
CAPSTONE PROJECT

TRAVEL PLANNER AGENT

Presented By:

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OUTLINE

- **Problem Statement**
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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

The proposed Travel Planner Agent aims to simplify the travel planning process by providing intelligent, personalized, and real-time recommendations. It leverages data analytics, natural language processing, and machine learning models to deliver an enhanced travel experience. The solution will consist of the following components:

- **Data Collection:**
 - Collect input such as destination, travel dates, budget, group size, and interests (e.g., adventure, culture, relaxation).
 - Integrate live data from APIs on weather, local events, transport availability, and hotel bookings to enhance planning accuracy.
- **Data Preprocessing:**
 - Clean and normalize input data to remove inconsistencies, duplicates, and irrelevant information.
 - Perform feature engineering to derive meaningful insights like optimal travel times, cost trends, and crowd forecasts.
- **Machine Learning Algorithm:**
 - Use NLP models (e.g., IBM Granite) to understand user queries and preferences, and generate tailored travel suggestions.
 - Apply recommendation and time-series models to forecast prices, demand, and optimal travel times based on historical and real-time data.
- **Deployment:**
 - Deploy backend services and ML models on IBM Cloud Lite to ensure scalability, reliability, and secure access.
 - Develop a responsive web/mobile interface with integrated maps, calendar, and booking tools for seamless user interaction and real-time updates.
- **Evaluation:**
 - Evaluate user satisfaction, relevance of suggestions, and accuracy of predictions using metrics like Click-Through Rate (CTR), Booking Conversion Rate, and user feedback.
 - Continuously fine-tune recommendation models based on user interactions and behavioral feedback.

SYSTEM APPROACH

The "System Approach" section outlines the overall strategy and methodology for developing and implementing the Travel Planner Agent. Here's a suggested structure for this section:

- **System requirements**
 - **Hardware:** Any modern device (mobile/desktop) with internet access.
 - **Software:** Python, Flask/Node.js, IBM Watson Assistant, IBM Cloud Functions.
 - **Platform:** IBM Cloud Lite
- **Library required to build the model**
 - IBM Watson

ALGORITHM & DEPLOYMENT

- In the Algorithm section, describe the machine learning algorithm chosen for predicting bike counts. Here's an example structure for this section:
- **Algorithm Selection:**
 - A combination of Natural Language Processing (NLP) and Recommendation Algorithms is used. IBM Granite is used for NLP-based query understanding, while collaborative filtering and content-based filtering help generate travel recommendations.
- **Data Input:**
 - The system takes inputs like user preferences (destination, budget, dates), real-time data (weather, transport), and historical travel trends. These inputs help personalize and adapt travel recommendations dynamically.
- **Training Process:**
 - The NLP model (IBM Granite) is fine-tuned with travel-related queries, while recommendation models are trained on user interaction data. Cross-validation and parameter tuning are applied to improve accuracy and relevance.
- **Prediction Process:**
 - The system predicts suitable destinations, transport, and accommodations based on user input and real-time data. It dynamically updates recommendations as conditions like weather or prices change.

RESULT

The Travel Planner Agent delivers personalized itineraries and real-time travel recommendations based on user preferences and live data. It enhances travel experiences by managing bookings, optimizing schedules, and providing timely alerts.

RESULT - SUCCESSFULLY CREATED AN AI AGENT

The screenshot displays the IBM watsonx AI Agent Lab interface. The top navigation bar includes the IBM watsonx logo, an 'Upgrade' button, a help icon, a notification bell, and user account information for 'Jayahar Jayaraj's Account' in 'Dallas'. The breadcrumb trail shows 'Projects / AgenticAI / Agent Lab'. The main interface is split into two panels: 'Build' on the left and 'Agent preview' on the right.

Build Panel:

- Framework:** LangGraph
- Architecture:** ReAct
- Instructions:**
 - Mention country and city names clearly.
 - If unsure about exact details (e.g., live pricing or availability), say "based on general data" or "typically".
 - You do not need to book anything, just suggest and guide.
- Knowledge:** (Empty section)
- Tools:**
 - Buttons: 'Add a tool' and 'Create custom tool'
 - Added tools (5):
 - Google search:** Retrieve information from the internet with the Google search engine.

Agent preview Panel:

- Travel Agent 05:22 PM**
- Welcome to Travel Agent**
- Hi I am Travel Agent - here to help you with planning your trip efficiently and intelligently.
- A diagram showing a network of nodes and connections, with a magnifying glass highlighting a specific node.
- Input field: 'Type something...'

RESULT – THE AI AGENT PROVIDED A TRAVEL GUIDE

IBM watsonx

Upgrade ?

Jayahar Jayaraj's Account

Dallas

JJ

Projects / AgenticAI / Agent Lab

Share feedback β Unsaved New agent + Deploy

Build

AI Model: granite-3-3-8b-instruct

Framework: LangGraph Architecture: ReAct

Instructions

Advanced configuration

- Mention country and city names clearly.
- If unsure about exact details (e.g., live pricing or availability), say "based on general data" or "typically".

You do not need to book anything, just suggest and guide.

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

Agent preview

JJ You: 05:24 PM

I want to travel to London for a week, give me a travel guide

Travel Agent 05:24 PM

Sure, I'd be happy to help you plan your trip to London! Here's a basic itinerary for a week-long visit:

Day 1: Arrival in London

- Arrive at London Heathrow or Gatwick Airport, depending on your flight.
- Transfer to your hotel via Heathrow Express or Gatwick's Gatwick Express.
- Check-in and freshen up.
- Spend the rest of the day exploring the local area around your hotel.
- Dinner at a nearby restaurant.

Day 2: Explore Central London

- Start your day with a visit to the iconic Buckingham Palace.
- Walk to the nearby Westminster Abbey and Houses of Parliament.
- Have lunch in the area, perhaps at a traditional British pub.
- In the afternoon, visit the British Museum, home to a vast collection of world art and

Type something...

RESULT – DEPLOYED AI AGENT

IBM watsonx

Upgrade ?

Jayahar Jayaraj's Account

Dallas

JJ

Deployment spaces / Travel Agent / Travel Agent /


Travel Agent ✓ Deployed Online

API reference Test **Preview**

New chat +

J You 09:00 PM

give a travel plan for london

 Travel Agent 09:00 PM


Sure, here's a general travel plan for London based on a moderate budget.

Day 1: Arrival and Exploring Central London


- Arrive at London Heathrow or Gatwick Airport and take the Underground to your hotel in Central London.
- Check into your hotel and freshen up.
- Spend your afternoon exploring the British Museum, home to a vast collection of world art and artifacts.
- In the evening, enjoy a traditional pub dinner followed by a leisurely stroll around Covent Garden.


Day 2: Historical London

- Start your day with a visit to the iconic Tower of London. Explore the Crown Jewels and learn about the tower's history.

Type something... 


About this deployment ×



Name 
Travel Agent


Description 
Hi I am Travel Agent - here to help you with planning your trip efficiently and intelligently.


Deployment Details


Deployment ID: afae68e2-d6e6-41...



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](#)
25d6ebb9-0da6-4206-9638-556e249b5b22

edunet
foundation

CONCLUSION

- The Travel Planner Agent simplifies trip planning by combining AI, real-time data, and user preferences to deliver personalized travel experiences. Using IBM Granite and IBM Cloud Lite, it offers intelligent suggestions, dynamic updates, and seamless itinerary management—transforming complex travel decisions into a smooth, efficient process.

FUTURE SCOPE

- The Travel Planner Agent can be enhanced with voice-based interaction, AR/VR previews of destinations, and integration with wearable devices for real-time travel assistance. Future improvements may include multilingual support, offline planning capabilities, and advanced sentiment analysis to better understand user moods and preferences.

REFERENCES

- IBM Cloud Lite Documentation – <https://www.ibm.com/cloud/free>
- IBM Granite NLP Models – <https://research.ibm.com/blog/ibm-granite-models>
- Travel Recommendation Systems – <https://ieeexplore.ieee.org/document/9286763>
- Real-Time Travel Data APIs – <https://developers.google.com/maps/documentation>

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In recognition of the commitment to achieve
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Jayahar J

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



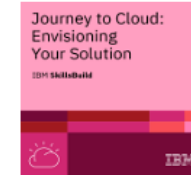
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LangChain**

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According to the Adobe Learning Manager system of record

Completion date: 24 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU