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# CAPSTONE PROJECT

## PROJECT TITLE

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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

## Problem Statement No.5- Travel Planner Agent

### 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.

Technology - Use of IBM cloud lite services /IBM Granite is mandatory.

# PROPOSED SOLUTION

- The proposed system aims to address the challenge of planning an itinerary for a budget friendly person for a proper vacation with family or friends. It gives a detailed itinerary plan for proper stays, foods, and places to visit for a specified destination. It asks for the budget that he/she has and plan itinerary accordingly.
- **IBM Cloud watsonx assistant:**
  - Used the watsonx assistant to help in making an AI Agent.
- **Services and Model:**
  - IBM Granite model can be used for the following AI Agent that I have made.
- **Tools used:**
  - Tools that I have used in this project are Google Search, Duckduckgo Search, Wikipedia Search, Webcrawler, and Weather.
- **Deployment:**
  - Deployed the project on IBM Cloud using the free service that it provides.
- **Evaluation:**
  - The AI Agent is working fine as it provides a detailed itinerary planning for different places with a friendly budget options.
- **Result:**
  - The AI Agent is running perfectly and the outputs are fine it searches widely on the internet for the places and provides a detailed map of how, where to go in the vacation also providing the travel options, stay options, etc.

# SYSTEM APPROACH

- **System requirements**

- It requires a normal computer with 8 GB of RAM and a operating system that can help run the IBM Cloud on it.

- **Services used**

- IBM Cloud Lite version.
- Watsonx assistant.

- **Library required to build the model**

- IBM Granite LLM Model.
- LangGraph Framework

- **Tools used for the project**

- Google Search
- Duckduckgo Search
- Webcrawler

# ALGORITHM & DEPLOYMENT

- First opened watsonx assistant to build a AI Agent model:
- **Model Selection: (IBM Granite Model)**
  - IBM Granite is a family of enterprise-grade Large Language Models (LLMs) developed by IBM Research. These models are the foundation of many of the generative AI capabilities within IBM's flagship AI and data platform, watsonx.ai..
- **Tools Selection:**
  - Google Search, Duckduckgo search. (Provides search environment for the project.)
  - Webcrawler (helps in searching and traversing through different websites.)
  - Weather ( helps to get weather data and integrate it in the search to get a proper result with weather conditions too.)
- **Training Process:**
  - Trained the AI Agent through trail and error method and made it more to the point and elaborative, including the friendly budget for penetrating to highest crowd, and help to give some useful travel tips for the region they want to travel.
- **Deployment :**
  - Used the watsonx runtime service and deployed the AI Agent on the IBM Cloud deployment space.

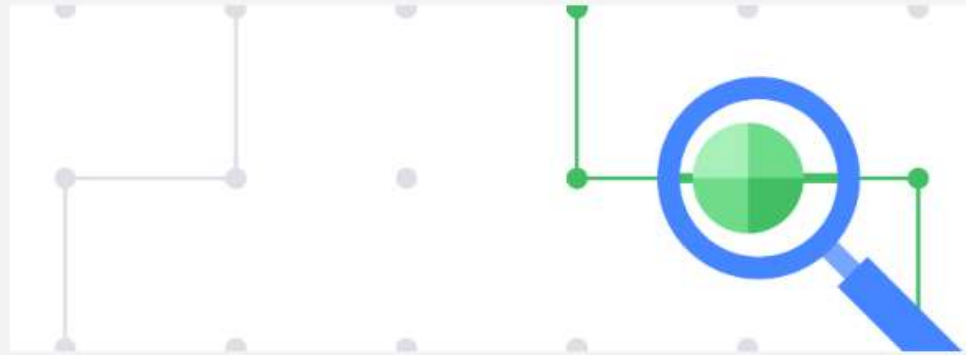
# RESULT



watsonx Agent 08:08 PM

Welcome to watsonx Agent

Change this description to reflect your particular agent



Hey, I want to travel to Jammu & Kashmir with my family of four for 3-days. Provide me a itenary for the same. My budget is 80,000 ruppes.|



# RESULT



watsonx Agent 09:52 PM

▼ How did I get this answer?

- |   |   |   |
|---|---|---|
| ✓ | 1: {"query": "3-day family vacation in Jammu and Kashmir under 80,000 rupees"}                          | ✓ |
| ✓ | 2: {"query": "affordable family vacation packages in Jammu and Kashmir for 3 days"}                     | ✓ |
| ✓ | 3: {"query": "best 3-day family vacation packages in Jammu and Kashmir with a budget of 80,000 rupees"} | ✓ |
| ✓ | 4: {"query": "Jammu and Kashmir family vacation budget 80000 rupees"}                                   | ✓ |
| ✓ | 5: {"query": "best 3-day family vacation packages in Jammu and Kashmir under 80,000 rupees"}            | ✓ |
| ✓ | 6: {"query": "best 3-day family vacation packages in Jammu and Kashmir with a budget of 80,000 rupees"} | ✓ |
| ✓ | 7: {"query": "best 3-day itinerary for family of 4 in Jammu and Kashmir with budget 80,000 rupees"}     | ✓ |
| ✓ | 8: {"query": "best 3-day family vacation packages in Jammu and Kashmir with a budget of 80,000 rupees"} | ✓ |
| ✓ | 9: {"query": "best 3-day family vacation packages in Jammu and Kashmir with budget 80,000 rupees"}      | ✓ |



# RESULT



watsonx Agent 09:54 PM

Hi there! I can help you find some information about planning a family vacation in Jammu and Kashmir (J&K) with a budget of 80,000 rupees for 3 days.

1. **Accommodation:** For a family of 4, you might want to consider staying in a houseboat in Dal Lake, Srinagar, or a homestay in Pahalgam. The cost for such accommodations could range from 2,000 to 4,000 rupees per night. For 3 nights, this would be around 6,000 to 12,000 rupees.
2. **Transportation:** You can take a train or flight to Jammu, from where you can hire a taxi to reach Srinagar or other destinations in Kashmir. The taxi fare for a round trip from Srinagar to Pahalgam (a popular family-friendly destination) could be around 8,000 to 10,000 rupees.
3. **Sightseeing:** Some family-friendly attractions in J&K include Mughal Gardens in Srinagar, Shalimar Bagh, Nishat Bagh, and the picturesque Pahalgam. Entry fees are generally nominal.
4. **Food:** Local Kashmiri cuisine is delicious and affordable. You can expect to spend around 1,000 to 2,000 rupees per meal for a family of 4.

# RESULT

## Day 1: Arrival in Srinagar

- Morning: Arrive in Srinagar. Check into your houseboat or hotel. Spend the morning getting acclimated.
- Afternoon: Visit Mughal Gardens (Flower Gardens, Tulip Garden, and Nishat Bagh). These gardens are beautifully maintained and offer stunning views of Dal Lake and the surrounding mountains.
- Evening: Enjoy a Shikara ride on Dal Lake. You can hire a Shikara (traditional Kashmiri boat) for a leisurely ride and enjoy the sunset.

## Day 2: Srinagar to Pahalgam

- Early Morning: After breakfast, start your journey to Pahalgam (approximately 96 km from Srinagar, about 3-4 hours drive). Pahalgam is known for its picturesque landscapes and is a great place for a family getaway.
- Afternoon: Upon arrival, check into your accommodation. Explore the area, have lunch, and relax.
- Evening: Visit the Betaab Valley, famous for its scenic beauty, often used as a photoshoot location.

# RESULT

## Day 3: Pahalgam to Return

- Morning: After breakfast, you can take a guided tour to Aru Valley or visit the hanging bridge and waterfalls nearby.
- Afternoon: Start your return journey to Srinagar. Check into your hotel and rest.
- Evening: Explore the local markets for shopping (Walnut, Kashmiri carpets, shawls, etc.). Have a farewell dinner at a local restaurant, trying out some authentic Kashmiri cuisine.

Please note that this is a basic itinerary, and you can modify it based on your family's preferences and interests. Also, ensure to check the weather and road conditions before planning your travel, especially for the Srinagar to Pahalgam route.

Would you like me to find more details about any specific activity or location in this itinerary?

► How did I get this answer?

# CONCLUSION

- A working AI Agent has been made with the help of IBM Cloud and IBM Granite LLM Model. This AI Agent can help individuals plan their trip ( budget-friendly ) trip to wherever they want to travel and gives a full overview of 3 main things for a vacation i.e. stay, food, and travel (places to visit there). So this AI Agent does exactly the same to provide a full overview of what all to do. And if the person doesn't like it he/she can re-enter the prompt to get better results.

# FUTURE SCOPE

- **Hyper-Personalization & Predictive Planning**

It would a person for being more personalized planning as the AI Agent would know the preferences of the user from before.

- **Fully Autonomous & End-to-End Management**

This would helpin being autonomous as only the prompt of the destination is required and the budget and the agent can do all the research work to provide the best and favourable outcome for the person.

- **Immersive and Context-Aware Experiences**

This would also help in giving an immersive and context aware experiences to the end user.

# REFERENCES

- IBM Cloud support team
- Edunet Foundation
- Courses like (Getting started with AI , Journey to Cloud , RAG with LangChain)

# IBM CERTIFICATIONS



# IBM CERTIFICATIONS





# IBM CERTIFICATIONS

IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Mayank Aman

for the completion of

**Lab: Retrieval Augmented Generation with  
LangChain**

(ALM-COURSE\_3824998)

According to the Adobe Learning Manager system of record

**Completion date:** 24 Jul 2025 (GMT)

**Learning hours:** 20 mins



**THANK YOU**