CAPSTONE PROJECT

TRAVEL PLANNER AGENT

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OUTLINE

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PROBLEM STATEMENT

- Planning a trip involves multiple complex tasks including researching destinations, checking weather conditions, budgeting, booking transport and accommodations, and building itineraries. This process is time-consuming and often overwhelming for users. There is a need for an AI-powered assistant that can simplify and personalize the travel planning experience.

PROPOSED SOLUTION

The proposed system aims to address the challenge of planning trips efficiently by developing an AI-powered **Travel Planner Agent**.The agent is designed to simplify travel planning by offering real-time suggestions, managing logistics, and tailoring travel plans based on individual preferences. It leverages IBM Cloud Lite services and IBM Granite large language models to enable intelligent and context-aware assistance.The solution will consist of the following key components:

- User Interaction & Intent Understanding:The agent interacts with users via natural language to gather inputs like destination, budget, dates, and travel goals.
- Real-Time Data Integration:Integrates with APIs to fetch live data such as weather updates, transport options, and accommodation availability.
- Itinerary & Plan Generation:Builds customized travel plans including recommended destinations, activities, and route suggestions.
- Smart Booking Management:Assists in booking accommodations and transportation (optional API-based implementation).
- Deployment on IBM Cloud:Built using watsonx.ai Agent Builder and deployed on IBM Cloud Lite, ensuring scalability and ease of access.
- Personalization & Adaptation:Continuously refines suggestions based on user feedback and interaction history.

SYSTEM APPROACH

The system approach outlines the tools, architecture, and methodology used to build and deploy the Travel Planner Agent.

1. System Requirements

- IBM Cloud account (Lite plan)
- Access to watsonx.ai for building and training AI models
- IBM Cloud Object Storage to store user data and model assets
- IBM Cloud Code Engine or Cloud Functions for runtime deployment
- Integrated services: Maps API, Weather API, and Booking services API (optional)

2. Technologies Used

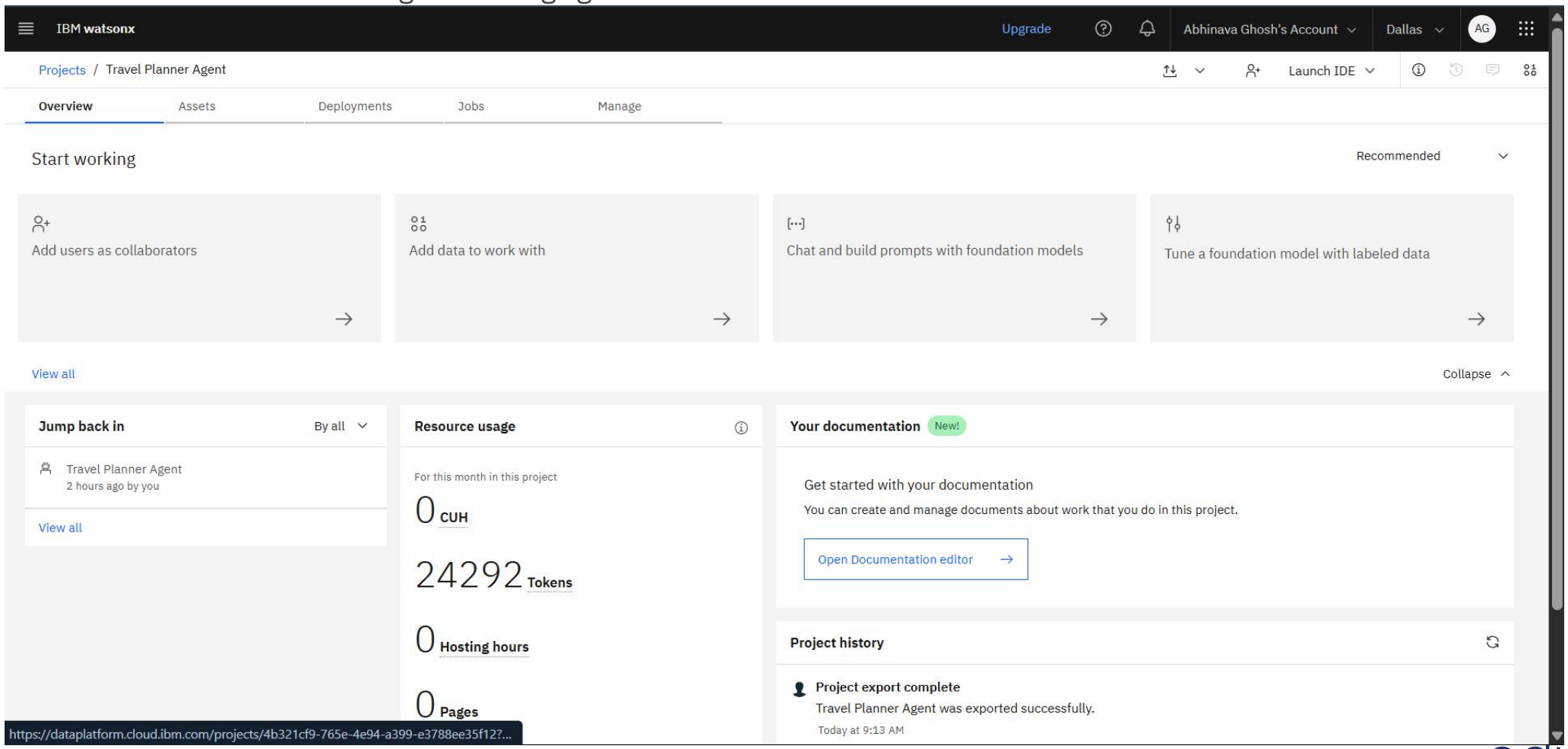
- AI/ML Platform: watsonx.ai (for building custom recommendation and planning models)
- Runtime: IBM Cloud Code Engine or Function as a Service (FaaS) for backend logic
- Storage: IBM Cloud Object Storage for itinerary data, user preferences, and model inputs

3. Libraries & Tools

- IBM Cloud CLI & SDKs for deployment and integration
- REST APIs for third-party services

RESULT

- The screenshot displays the dashboard of the "Travel Planner Agent" project on IBM watsonx.ai. It confirms that the project has been successfully created, showing key sections like Assets, Deployments, and Jobs. Resource usage, documentation tools, and collaboration options are also available for building and managing the AI travel assistant.



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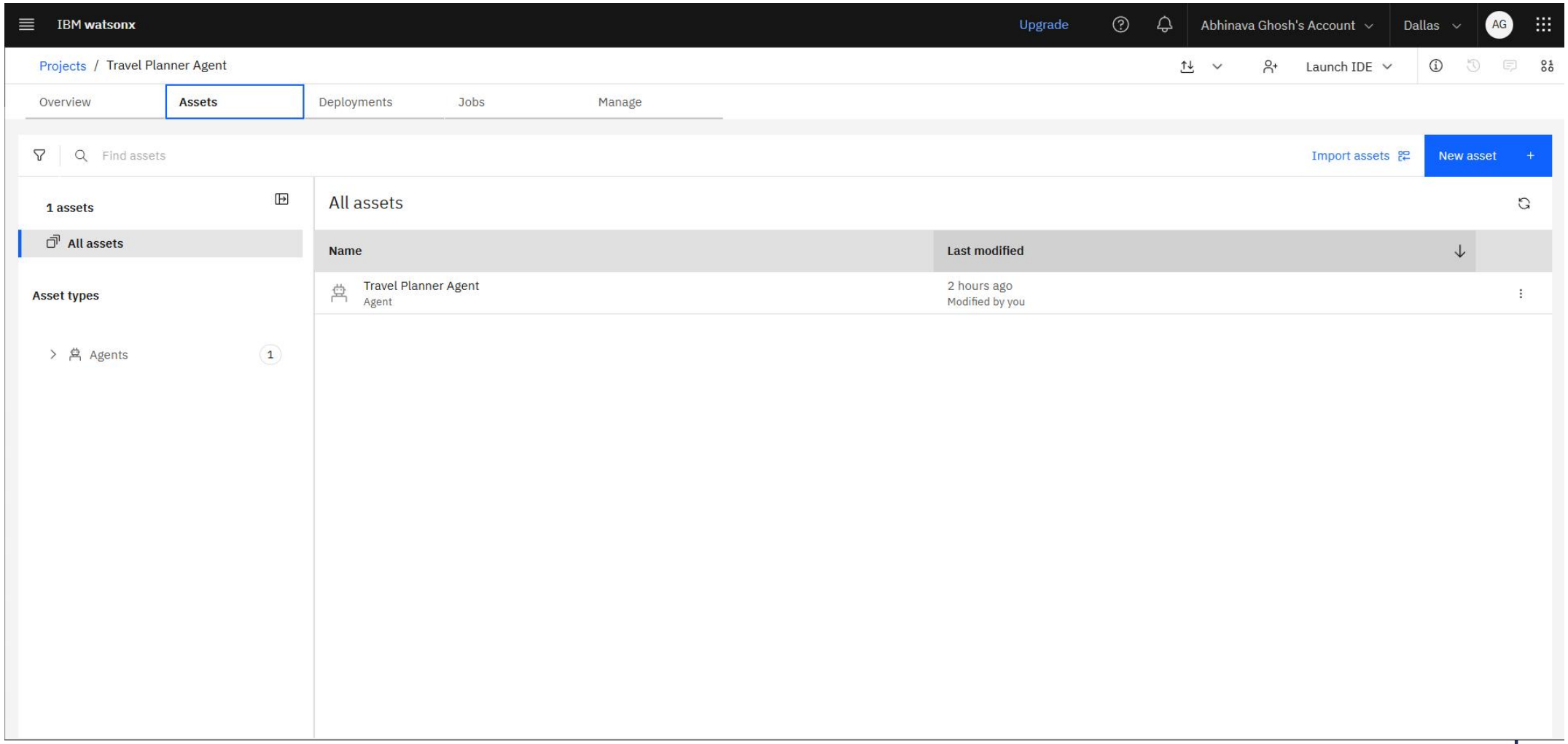
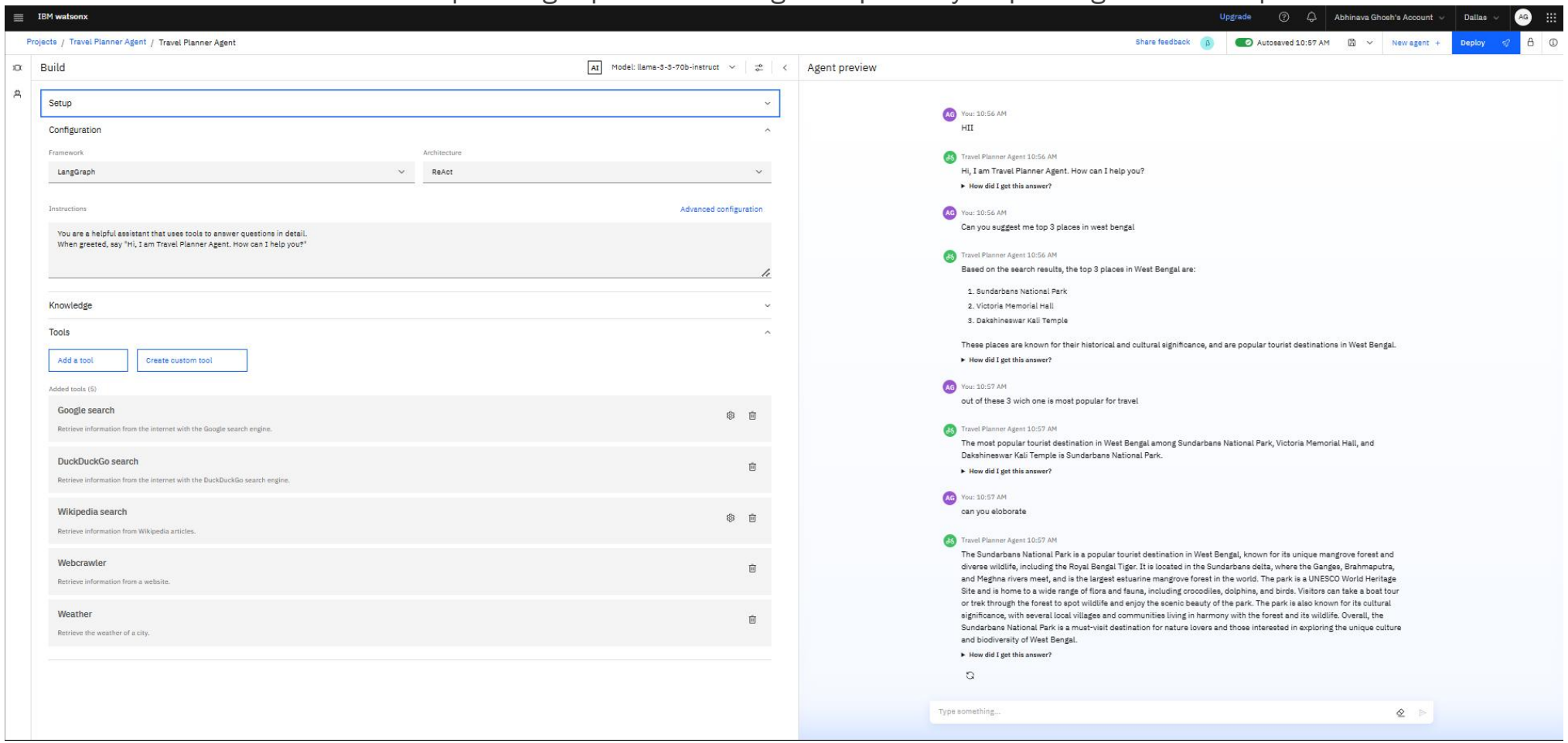
RESULT

- The screenshot shows the IBM watsonx.ai interface under the "Travel Planner Agent" project. The Assets tab displays a single agent named Travel Planner Agent, indicating that the agent has been successfully created and saved in the project workspace for further AI development.



RESULT

- The Travel Planner Agent project uses IBM watsonx.ai with IBM Cloud runtime and storage to create a smart assistant that helps users plan trips. It provides personalized destination suggestions, real-time recommendations, and local insights. The system integrates web tools to ensure an interactive and efficient travel planning experience.The agent is perfectly responsing to the user queries.



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CONCLUSION

- The Travel Planner Agent successfully simplifies and personalizes trip planning using AI-powered recommendations through IBM watsonx.ai. By understanding user preferences and integrating real-time data like weather and local guides, it creates dynamic, tailored travel itineraries. Deployed on IBM Cloud with scalable runtime and object storage, the agent enhances user experience by making travel planning efficient, smart, and enjoyable. This project demonstrates the potential of AI in transforming traditional planning into a seamless, interactive process.

FUTURE SCOPE

- The Travel Planner Agent can be enhanced with voice assistant integration for hands-free interaction, advanced NLP for natural conversation, and AI-driven cost optimization. Future upgrades may include multilingual support, integration with airline/train APIs for dynamic bookings, personalized activity suggestions via user history, and collaboration with travel agencies. Incorporating AR/VR previews of destinations and blockchain-based secure booking systems can further elevate the user experience.

REFERENCES

- IBM watsonx.ai Documentation – https://www.ibm.com/cloud/watsonx-ai
- IBM Cloud Runtime Environments – https://cloud.ibm.com/docs
- IBM Cloud Object Storage – https://www.ibm.com/cloud/object-storage
- IBM Developer: AI-Powered Travel Assistant – https://developer.ibm.com/
- Scikit-learn: Machine Learning in Python – https://scikit-learn.org/
- Python Official Documentation – https://docs.python.org/3/
- OpenWeatherMap API (for real-time weather data) – https://openweathermap.org/api
- Google Maps Platform – https://developers.google.com/maps

IBM CERTIFICATIONS

- Screenshot/ credly certificate(getting started with AI)

IBM CERTIFICATIONS

- Screenshot/ credly certificate(Journey to Cloud)

IBM CERTIFICATIONS

- Screenshot/ credly certificate(RAG Lab)

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THANK YOU

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