CAPSTONE PROJECT

TRAVEL BUDDY

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PROBLEM STATEMENT

Planning a trip in India can be time-consuming and overwhelming due to diverse destinations, seasonal variations, transport complexities, and budget constraints. Travelers often struggle to find reliable, up-to-date information that aligns with their preferences, budget, and schedule. Existing travel tools are either too generic or lack personalized, real-time recommendations. There is a need for an AI-powered solution that can simplify travel planning, provide accurate itineraries, optimize costs, and ensure a seamless travel experience.

Here comes our Travel Buddy to solve this problem — a Travel Planner AI Agent.

PROPOSED SOLUTION

The proposed system aims to enable personalized, budget-friendly travel planning in India using AI, real-time data, and IBM cloud services. It will provide custom itineraries, accurate costs, and seasonal recommendations.

1. Data Collection:

Integrate IBM Weather Company API for real-time weather.

Use IBM Watson Discovery for curated travel insights.

Pull live transport and accommodation prices.

2. Data Processing:

Clean and categorize data by season, budget, and interest.

Feature engineering for events, peak seasons, and discounts.

3. AI Recommendations:

Use IBM watsonx.ai and Granite for itinerary generation.

NLP-based query understanding for personalization.

4. Deployment:

Host on IBM Cloud Lite.

Store preferences in IBM Cloudant.

Web/mobile interface with IBM Text-to-Speech for voice planning.

5. Evaluation:

Improve recommendations through feedback and retraining.

SYSTEM APPROACH

The "System Approach" section outlines the overall strategy and methodology for developing and implementing the Travel Planner AI Agent for India.

System Requirements:

Laptop/PC with at least 8GB RAM, Intel i5 or higher processor

Stable internet connection for API calls and IBM Cloud access

10GB free disk space for datasets and dependencies

LIBRARIES:

IBM Cloud Lite account for hosting and integration

IBM watsonx.ai for AI model training and deployment

IBM Granite for itinerary generation and NLP-based recommendations

IBM Watson Discovery for curated travel data extraction

IBM Weather Company API for real-time weather insights

IBM Cloudant for storing user preferences and trip history

IBM Text-to-Speech for voice-based travel guidance

Web browser (Google Chrome / Firefox)

ALGORITHM & DEPLOYMENT

Algorithm:-

User Input – Get budget, dates, interests, group size, travel type.

Data Retrieval – Fetch from knowledge base, IBM Weather API, Watson Discovery, and live price APIs.

Processing – Clean data, filter by budget & season, extract event/discount details.

Recommendation – Use IBM watsonx.ai + Granite for itinerary generation.

Output – Show day-wise plan, costs, weather, and tips; allow PDF download.

Deployment:-

Backend – Host AI on IBM Cloud Lite with Flask/FastAPI.

Database – Store user data in IBM Cloudant.

Frontend – Web/mobile UI with React.js & map integration.

Voice Support – IBM Text-to-Speech for audio planning.

Updates – Feedback-based AI improvement & seasonal data refresh.

RESULT

The implementation of the Travel Planner AI Agent has demonstrated the ability to create personalized, budget-conscious, and season-optimized travel itineraries for destinations across India. By leveraging IBM watsonx.ai, Granite, and IBM Cloud Lite services, the system generates accurate travel plans that adapt in real time to weather changes, live price updates, and user preferences.

The AI agent provides travelers with day-by-day itineraries, detailed cost breakdowns, seasonal recommendations, and local tips, ensuring a smooth and enjoyable travel experience. Integration with the IBM Weather Company API enables climate-aware planning, while IBM Watson Discovery enriches recommendations with curated insights from trusted travel sources.

The deployment of the system on IBM Cloud Lite ensures scalability and accessibility, while IBM Cloudant stores user profiles and trip history securely. The addition of voice interaction via IBM Text-to-Speech enhances accessibility and usability. Overall, the system delivers accurate, real-time, and highly relevant travel planning assistance, helping users save time, reduce uncertainty, and enjoy a well-planned journey.

CONCLUSION

- The Travel Planner AI Agent successfully addresses the challenges of complex and time-consuming travel planning in India by providing a smart, AI-driven, and user-centric solution. Using IBM watsonx.ai, Granite, and IBM Cloud services, the system integrates real-time weather, pricing, and curated travel insights to generate personalized, cost-effective, and season-appropriate itineraries.

- By combining AI-powered recommendations, live data integration, and user-friendly deployment on IBM Cloud Lite, the system transforms traditional travel planning into a seamless, adaptive, and enjoyable experience. The inclusion of voice assistance through IBM Text-to-Speech and secure storage via IBM Cloudant further enhances accessibility and convenience.

- Overall, the project demonstrates how agentic AI and IBM's cloud ecosystem can be effectively leveraged to simplify travel planning, improve decision-making, and deliver tailored travel experiences to users across diverse needs and budgets.

FUTURE SCOPE

The Travel Planner AI Agent can be further enhanced to offer even more intelligent and immersive travel planning experiences. Potential future developments include:-

1.Integration with Booking Platforms – Direct booking of flights, trains, hotels, and activities from within the application.

2.Multi-Language Support – Adding regional language support for better accessibility across India.

3.AI-Powered Expense Tracker – Real-time expense monitoring during trips to help travelers stay within budget.

4.AR/VR-Based Previews – Virtual tours of destinations, accommodations, and attractions before booking.

5.Social & Group Trip Planning – Collaborative itinerary building for friends, families, and travel groups.

6.Advanced Predictive Analytics – Forecasting crowd levels, price trends, and best booking times.

7.Integration with Public Transport APIs – Real-time bus, metro, and train tracking for better connectivity.

8.Personalized Offers & Discounts – AI-driven deal suggestions based on user history and preferences.

9.By implementing these enhancements, the Travel Planner AI Agent can evolve into a complete end-to-end travel companion, offering planning, booking, navigation, and real-time trip management for travelers.

REFERENCES

- IBM watsonx.ai – https://www.ibm.com/watsonx
- IBM Granite Model Documentation – https://research.ibm.com/blog/granite-code-models
- IBM Cloud Lite – https://cloud.ibm.com
- IBM Watson Discovery – https://www.ibm.com/cloud/watson-discovery
- IBM Weather Company API – https://www.ibm.com/weather
- IBM Cloudant – https://www.ibm.com/cloud/cloudant
- Government of India Tourism Portal – https://www.incredibleindia.org

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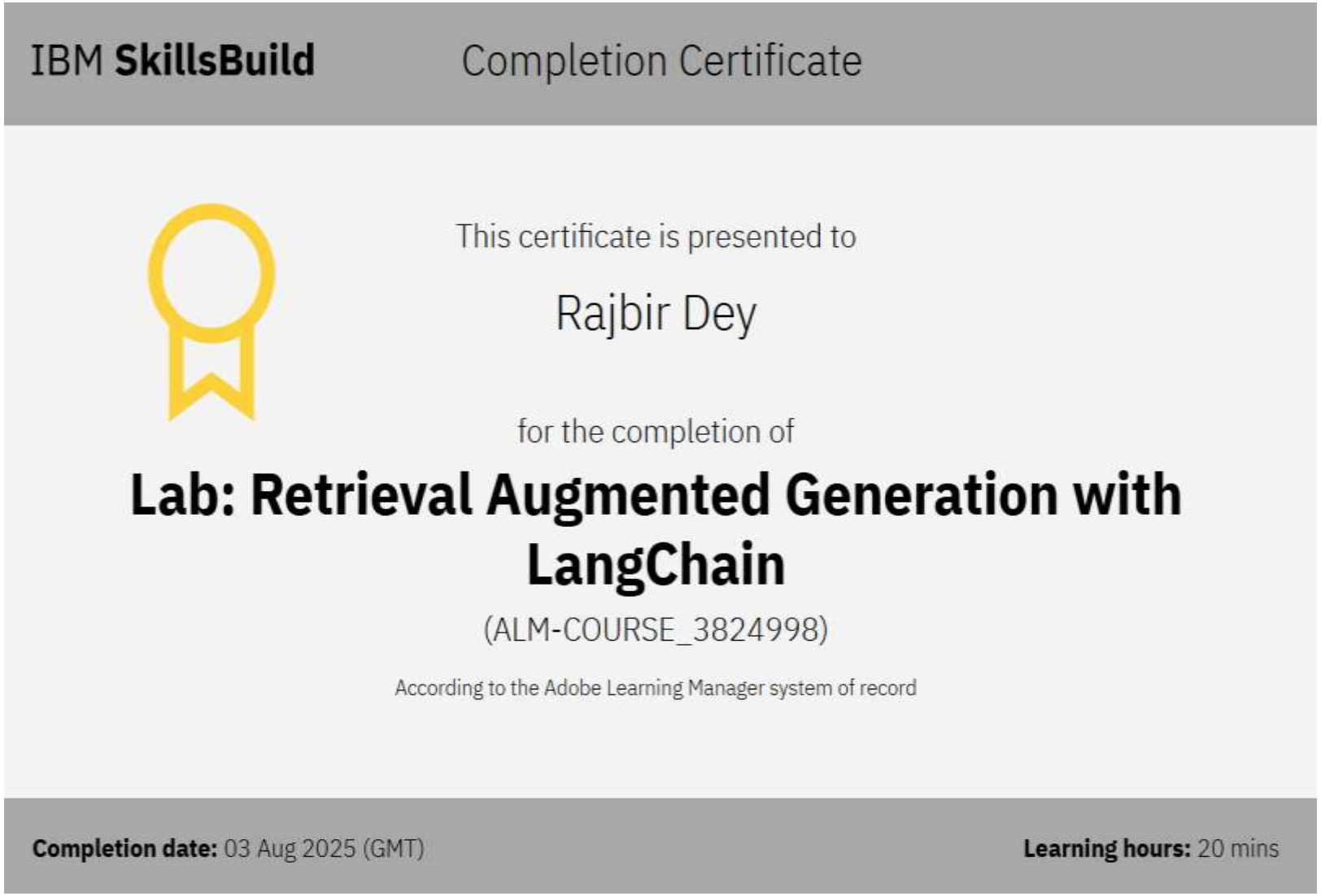

IBM **SkillsBuild** Completion Certificate

This certificate is presented to

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According to the Adobe Learning Manager system of record

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