

CAPSTONE PROJECT

TRAVEL BUDDY

Presented By:

- 1. Setti Bhanu Akshaya – RNS INSTITUTE OF TECHNOLOGY
- DEPT. OF COMPUTER SCIENCE**

OUTLINE

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

PROBLEM STATEMENT

- **Problem Statement No.5-** Travel Planner Agent
- Efficient travel planning is a complex, time-consuming process involving destination research, itinerary creation, transport and accommodation booking, and adapting to real-time events. Travelers often struggle to align plans with preferences, budget and changing conditions, leading to suboptimal experiences.
- The challenge is to develop an AI-powered Travel Planner Agent that intelligently assists users in planning trips by:
 - Suggesting destinations.
 - Building complete itineraries.
 - Recommending optimal transport and accommodation.
 - Personalizing plans based on user constraints.
 - Seamlessly integrating real-time maps, weather, and local guides.

PROPOSED SOLUTION

- The proposed solution is an advanced Travel Planner Agent powered by IBM watsonx.ai (using the Mistral Large model) and IBM Cloud Lite services. It delivers the following key features:
 - User Profile & Preferences: Collects and understands user needs (destination, budget, interests, constraints).
 - Destination & Itinerary Suggestions: Recommends personalized destinations and plans multi-day itineraries with activities and sites.
 - Real-Time Integrations: Leverages APIs for live weather, local guides, maps, hotels, and transport.
 - Booking & Alerts: Supports managing reservations, sends alerts for schedule changes and provides travel tips.
 - Conversational Interface: Uses natural language understanding for seamless, chat-driven planning.
 - Optimization: Dynamically adjusts itineraries based on new data or user feedback.

SYSTEM APPROACH

- IBM watsonx.ai Studio: Development and deployment platform for AI agents.
- Mistral Large Model: Advanced large language model for intent understanding and itinerary generation.
- IBM Cloud Lite: Cloud hosting, service orchestration, and integration.
- External APIs: weather (OpenWeather), local guides.
- Backend/Orchestration: IBM Functions (Serverless for event-driven tasks, e.g. fetching info from APIs).

ALGORITHM & DEPLOYMENT

- Algorithm Selection
 - Foundation: Large Language Model (Mistral Large) for understanding requests, personalized responses, and itinerary generation.
 - Integration: Retrieval-Augmented Generation (RAG) for combining LLM output with external data (real-time maps, weather, etc).
- Data Input
 - User queries (text, preferences, constraints) via chat.
- Training Process
 - Fine-tuned prompts on watsonx.ai, using travel-related Q&A, itinerary samples, and knowledge retrieval patterns.
- Prediction Process
 - On user request, the agent:
 - Extracts key requirements.
 - Queries various data sources (APIs) as needed.
 - Generates and returns a tailored itinerary, with booking links.
- Deployment
 - IBM watsonx.ai handles model execution and orchestration.
 - Deployed as a cloud-based web service, accessible through IBM Cloud Lite.

RESULT

SA You: 04:46 PM

hello


 watsonx Agent 04:46 PM

Hi, I am your personal travel buddy agent. How can I help you?

► How did I get this answer?

SA You: 04:46 PM

i would like to travel to japan. can you show me the attractions


 watsonx Agent 04:46 PM

Here are some of the top attractions in Japan:

1. **Fushimi Inari-taisha Shrine:** A historic site with beautiful shrines and scenic trails.
2. **Kinkakuji Temple:** A stunning golden temple that is a must-visit for its architectural beauty.
3. **Shinjuku Gyoen National Garden:** A serene and beautiful garden in the heart of Tokyo.
4. **Mount Fuji:** An iconic symbol of Japan, offering breathtaking views and hiking opportunities.
5. **Imperial Tokyo:** Explore the rich history and culture of Japan's capital city.
6. **Hiroshima Peace Memorial Park:** A poignant reminder of history and a symbol of peace.
7. **Historic Kyoto:** Discover the ancient temples, shrines, and gardens of this cultural hub.

SA You: 04:48 PM

tell at what time of day should i visit mount fuji today

 watsonx Agent 04:48 PM

The current weather in Mount Fuji is as follows:

- Temperature: 14°C
- Rain: 0mm
- Relative humidity: 88%
- Wind: 7km/h

Given the current weather conditions, it seems like a good time to visit Mount Fuji. The temperature is mild, there is no rain, and the wind is relatively calm. This should make for a pleasant visit. Enjoy your trip!

RESULT

Here are some timings and tips for visiting Tokyo Skytree and Odaiba:

Tokyo Skytree

- **Operating Hours:** Generally open from 8:00 AM to 10:00 PM.
- **Best Time to Visit:**
 - **Morning:** For clear views and fewer crowds.
 - **Evening:** For stunning night views of the city.

Odaiba

- **Operating Hours:** Varies by attraction, but generally open from 10:00 AM to 9:00 PM.
- **Best Time to Visit:**
 - **Daytime:** For shopping, dining, and entertainment.
 - **Evening:** For beautiful views of the Rainbow Bridge and Tokyo's skyline.

Tips

- **Tokyo Skytree:** Consider visiting during sunset for a transition from day to night views.
- **Odaiba:** Plan to spend at least half a day to explore various attractions like Palette Town, DiverCity Tokyo Plaza, and the beach area.

Recommendations

- **Best Overall:** March to May and September to November are generally considered the best times to visit Japan for pleasant weather and fewer crowds.
- **Cherry Blossoms:** April is the peak season for cherry blossoms.
- **Autumn Foliage:** October and November offer beautiful fall colors.

CONCLUSION

The Travel Planner Agent demonstrates the power of integrating IBM watsonx.ai with real-time data and external services for complex trip planning. It streamlines itinerary creation, personalizes recommendations, and adapts to changes, providing significant convenience for modern travelers. The deployment on IBM Cloud Lite and use of the Mistral Large model enable scalability, flexibility, and natural conversations.

FUTURE SCOPE

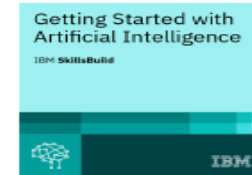
- Wider Data Sources: Integrate additional providers for transport, hotels, and activities globally.
- Voice and Multi-Language Support: Expand accessibility for diverse users.
- Mobile App Release: Native apps for offline trip access.
- Smart Budgeting and Group Planning: Automated trip cost optimization; collaborative features for group travel.
- Deeper Personalization: Utilize AI to remember user preferences, past trips, loyalty programs.
- Integration with Edge/IoT: On-trip updates via devices, even without constant connectivity.

REFERENCES

- IBM watsonx.ai Documentation
- IBM Cloud Lite Official Docs
- Mistral Large Model API Papers
- OpenWeather API Docs

IBM CERTIFICATIONS

In recognition of the commitment to achieve professional excellence



Setti Bhanu Akshaya

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



Issued on: Jul 21, 2025

Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/c63655ec-9c7c-429a-a0b5-e2a27be98ad1>



IBM CERTIFICATIONS

In recognition of the commitment to achieve
professional excellence



Setti Bhanu Akshaya

Has successfully satisfied the requirements for:

Journey to Cloud: Envisioning Your Solution



Issued on: Jul 21, 2025
Issued by: IBM SkillsBuild

Verify: <https://www.credly.com/badges/38427db3-de96-4013-b9d2-be5f3374b325>



IBM CERTIFICATIONS

IBM **SkillsBuild**

Completion Certificate



This certificate is presented to
Setti Bhanu Akshaya

for the completion of

**Lab: Retrieval Augmented Generation with
LangChain**

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 31 Jul 2025 (GMT)

Learning hours: 20 mins



THANK YOU