process:**
 - Uses pre-trained Mistral LLM, no custom training required.
 - Prompt engineering to ensure travel-specific answers.
- **Prediction Process:**
 - User submits a travel-related query.
 - Agent retrieves relevant travel information (destinations, hotels, attractions).
 - Generates structured responses including day-wise plans, budgets, and travel tips.

DEPLOYMENT STEPS IN IBM CLOUD

- Login to IBM Cloud → cloud.ibm.com.
- Create a Watsonx.ai Project → Select Lite Plan.
- Associate Watsonx.ai Runtime Service → via Manage → Services & Integrations.
- Build New Agent in Agent Lab → Select Granite/Mistral model.
- Add Tools → Wikipedia Search, Google Search, Webcrawler.
- Write Agent Instructions → e.g., “You are a Travel Planner Agent that provides itineraries, hotel suggestions, and budgets.”
- Test Queries → Example: “Plan a 5-day trip to Goa.”
- Save the Agent → Click *Save As* → *Agent* → *Travel_Planner_Agent*.
- Create Deployment Space
- Deploy Agent → Click *Promote to Space* → *New Deployment* → *Online Deployment*.
- Final Testing → Interact with deployed agent and capture screenshots.

RESULT

[Projects](#) / Travel_Planner_Agent



Launch IDE ▾



Overview

Assets

Deployments

Jobs

Manage

Start working

Work with models ▾



Build an AI agent to automate tasks



Build machine learning or RAG solutions automatically



Chat and build prompts with foundation models



Prepare an external prompt template for evaluation



Tune a foundation model with labeled data



Build models as a visual flow



Evaluate and compare AI assets



Work with data and models in Python or R notebooks



[View all](#)

Activate Windows

Go to Settings to activate Windows.

Collapse ^



Build



Model: mistral-large



Setup



Configuration



Framework

LangGraph



Architecture

ReAct



Instructions

[Advanced configuration](#)

You are a helpful assistant that uses tools to answer questions in detail.
When greeted, say "Hi, I am watsonx.ai a travel_planner_agent. How can I help you?"

Knowledge



Tools



Agent preview



You: 08:05 PM

hello



Travel_Planner_Agent 08:05 PM

Hi, I am watsonx.ai a travel_planner_agent. How can I help you?

► How did I get this answer?



Type something...

Activate Windows

Go to Settings to activate Windows.





Build

AI

Model: mistral-large



Configuration



Knowledge



Tools



Add a tool

Create custom tool

Added tools (2)

Google search



Retrieve information from the internet with the Google search engine.

Weather



Retrieve the weather of a city.

Agent preview



You: 08:08 PM

Plan a 5-day trip to Goa with beaches and local food experiences.



Travel_Planner_Agent 08:08 PM

Here are some useful links for planning a 5-day trip to Goa with beaches and local food experiences:

1. [What would it be like to travel alone to Goa for 5-6 days? I plan to ...](#)
2. [How to plan a Goa trip for 5 days - Quora](#)
3. [1st time to Goa - a few questions please - Goa Forum - Tripadvisor](#)
4. [Goa Itinerary for 4 Nights 5 Days: Beaches, Parties & Culture » Agoda](#)

► How did I get this answer?



Type something...

Activate Windows

Go to Settings to activate Windows.





Build



Model: mistral-large ⚠️ ▼



Setup



Configuration



Framework

Architecture

LangGraph ▼



ReAct ▼



Instructions

[Advanced configuration](#)

You are a helpful assistant that uses tools to answer questions in detail.
When greeted, say:
"Hi, I am watsonx.ai, a travel_planner_agent. I help you plan personalized trips using real-time data, preferences, and smart recommendations. How can I assist you with your travel today?"

Knowledge



Tools



[Add a tool](#)

[Create custom tool](#)

Agent preview



Travel_Planner_Agent 09:26 PM

Welcome to Travel_Planner_Agent

Change this description to reflect your particular agent



Type something...



Build

AI

Model: mistral-large



Added tools (5)

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.



Weather

Retrieve the weather of a city.



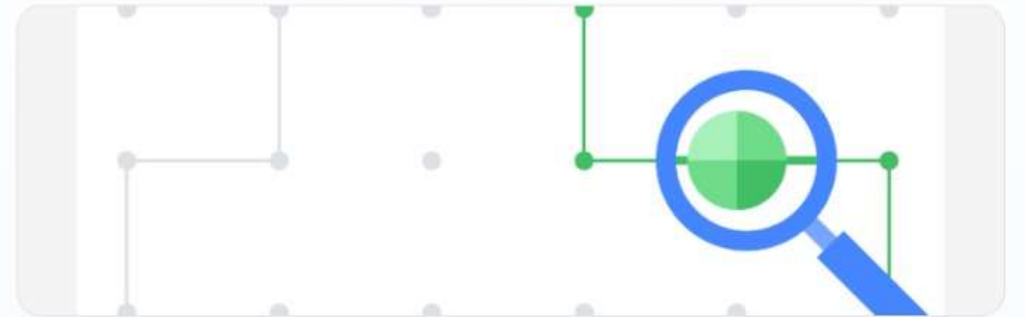
Agent preview



Travel_Planner_Agent 09:27 PM

Welcome to Travel_Planner_Agent

Change this description to reflect your particular agent



Type something...



Travel_Planner_Agent ✓ Deployed Online

API reference Test Evaluations **Preview**

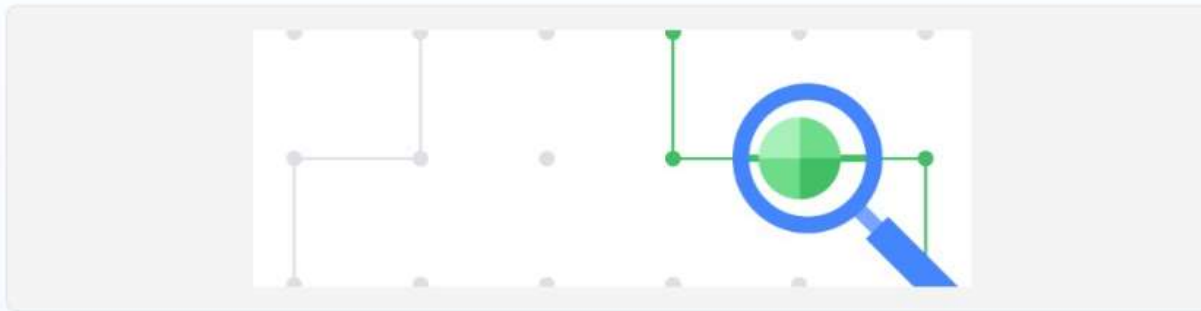
New chat +



Travel_Planner_Agent 08:59 PM

Welcome to Travel_Planner_Agent

Change this description to reflect your particular agent



Type something...



About this deployment ×

Name ✎

Travel_Planner_Agent

Description ✎

Change this description to reflect your particular agent

Deployment Details

Deployment ID: f4a8d775-adce-4a...

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 Planner Agent

Travel_Planner_Agent

✓ Deployed Online

API reference

Test

Evaluations

Preview

New chat +

P

You 09:11 PM

"Plan a 5-day solo trip to Japan under ₹80,000 including flights, stay, and sightseeing."



Travel_Planner_Agent 09:11 PM

Hi, I am watsonx.ai, a travel_planner_agent. I help you plan personalized trips using real-time data, preferences, and smart recommendations. How can I assist you with your travel today?

Plan a 5-day solo trip to Japan under ₹80,000 including flights, stay, and sightseeing.

Here are some search results that might help you plan your trip:

1. [I have traveled to 15 countries and 20+ states within India, listing...](#)

- Description: May 30, 2024 ... You can do a solo trip to these countries for under ₹50k and a couple's trip for around ₹80k. Europe. In terms of affordability beyond ...

Type something...



About this deployment



Name



Travel_Planner_Agent

Description



Change this description to reflect your particular agent

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No serving name.

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[runtime-24.1-py3.11](#) ⚙️

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1

Tags



wx-agent

Associated asset



[Travel_Planner_Agent](#)

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CONCLUSION

- The Travel Planner Agent demonstrates how AI can simplify and personalize trip planning.
- **Convenience:** Quick answers to travel-related questions.
- **Personalization:** Itineraries tailored to preferences and budgets.
- **Efficiency:** Reduces hours of manual research into minutes.
- **Scalability:** Can serve multiple users simultaneously on IBM Cloud.

FUTURE SCOPE

- Integration with real-time flight and hotel booking APIs.
- Personalized suggestions using past travel history.
- Multi-language support for international users.
- Integration with weather forecasts for better itinerary planning.
- Voice-enabled travel assistant.

REFERENCES

- IBM Watsonx.ai Documentation
- Granite Foundation Model Resources
- SB4Academia Problem Statements 2025
- Wikipedia Travel Pages
- IBM Tutorial: Agentic RAG with Granite models
- IBM Agentic AI Use Cases

IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



Abhishikta Pal

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



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