
CAPSTONE PROJECT

Travel Planner Agent

Presented By:

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Technology - CSE**

OUTLINE

Problem Statement (Should not include solution)

Proposed System/Solution

System Development Approach (Technology Used)

Algorithm & Deployment

Result (Output Image)

Conclusion

Future Scope

References

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.

PROPOSED SOLUTION

Develop an AI-powered travel planner agent that assists users in creating efficient and personalized trip plans. The agent will gather and process real-time travel data to recommend destinations, create itineraries, and suggest transportation and accommodation options based on user preferences and budget. Integrated with maps, weather services, and local guides, it ensures smooth and optimized travel experiences.

Key components:

Data Collection: Use real-time APIs for flights, trains, buses, hotels, weather, maps, and local attractions.

Preprocessing: Organize and standardize travel data for easy retrieval and personalization.

Model Training: Implement a recommendation model to suggest destinations, activities, and travel routes tailored to the user.

Evaluation: Test accuracy and usefulness by comparing recommendations against trusted travel sources and user satisfaction feedback.

Deployment: Integrate the travel planner agent into a web or mobile application with a user-friendly interface, supporting natural language queries and real-time updates.

SYSTEM APPROACH

The "System Approach" section outlines the overall strategy and methodology for developing and implementing the Travel Planner Agent. The system will integrate multiple APIs, data sources, and AI models to deliver accurate, real-time, and personalized travel recommendations.

System requirements:

IBM Cloud (*mandatory*)

IBM watson studio for model development and deployment

IBM Cloud Object Storage for storing travel datasets, user preferences, and itinerary data

ALGORITHM & DEPLOYMENT

Algorithm Selection:

Hybrid Recommendation System (Content-based + Collaborative Filtering) combined with NLP for query understanding.

Data Input:

User preferences (budget, travel dates, interests), real-time travel data (flights, trains, hotels, weather, attractions).

Training Process:

Supervised learning for itinerary recommendations using historical travel data and user feedback. NLP fine-tuning for natural language queries.

Prediction Process:

AI model deployed on IBM Watsonx / IBM Cloud Functions, integrated with APIs for real-time recommendations and updates via conversational interface.

RESULT

Give the instructions and click on add tool

IBM watsonx

Upgrade ⓘ 🔔

Dharani Sree Kamineni's A... ▾

Dallas ▾

DK

⋮

Projects / Travel_Planner_Agent / watsonx Agent

Share feedback ⓘ

Autosaved 8:32 PM

⌵

New agent +

Deploy 🔗

🔒

ⓘ

Build

AI

Model: llama-3-3-70b-instruct ▾

⚙️

<

Configuration

Framework

LangGraph ▾

Architecture

ReAct ▾

LangGraph

Instructions

Advanced configuration

Give accurate, up-to-date travel advice using trusted sources for destinations, itineraries, transport, hotels, weather, and local tips. Personalize plans based on user preferences and budget. If unsure, say so and suggest reliable sources. Avoid outdated, unsafe, or off-topic advice.

Knowledge

Tools

Add a tool

Create custom tool

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.

Agent preview

watsonx Agent 08:48 PM

Welcome to watsonx Agent

Change this description to reflect your particular agent



Type something... 🔍 ➤

RESULT

Select the tools as shown below

The screenshot shows the IBM watsonx interface with the 'Select a tool' dialog open. The dialog has a search bar and a grid of tool cards. Each card includes an icon, a title, a description, and a toggle switch. The 'DuckDuckGo search' card is highlighted, and a tooltip is visible over it.

Tool	Description	Status
Google search	Retrieve information from the internet with the Google search engine.	On
DuckDuckGo search	Retrieve information from the internet with the DuckDuckGo search engine.	On
Wikipedia search	Retrieve information from Wikipedia articles.	On
Document search	Search documents with vector indexes.	Off
Tavily search	Retrieve information from the internet with the Tavily search engine.	Off
Webcrawler	Retrieve information from a website.	On
Python Interpreter	Execute Python code generated by the agent.	Off
Weather	Retrieve the weather of a city.	On

RESULT

Type a question on agent preview and click on send for result

IBM watsonx

Upgrade ?

Dharani Sree Kamineni's A...

Dallas

DK

Projects / Travel_Planner_Agent / watsonx Agent

Share feedback β Autosaved 8:32 PM New agent + Deploy

Build

AI Model: llama-3-3-70b-instruct

Agent preview

Configuration

Framework Architecture

LangGraph ReAct

Instructions

Give accurate, up-to-date travel advice using trusted sources for destinations, itineraries, transport, hotels, weather, and local tips. Personalize plans based on user preferences and budget. If unsure, say so and suggest reliable sources. Avoid outdated, unsafe, or off-topic advice.

Knowledge

Tools

Add a tool Create custom tool

Added tools (5)

Google search

Retrieve information from the internet with the Google search engine.

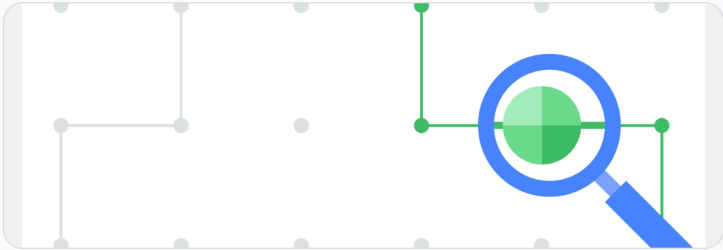
DuckDuckGo search

Retrieve information from the internet with the DuckDuckGo search engine.

watsonx Agent 08:51 PM

Welcome to watsonx Agent

Change this description to reflect your particular agent



suggest the best holiday destinations in India in December.

RESULT

This is the result given by agent

IBM watsonx

Upgrade ?

Dharani Sree Kamineni's A...

Dallas

DK

Projects / Travel_Planner_Agent / Agent Lab

Share feedback

Unsaved

New agent +

Deploy

Build

AI Model: llama-3-3-70b-instruct

Setup

Configuration

Framework Architecture

LangGraph ReAct

Instructions

Give accurate, up-to-date travel advice using trusted sources for destinations, itineraries, transport, hotels, weather, and local tips. Personalize plans based on user preferences and budget. If unsure, say so and suggest reliable sources. Avoid outdated, unsafe, or off-topic advice.

Knowledge

Tools

Add a tool Create custom tool

Added tools (5)

Google search

Retrieve information from the internet with the Google search engine.

Agent preview

DK You: 08:25 PM

Suggest the best holiday destinations in India in December.

watsonx Agent 08:25 PM

Some of the best holiday destinations in India in December include:

1. Kochi, Kerala

2. Munnar, Kerala

3. Thekkady, Kerala

4. Mahabaleshwar

5. Alleppey, Kerala

6. Wayanad, Kerala

7. Goa

8. Jaisalmer, Rajasthan

9. Kashmir

10. Andaman & Nicobar Islands

11. Sikkim

12. Kasol

13. Manali

14. Sangla

15. Gulmarg

16. Leh

Type something...

RESULT

IBM watsonx

Upgrade ?

Dharani Sree Kamineni's A... ▾

Dallas ▾

DK

Projects / Travel_Planner_Agent / Agent Lab

Share feedback β

Unsaved

New agent +

Deploy

Build

AI

Model: llama-3-3-70b-instruct ▾

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Setup ▾

Configuration ▴

Framework

Architecture

LangGraph

LangGraph

ReAct ▾

Instructions

Advanced configuration

Give accurate, up-to-date travel advice using trusted sources for destinations, itineraries, transport, hotels, weather, and local tips. Personalize plans based on user preferences and budget. If unsure, say so and suggest reliable sources. Avoid outdated, unsafe, or off-topic advice.

Knowledge ▾

Tools ▴

Add a tool

Create custom tool

Added tools (5)

Google search

Retrieve information from the internet with the Google search engine.

Agent preview

6. Wayanad, Kerala

7. Goa

8. Jaisalmer, Rajasthan

9. Kashmir

10. Andaman & Nicobar Islands

11. Sikkim

12. Kasol

13. Manali

14. Sangla

15. Gulmarg

16. Leh

17. Rishikesh

18. Auli

19. Spiti

20. Shimla

These destinations offer a range of experiences, from beach relaxation to adventure activities, and are suitable for different types of travelers, including solo travelers, families, and couples. The weather in December is generally pleasant, with mild temperatures and minimal rainfall, making it an ideal time to visit these places.

► How did I get this answer?

Type something...

▶

RESULT

Click on agent and then click on save

IBM watsonx

Upgrade ⓘ 🔔 Dharani Sree Kamineni's A... Dallas DK ⋮

[Projects](#) / [Travel_Planner_Agent](#) / Agent Lab [Share feedback](#) B Unsaved 📁 New agent + Deploy 🔗

🗑️

📁

Save your work

Specify how to save your work by selecting an asset type and defining details.

Asset type

Agent ✓
Save as an editable agent asset that can be reopened in this tool.

Standard notebook
Save the current agent as a notebook.

Deployment notebook
Save a notebook that can deploy your agent as an AI service.

Define details

Name

watsonx Agent

Description (optional)

Change this description to reflect your particular agent

☐ View in project after saving ⓘ

Cancel

Save

⏏

RESULT

Click on deploy and it is initializing as shown below

IBM watsonx

Upgrade ⓘ 🔔

Dharani Sree Kamineni's A... ▾

Dallas ▾

DK ⋮

Deployment spaces / ⌵ ⓘ 🔗 ⌛ 💬 ⚙

Travel Planner Agent

Overview

Assets

Deployments

Jobs

Manage

🔍 Search ↻

Name	Type	Status	Asset	Asset type	Tags	Last modified	⌵
🔗 watsonx Agent	Online	🕒 Initializing	watsonx Agent	Ai service	wx-agent ✎	6 seconds ago Dharani Sree Kamineni (You)	⋮

Items per page: 20 ▾ 1–1 of 1 items

1 of 1 pages ⏪ ⏩

RESULT

Deployment has finished

IBM watsonx

Upgrade

Dharani Sree Kamineni's A...

Dallas



DK

Deployment spaces /

Travel Planner Agent

OverviewAssetsDeploymentsJobsManage

Search

Name	Type	Status	Asset	Asset type	Tags	Last modified	
 watsonx Agent	Online	 Deployed	watsonx Agent	Ai service	<div>wx-agent</div>	37 seconds ago Dharani Sree Kamineni (You)	

Items per page: 20

1-1 of 1 items

1 of 1 pages

RESULT

IBM watsonx

Upgrade

?

Dharani Sree Kamineni's A...

▼

Dallas

▼

DK

Deployment spaces

/

Travel Planner Agent

Overview

Assets

Deployments

Jobs

Manage

Jump back in

watsonx Agent

8 minutes ago

View all (1)

Deployments

All

▼

✔ Deployed

1

✖ Failed

0

View deployments

Job runs

🔄 Active

0

✖ Failed last 24 hours

▼

0

View jobs

Space history

🕒 No notifications

You will see your most recent notifications here.

CONCLUSION

The Travel Planner Agent simplifies and personalizes the entire travel planning process by combining real-time data, intelligent recommendations, and user preferences. With integrated APIs for transport, accommodation, weather, and attractions, it delivers accurate and up-to-date travel advice. By leveraging AI and NLP, it tailors itineraries to suit each traveler's needs, ensuring convenience, cost-efficiency, and a seamless travel experience. This smart assistant not only saves time but also enhances the joy of travel, making it a valuable tool for modern travelers.

FUTURE SCOPE

- **Expanded Data Sources:** Integrate more global and regional travel APIs for wider coverage.
- **Voice Interaction:** Enable voice-based trip planning in multiple languages.
- **AI-Driven Price Prediction:** Predict future flight and hotel prices for better booking decisions.
- **Augmented Reality (AR) Assistance:** Provide AR-based local navigation and attraction previews.
- **Offline Mode:** Allow limited functionality without internet, using cached data.
- **Integration with Wearables:** Send travel alerts and itinerary updates to smartwatches and other devices.

REFERENCES

- IBM Cloud documentation for cloud services setup and deployment.
- IBM Watson Studio documentation for model development, training, and deployment.
- IBM Cloud Object Storage documentation for data storage and retrieval.
- Relevant online tutorials, training material, and IBM developer resources used during the project.

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In recognition of the commitment to achieve
professional excellence



Dharani Sree Kamineni

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



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IBM **SkillsBuild**

Completion Certificate



This certificate is presented to
Dharani Sree Kamineni

for the completion of

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ProjectManager.com**

(URL-G-YOH0ZY0C8)
As indicated by this learner

Completion date: 03 Jan 2025 (GMT)

Learning hours: 3 mins



THANK YOU