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# CAPSTONE PROJECT

## TRAVEL PLANNER AGENT

**Presented By:**

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# OUTLINE

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

# PROBLEM STATEMENT

- Travel planning today is a time-consuming and often stressful task. Travelers face multiple challenges while organizing trips, such as selecting the right destinations, creating optimized itineraries, managing budgets, and coordinating accommodations and transportation. Most travelers rely on several different platforms or applications for gathering information about destinations, weather conditions, travel routes, and local attractions.
- This fragmented approach makes the process inefficient, leading to incomplete or outdated information. Additionally, travel conditions can change in real-time (such as weather disruptions or booking issues), making it difficult for travelers to adjust their plans quickly. The lack of a single, reliable, and intelligent system to guide users through the entire travel planning journey often results in wasted time, higher costs, and reduced travel satisfaction.

# PROPOSED SOLUTION

- The proposed system aims to develop a smart AI Travel Planner Agent capable of providing personalized travel plans and real-time updates.
- The agent will collect data on destinations, transportation, accommodations, attractions, and estimated costs while also integrating real-time sources like weather conditions and maps for better accuracy. The collected data will be cleaned and organized to remove inconsistencies, and user-specific preferences such as budget, duration, and interests will be extracted to deliver customized plans. Using Watsonx.ai (Granite LLM), the agent will understand user queries and respond intelligently, while a Knowledge Vector Index (KVI) will store travel tips and FAQs for quick access. External APIs like OpenWeather and Google Maps will be integrated to provide live weather updates, route details, and nearby attractions. The system will be thoroughly tested in the IBM Cloud environment to ensure accuracy and efficiency before final submission.

# SYSTEM APPROACH

## 1. System Requirements

### ■ Hardware Requirements:

- A computer or laptop with at least 8GB RAM and 64-bit operating system.
- Stable internet connection for IBM Cloud access and API integration.

### ■ Software Requirements:

- IBM Cloud account (Lite version).
- IBM Watsonx.ai Studio and Watson Assistant.
- Browser (Chrome/Edge) for development and testing.

# SYSTEM APPROACH

## 2. Libraries/Tools Required to Build the Model

### ■ Python Libraries:

- pandas, NumPy – Data cleaning and preprocessing.
- matplotlib, seaborn – Visualization and analysis (if needed).
- requests – To fetch data from APIs (Open Weather, Google Maps).

### ■ IBM Cloud Tools:

- Watsonx.ai Studio (Granite LLM) – To process user queries and responses.
- Watson Assistant – To design conversational flows.
- Knowledge Vector Index – For storing and retrieving FAQs.
- Cloud Object Storage – For storing required files.

# RESULT

The following output shows The Travel Planner Agent greeting the user and initiating the conversation.

The screenshot displays the IBM watsonx Agent Lab interface. The top navigation bar includes the IBM watsonx logo, an Upgrade button, a help icon, a notification bell, and a user profile dropdown for Samruddhi Khedkar. The main header shows the project path: Projects / TripMate: AI-Powered Travel Planner Agent / Agent Lab, along with a Share feedback button, an Unsaved status indicator, a New agent button, and a Deploy button.

The interface is split into two main panels. The left panel, titled 'Build', contains a sidebar with icons for a folder and a person. The main area of this panel is divided into sections: 'Setup', 'Configuration', and 'Knowledge'. Under 'Configuration', there are dropdown menus for 'Framework' (set to LangGraph) and 'Architecture' (set to ReAct). Below this is an 'Instructions' section with a text box containing the instruction: 'Offer to email or download the final travel plan. Example: "I've prepared your itinerary. Would you like me to email it to you or save it as a PDF?"'. A link for 'Advanced configuration' is also present. The 'Knowledge' section is currently empty.

The right panel, titled 'Agent preview', shows a chat conversation. The first message is from the user (SK) at 04:18 PM, saying 'hey'. The second message is from the 'watsonx Agent' at 04:18 PM, responding with: 'Hi! I'm TripMate, your AI Travel Planner. Ready to plan your next adventure? To get started, can you please tell me: 1. Where would you like to travel? 2. What is your travel budget? 3. When do you plan to travel (dates)? 4. Do you have specific interests (e.g., beaches, mountains, adventure, culture)? Please respond with the above information, and I'll be happy to assist you'. At the bottom of the chat, there is a text input field with the placeholder 'Type something...' and a send button.

# RESULT

All project assets, including the AI Agent, Knowledge Vector Index, and supporting files, successfully created in IBM watsonx.

IBM watsonx

Upgrade

?

🔔

Samruddhi Khedkar's Acco... ▾

Dallas ▾

SK

Projects / TripMate: AI-Powered Travel Planner Agent

⬆️ ▾ 👤 Launch IDE ▾ ⓘ ⌛ 💬 ☰

OverviewAssetsDeploymentsJobsManage

🔍 Find assets

Import assets 📄

New asset +





4 assets

All assets

Asset types

- > 🔍 Data access 1
- > 📄 Data 1
- > 🤖 Agents 2

All assets

<input type="checkbox"/>	Name	Last modified	⬇️
<input type="checkbox"/>	 watsonx Agent Agent	Now Modified by you	⋮
<input type="checkbox"/>	 watsonx Agent Agent	Now Modified by you	⋮
<input type="checkbox"/>	 Travel Planner Agent Vector index	13 minutes ago Modified by you	⋮
<input type="checkbox"/>	 Travel Planner Agent.pdf PDF	13 minutes ago Modified by you	⋮



# RESULT

The Travel Planner Agent accurately retrieves and displays real-time weather information for the user's selected destination.

IBM watsonx Upgrade ? Samruddhi Khedkar's Acco... Dallas SK

Projects / TripMate: AI-Powered Travel Planner Agent / watsonx Agent Share feedback Autosaved 5:27 PM New agent + Deploy

Build > Agent preview

**SK** You: 05:28 PM  
What's the current weather in Manali?

**watsonx Agent** 05:28 PM  
The current weather in Manali is:

- Temperature: 34°C
- Rain: 0mm
- Relative humidity: 54%
- Wind: 7.6km/h

Please note that the weather can change rapidly, and it's always a good idea to check the latest forecast before planning your trip.

► How did I get this answer?

↻

Type something...

Activate Windows  
Go to Settings to activate Windows.

# CONCLUSION

- The AI Travel Planner Agent proved to be a helpful tool for simplifying travel planning. It was able to interact with users, understand their needs, and provide useful information like destinations, itineraries, weather updates, and route details.
- By leveraging IBM Watsonx.ai, Knowledge Vector Index, and API integrations, the system was able to interact with users effectively and deliver relevant data such as destinations, itineraries, weather, and routes. Testing confirmed that the agent could handle user queries accurately, making it a valuable tool for enhancing the travel planning experience.

# FUTURE SCOPE

- In the future, the Travel Planner Agent can be expanded with features like booking integrations so that users can directly book flights, hotels, and activities from the same platform.
- We can also add voice assistant support to make travel planning more interactive and hands-free.
- Multi-language support can help reach a wider audience, and adding advanced personalization based on user history will make the recommendations even more accurate.
- Additionally, integrating more data sources like local events, public transport, and safety alerts will make the agent a complete one-stop travel planning solution.

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# REFERENCES

- IBM Cloud and Watsonx.ai documentation for building AI-powered applications.
- IBM Watson Assistant guidelines for designing conversational flows.
- OpenWeather and Google Maps API documentation for real-time data integration.
- Research papers and articles on travel planning automation and personalization using AI.
- Best practices in data preprocessing, knowledge indexing, and API-based system integration.

Github repository: <https://github.com/samruddhikhedkar2004/IBM-Cloud-AI-Internship>

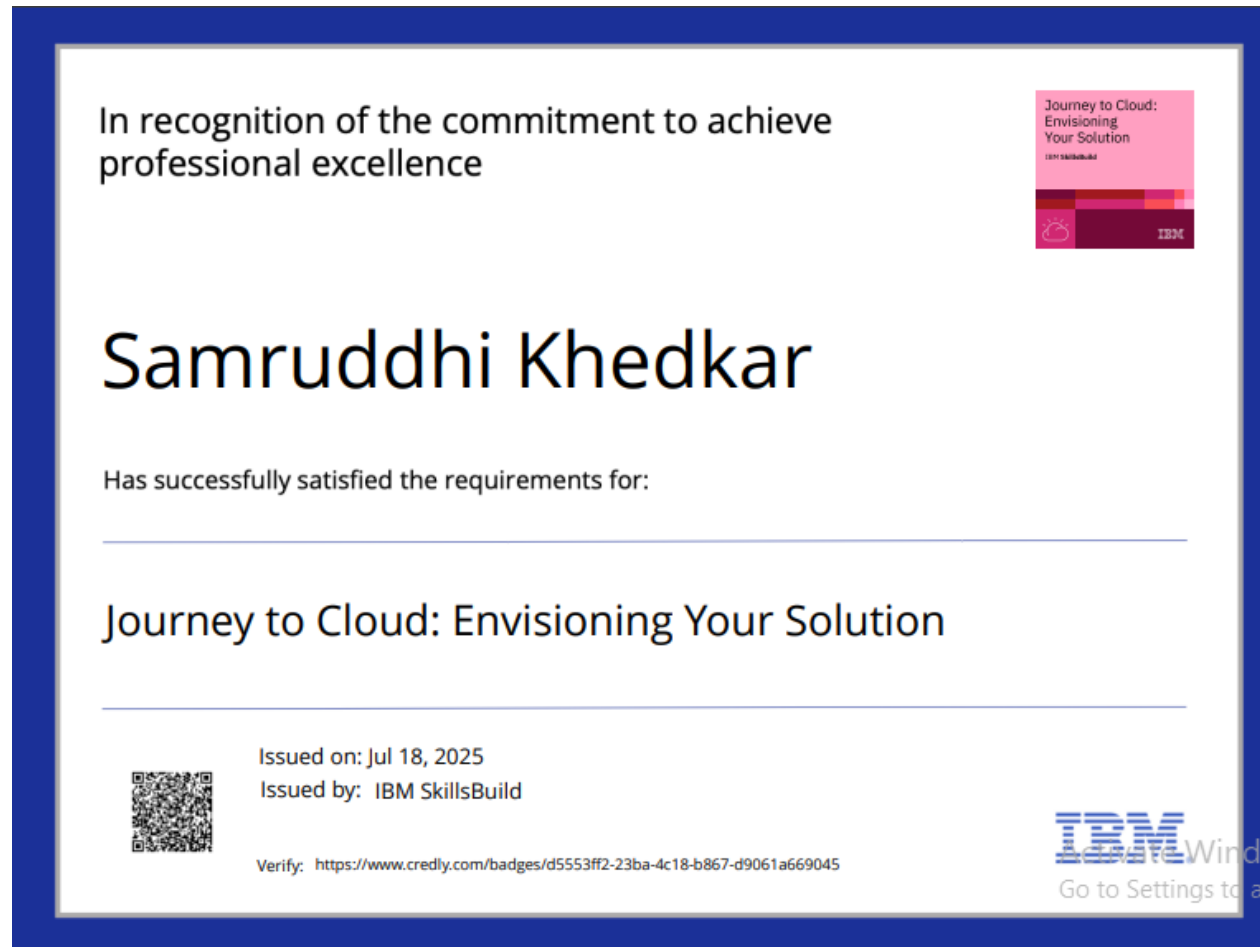
# IBM CERTIFICATIONS

- Screenshot/ credly certificate( getting started with AI)



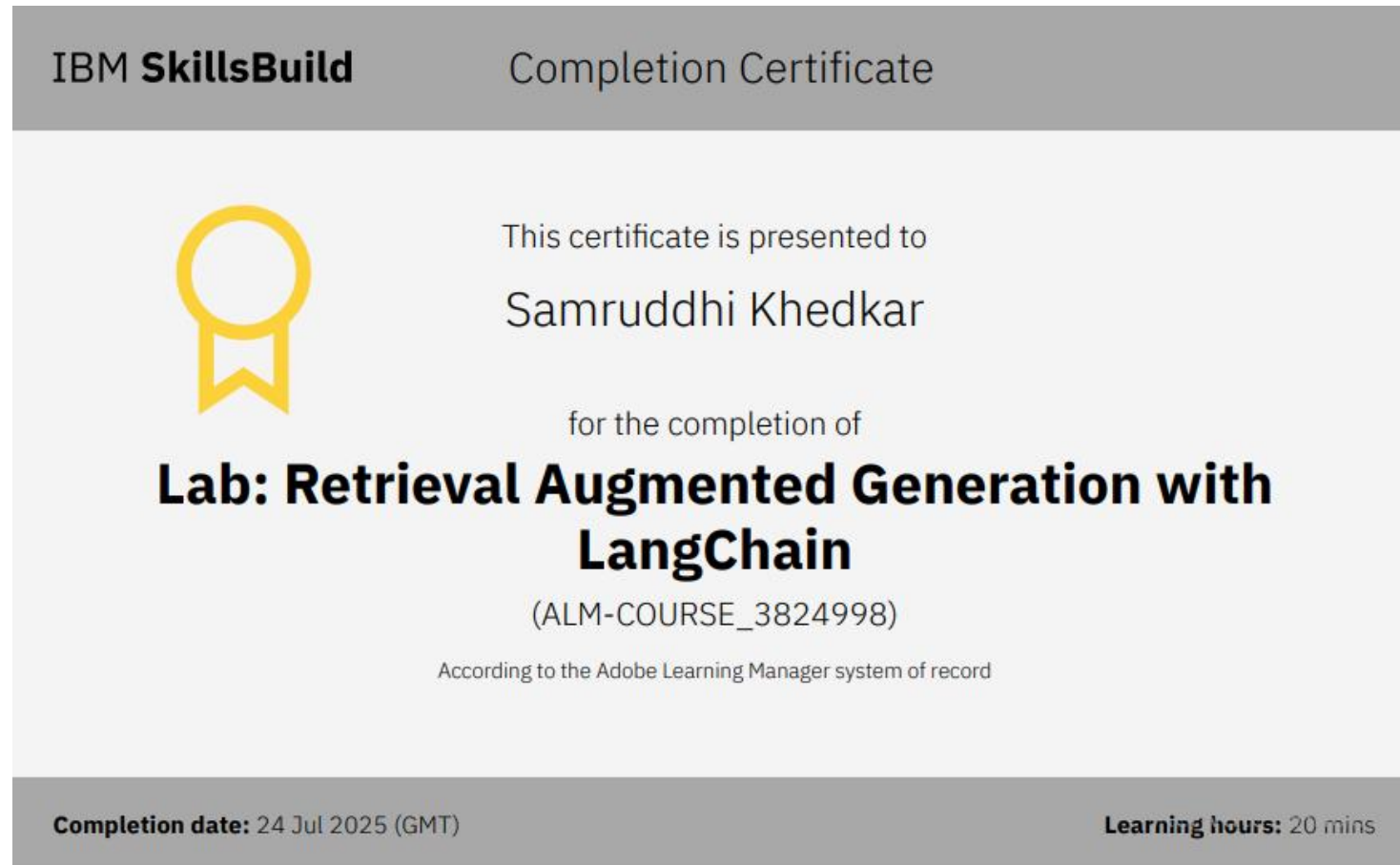
# IBM CERTIFICATIONS

- Screenshot/ credly certificate( Journey to Cloud)



# IBM CERTIFICATIONS

- Screenshot/ credly certificate( RAG Lab)





**THANK YOU**