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# CAPSTONE PROJECT

## AI-POWERED TRAVEL PLANNER AGENT

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# OUTLINE

- **Problem Statement**
- **Proposed System/Solution**
- **System Development Approach**
- **Algorithm & Deployment**
- **Result**
- **Conclusion**
- **Future Scope**
- **References**

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# PROBLEM STATEMENT

**Problem Statement No.5-** 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.

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# PROPOSED SOLUTION

- The proposed solution is an AI-powered Travel Planner Agent that uses IBM Granite foundation models via Prompt Lab to generate personalized itineraries based on user input such as destination, interests, budget, and travel dates. The assistant:
- Builds day-wise plans
- Suggests transport and accommodation
- Summarizes local weather
- Operates entirely through natural language prompts

# SYSTEM APPROACH

- Platform: IBM Cloud (Lite Tier)
- Tools Used:
  - Watsonx.ai (Prompt Lab)
  - Granite-3.3-8B-Instruct model
- Input: Natural language queries describing travel preferences
- Output : Generated itinerary (text), structured day plans, suggestions
- No-code/low-code workflow using prompt engineering

# ALGORITHM & DEPLOYMENT

## Prompt-based approach (LLM instruction tuning)

- No traditional algorithm; uses large language model (Granite) for text generation
- Prompt template created with placeholders for:
  - Destination
  - Budget
  - Duration
  - Interests
- Prompt Lab configured with:
  - Max tokens : 2000 , Min tokens : 200
  - Stop Sequence : “!” and “---”
  - Output style: bullet format, emojis, budget estimates
- Output captured and exported for report/documentation

# RESULT

IBM watsonx

Upgrade

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Krishna Nagpal's Account ▾

Dallas ▾

KN

⋮

Projects / Travel Planner Agent / Prompt Lab

AI guardrails on ⚙️

Unsaved 📁 ▾

New prompt +

Chat

Structured

Freeform

AI

Model: granite-3-8b-instruct ▾

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TXT

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🔗

Instruction (optional) ⓘ

You are a smart Travel Planner Agent....

⌚

Examples (optional) ⓘ

Input:	Output:
Destination: Jaipur Budget: 15000 INR Month: October ...	 Destination Overview: Jaipur, the Pink City, is a historical hub known for its forts, palaces, and local Rajasthani cuisine....
"I'm planning a 5-day trip to Jaipur this October with one other person. Our total budget is ₹15,000. We're really interested in exploring culture, trying local food, and taking lots of great photos. Can you suggest a personalized travel itinerary that fits our interests and ...	 Destination Overview: Jaipur, the Pink City, is a historical hub known for its forts, palaces, and local Rajasthani cuisine....
"Hey! I'm planning a solo getaway to Goa this December. I've got a budget of around ₹25,000 and I'm looking for a fun mix of beaches, nightlife, and maybe some nature spots too. Can you help me come up with a 5-day travel plan that balances relaxation and ...	 Travel Itinerary: Solo Trip to Goa (December, ₹25,000 Budget)  Destination Overview Goa is India's ultimate coastal paradise—famous for its golden beaches, vibrant nightlife, ...

Add example +

🗑️

Stop reason: Max tokens parameter reached  
Tokens: 147 input + 200 generated = 347 out of 131072  
Time: 3.1 seconds

Clear output 🗑️

Generate →

# RESULT

## Set up ^

Instruction (optional) ⓘ

You are a smart Travel Planner Agent.

Based on the following user input, generate a personalized 5-day itinerary with travel suggestions, accommodation, weather info (mock), and local attractions.

User input:

- Destination: {{destination}}
- Budget: {{budget}} INR
- Travel Month: {{month}}
- Number of People: {{people}}
- Interests: {{interests}}

Give output in this format:

- Destination Overview
- Day-wise Plan (Day 1 to Day 5)
- Estimated Budget Breakdown
- Mock Weather Summary
- Hotel & Transport Suggestions

always end Final notes with a "!"



# RESULT

## Model parameters

### Decoding

Greedy ☒ Sampling ⓘ

### Repetition penalty

1  2 1

### Stopping criteria ⓘ

#### Stop sequences

+

! × --- ×

#### Min tokens

200

#### Max tokens

2000

Enter up to 6 sequences to stop output after the minimum number of tokens is reached.

## Example Prompts with Outputs

Input:	Output:
Destination: Jaipur Budget: 15000 INR Month: October ...	Destination Overview: Jaipur, the Pink City, is a historical hub known for its forts, palaces, and local Rajasthani cuisine....
"I'm planning a 5-day trip to Jaipur this October with one other person. Our total budget is ₹15,000. We're really interested in exploring culture, trying local food, and taking lots of great photos. Can you suggest a personalized travel itinerary that fits our interests and ...	Destination Overview: Jaipur, the Pink City, is a historical hub known for its forts, palaces, and local Rajasthani cuisine....
"Hey! I'm planning a solo getaway to Goa this December. I've got a budget of around ₹25,000 and I'm looking for a fun mix of beaches, nightlife, and maybe some nature spots too. Can you help me come up with a 5-day travel plan that balances relaxation and ...	Travel Itinerary: Solo Trip to Goa (December, ₹25,000 Budget) Destination Overview Goa is India's ultimate coastal paradise—famous for its golden beaches, vibrant nightlife, ...

"I'm planning a 5-day trip to Jaipur this October with one other person. Our total budget is ₹15,000. We're really interested in exploring culture, trying local food, and taking lots of great photos. Can you suggest a personalized travel itinerary that fits our interests and budget?"

Destination Overview:  
Jaipur, the Pink City, is a historical hub known for its forts, palaces, and local Rajasthani cuisine.

Day-wise Itinerary:  
- Day 1: Arrival, check-in, visit Hawa Mahal and City Palace  
- Day 2: Amber Fort & Elephant ride, evening local market  
- Day 3: Food walk, visit Albert Hall Museum  
- Day 4: Nahargarh Fort sunset, Chokhi Dhani dinner  
- Day 5: Local shopping, depart

Budget Breakdown:  
- Travel: ₹3000  
- Hotel (4 nights): ₹5000  
- Food: ₹3000  
- Entry fees & activities: ₹2000  
- Buffer: ₹2000

Weather:  
Expected 25-30°C, mostly clear skies








Suggested Hotel:  
Hotel Pearl Palace (3-star, ₹1200/night)

Transport:  
Local cab + auto rickshaw combo

Final Notes:  
Best to travel with light clothes, camera ready. Book tickets for Amber Fort early.

# RESULT

## Testing or Generating Output

Input:	Output: <span>AI</span>
<p>I'm planning a solo 5-day trip to Budapest, Hungary next month. My budget is ₹60,000 (around €650). I enjoy historical sites, street food, scenic walks, and photography. Can you create a detailed 5-day itinerary that includes:</p> <ul style="list-style-type: none"><li>- Recommended places to visit</li><li>- A simple daily schedule</li><li>- Accommodation and transport suggestions</li><li>- Approximate daily budget breakdown</li></ul>	<div> <b>Destination Overview:</b> Budapest, the "Pearl of the Danube," is a city known for its stunning architecture, thermal baths, and rich history. <span>⌵</span></div> <div> <b>5-Day Itinerary:</b></div> <div> <b>Day 1: Arrival &amp; Explore Buda Castle</b><ul style="list-style-type: none"><li>- Arrive at Budapest Ferenc Liszt International Airport</li><li>- Check-in at budget-friendly hotel, Hotel Jupiter (₹1,500/night)</li><li>- Visit Buda Castle and Fisherman's Bastion</li><li>- Evening stroll along the Danube Promenade</li></ul><p> Approx. ₹3,000</p></div> <div> <b>Day 2: Chain Bridge &amp; Historic Sites</b><ul style="list-style-type: none"><li>- Morning walk across the Chain Bridge</li><li>- Visit St. Stephen's Basilica and Dohány Street Synagogue</li><li>- Lunch at a local café, enjoying Hungarian street food</li><li>- Explore the Hungarian Parliament Building</li><li>- Evening at the Széchenyi Thermal Bath</li></ul><p> Approx. ₹3,500</p></div> <div> <b>Day 3: Photography &amp; Scenic Walks</b><ul style="list-style-type: none"><li>- Morning photography session at Heroes' Square</li></ul></div>

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# CONCLUSION

- Successfully built a low-code Travel Planner Agent using IBM Granite
- Demonstrated LLM use cases in solving real-world, user-facing tasks
- Learned prompt tuning, output formatting, and system limitations
- Used only IBM Lite-tier services without deploying external code

# FUTURE SCOPE

- Extend project into a web-based chatbot interface
- Add API integrations (weather, flights, hotel booking)
- Include multi-language support using NLU services
- Use larger models (e.g., Granite 20B) for richer, more complex planning
- Deploy via IBM Cloud Functions or Flask for real-time app usage

# REFERENCES

- IBM Granite Model Docs: <https://www.ibm.com/docs/en/watsonx>
- IBM Prompt Lab Guide
- Kaggle Datasets (Travel Preferences)
- OpenWeatherMap API

# IBM CERTIFICATIONS

In recognition of the commitment to achieve  
professional excellence



krishna krishna

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence



Issued on: Jul 19, 2025  
Issued by: IBM SkillsBuild

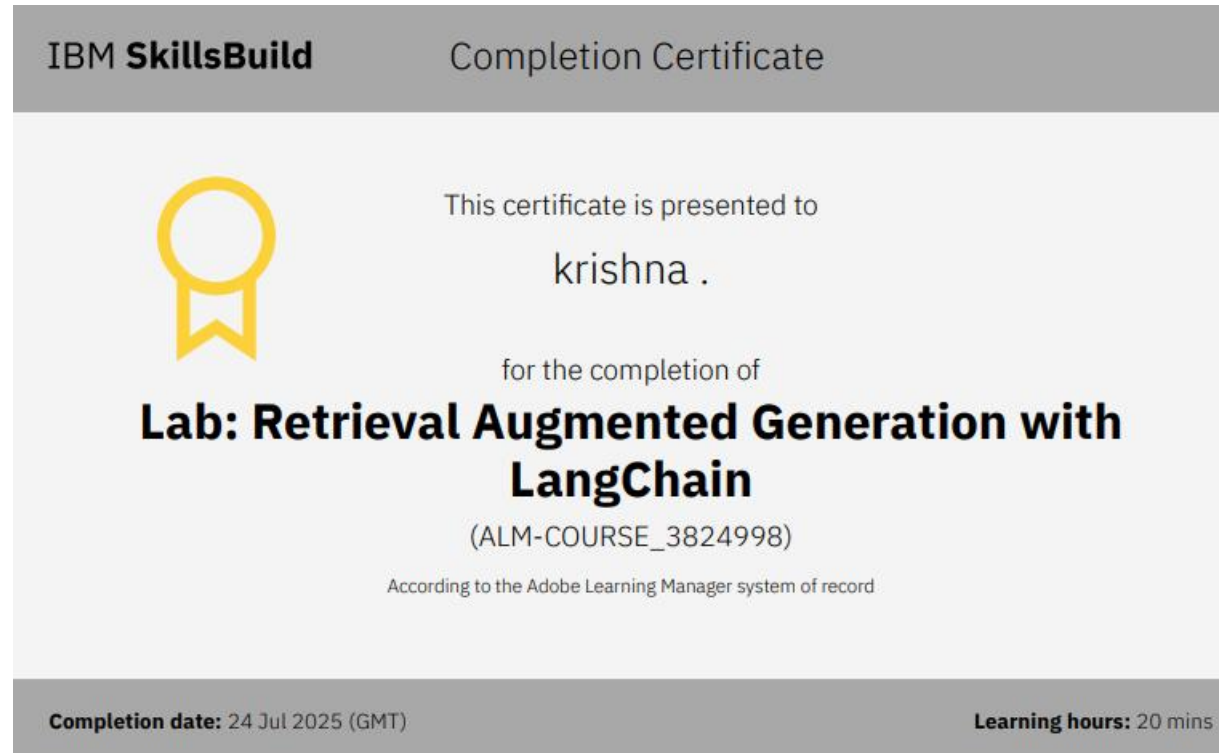
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# IBM CERTIFICATIONS



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# THANK YOU