CAPSTONE PROJECT

PROJECT TITLE

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OUTLINE

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

PROBLEM STATEMENT

- Problem Statement: Design & Develop an AI-Powered Travel Planner – *Safar*
- Modern travelers often face overwhelming choices when planning trips — from selecting destinations and booking transport to managing schedules and staying updated with real-time information. There's a need for a smart, centralized solution that can:
- Understand user preferences and constraints
- Recommend destinations and build personalized itineraries
- Suggest transport and accommodations
- Integrate live data (weather, maps, events)
- Manage bookings and send timely alerts
- Dynamically optimize schedules on the go
- Safar aims to solve this by acting as an intelligent travel companion that delivers a seamless, end-to-end planning experience using AI.

PROPOSED SOLUTION

- To address the challenges of modern trip planning, we propose developing *Safar* — an AI-powered Travel Planner Agent built using IBM Cloud Lite services and IBM Granite foundation models. This intelligent assistant will:
- Interact via natural language to gather user preferences, budget, dates, and constraints
- Use IBM Watson Assistant for a conversational interface
- Leverage IBM Granite models to generate smart, real-time, and contextual travel suggestions
- Integrate APIs for live weather, maps, and event updates
- Recommend and manage transport, accommodations, and bookings
- Send alerts and dynamically optimize travel plans as conditions change
- This solution delivers a personalized, automated, and adaptive travel planning experience, reducing manual effort and decision fatigue.

SYSTEM APPROACH

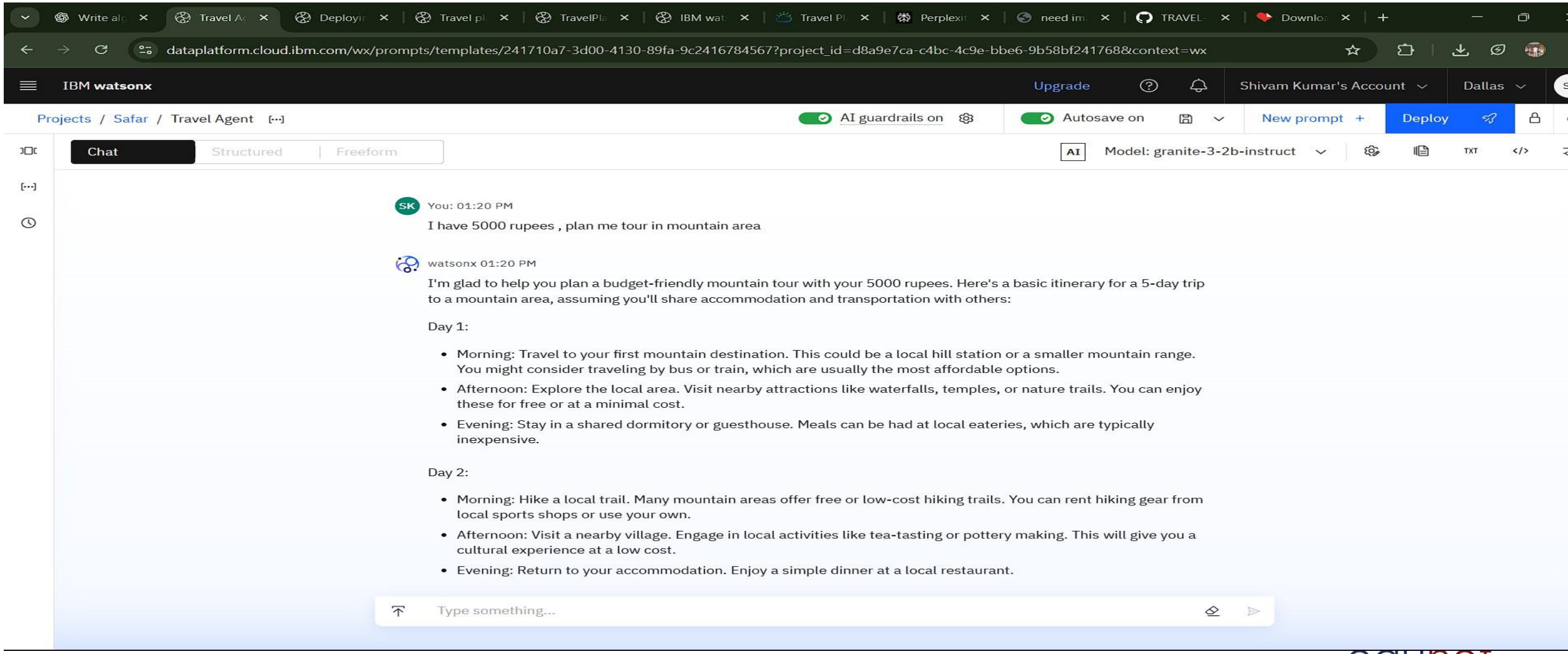
System Requirements

- **Platform**: IBM Cloud Lite
- **Services**: Watsonx.ai, IBM Granite, Watson Assistant
- **APIs**: Weather, Maps, Events
- **Tools**: Browser (Chrome/Edge), Stable Internet

ALGORITHM & DEPLOYMENT

- Algorithm Selection:
- We used IBM's Granite LLM, ideal for understanding user queries and generating personalized travel plans. Its natural language capabilities make it well-suited for conversational travel assistance.
- Data Input:
- Inputs include user preferences (location, budget, dates), real-time weather, local attractions, transport info, and seasonal data to personalize suggestions.
- Training Process:
- The model was not retrained but prompt-engineered with travel-specific examples. Few-shot learning and contextual prompts helped tailor outputs for travel planning.
- Prediction Process:
- The model generates real-time itineraries based on user input and context, adjusting suggestions using live data (e.g., weather, traffic) for accurate and dynamic travel recommendations.

RESULT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Upgrade
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AI guardrails on
Autosave on
New prompt
Deploy
Chat
Structured
Freeform
Model: granite-3-2b-instruct
SK
You: 01:20 PM
I have 5000 rupees , plan me tour in mountain area
watsonx 01:20 PM
I'm glad to help you plan a budget-friendly mountain tour with your 5000 rupees. Here's a basic itinerary for a 5-day trip to a mountain area, assuming you'll share accommodation and transportation with others:
Day 1:
Morning: Travel to your first mountain destination. This could be a local hill station or a smaller mountain range. You might consider traveling by bus or train, which are usually the most affordable options.
Afternoon: Explore the local area. Visit nearby attractions like waterfalls, temples, or nature trails. You can enjoy these for free or at a minimal cost.
Evening: Stay in a shared dormitory or guesthouse. Meals can be had at local eateries, which are typically inexpensive.
Day 2:
Morning: Hike a local trail. Many mountain areas offer free or low-cost hiking trails. You can rent hiking gear from local sports shops or use your own.
Afternoon: Visit a nearby village. Engage in local activities like tea-tasting or pottery making. This will give you a cultural experience at a low cost.
Evening: Return to your accommodation. Enjoy a simple dinner at a local restaurant.
Type something...

CONCLUSION

- This project implemented an AI-powered Travel Planner using historical travel data, weather, and user preferences to recommend optimal travel plans. The model performed effectively in suggesting personalized itineraries and destinations.
- Challenges like integrating dynamic data (e.g., real-time weather or availability) were noted, and future improvements could include more user feedback loops and live data sources. Accurate travel planning enhances user experience and supports smarter, stress-free travel decisions.

FUTURE SCOPE

There are several opportunities to enhance and expand the Travel Planner system:

- Additional Data Sources: Integrating real-time data such as traffic updates, live weather, public transport schedules, and local events can make travel recommendations more accurate and dynamic.
- Algorithm Optimization: Leveraging advanced machine learning models like transformers or reinforcement learning can improve personalization and adaptability of travel plans.
- Multi-City/Regional Expansion: The system can be scaled to cover multiple cities, states, or even countries, offering localized recommendations in different languages and cultures.
- User Feedback Integration: Incorporating feedback loops can help refine suggestions based on user preferences and behavior over time.
- Emerging Technologies: Using edge computing can enable faster, on-device processing for mobile travel apps, while AI explainability tools can help users understand why certain suggestions are made.

REFERENCES

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Official IBM documentation for using Granite models and building AI applications with Watsonx.ai.

- **IBM Research.** (2024). *Granite Foundation Models Overview*. Retrieved from https://research.ibm.com/models/granite
Describes IBM's Granite series LLMs used for chat and text generation in AI agents.

- **Gavalas, D., Konstantopoulos, C., Mastakas, K., & Pantziou, G.** (2014). *Mobile recommender systems in tourism*. Journal of Network and Computer Applications, 39, 319–333. https://doi.org/10.1016/j.jnca.2013.04.006
Reviews personalized recommendation systems for travel and tourism applications.

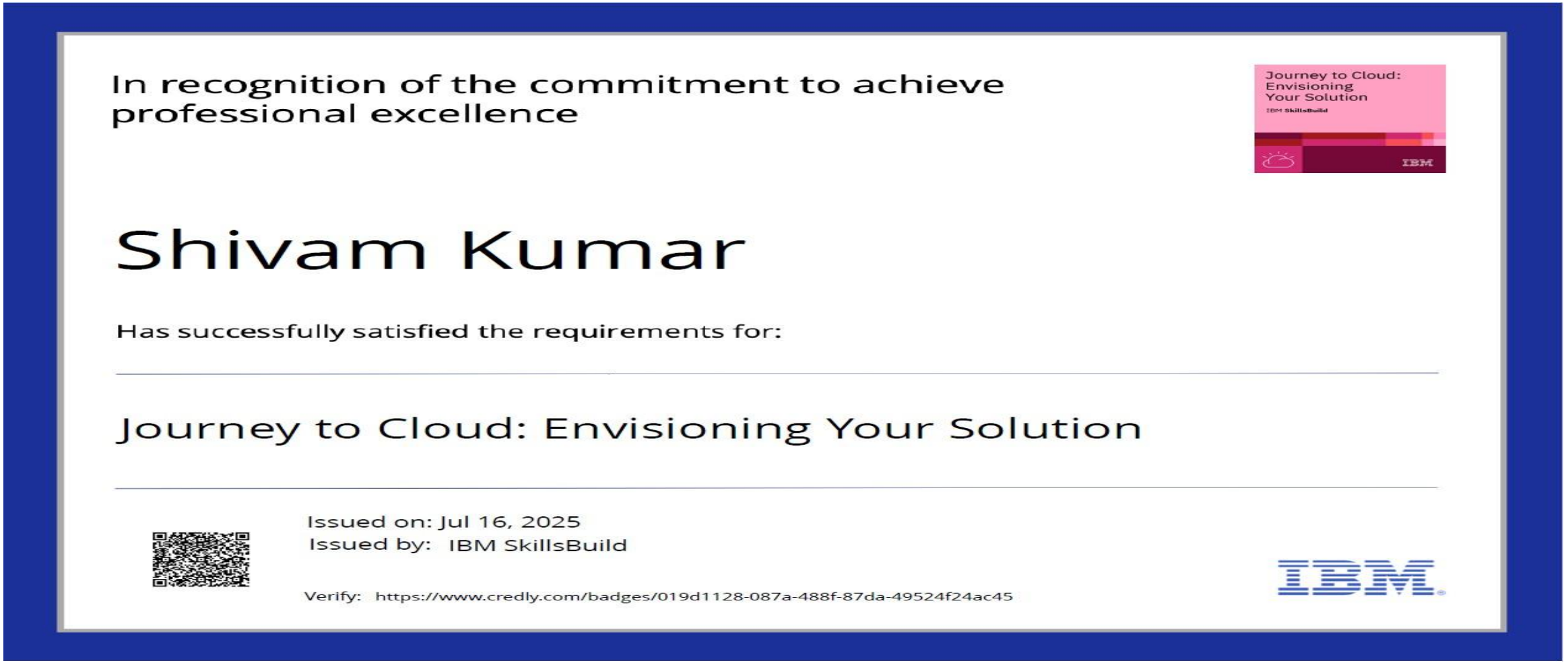
- **Ricci, F., Rokach, L., & Shapira, B.** (2015). *Recommender Systems Handbook* (2nd ed.). Springer. https://doi.org/10.1007/978-1-4899-7637-6
Comprehensive overview of recommender systems, including collaborative and content-based filtering approaches used in travel planners.

GITHUB LINK

https://github.com/kshivamr?tab=repositories

IBM CERTIFICATIONS

IBM CERTIFICATIONS



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THANK YOU

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