CAPSTONE PROJECT

TRAVEL PLANNER AGENT

Presented By:
1. KIRAN KUMAR-ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY-INFORMATION SCIENCE AND ENGINEERING

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OUTLINE

- **Problem Statement** (Should not include solution)
- **Proposed System/Solution**
- **System Development Approach** (Technology Used)
- **Algorithm & Deployment**
- **Result (Output Image)**
- **Conclusion**
- **Future Scope**
- **References**

PROBLEM STATEMENT

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.

PROPOSED SOLUTION

IBM Cloud Watsonx AI + Mistral Large Model

Personalized Planning: Understands user preferences, budget, and time constraints.

Real-Time Intelligence: Fetches live weather, transport, and accommodation data.

Dynamic Itineraries: Updates schedules on-the-go and manages bookings.

Integrated Services: Maps, local guides, and alerts for a seamless experience.

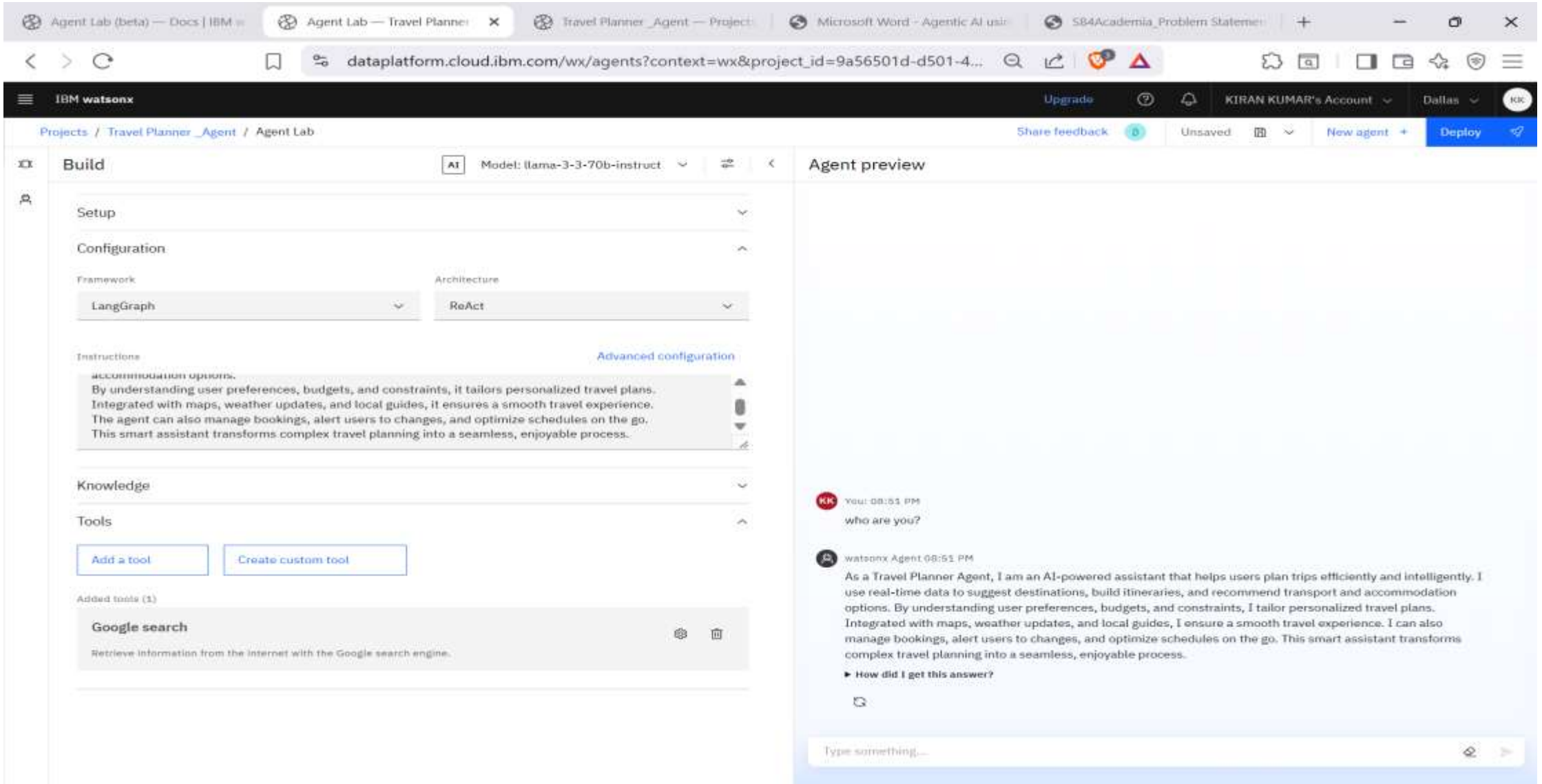
SYSTEM APPROACH

- **1. Requirement Analysis**
- Understand user preferences, budget, and travel dates.
- **2. Data Integration**
- Real-time data from maps, weather, transport, and accommodation APIs.
- **3. AI Model**
- **IBM watsonx.ai** with **Mistral Large LLM** for itinerary generation & personalization.
- **4. Architecture**
- **Frontend:** User interface
- **Backend:** AI agent + data pipelines
- **APIs:** Maps, weather, booking services
- **5. Workflow**
- Input → AI planning → Recommendations → Booking & Alerts
- **6. Deployment**
- Hosted on **IBM Cloud**, monitored & updated with feedback.

ALGORITHM & DEPLOYMENT

- **Input Gathering**
- Collect user details: destination preferences, budget, dates, interests.
- Fetch real-time data (flights, hotels, weather, local attractions).
- **Data Processing**
- Use **Watsonx AI with Mistral Large LLM** for understanding user intent.
- Apply NLP for extracting key constraints and goals.
- **Personalization & Optimization**
- Generate itinerary using AI planning algorithms.
- Optimize travel routes and schedule based on user priorities.
- **Integration**
- Connect APIs: Maps, Weather, Booking Platforms.
- Provide alternative suggestions dynamically.
- **Output**
- Present personalized travel plan.
- Enable booking and real-time updates.

RESULT



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CONCLUSION

- AI-powered Travel Planner Agent simplifies and personalizes trip planning.
- Leveraged IBM Cloud Watsonx.ai with Mistral Large Language Model for intelligent decision-making.
- Integrated real-time data for destinations, weather, transport, and accommodation.
- Achieved efficient itinerary generation, dynamic schedule optimization, and seamless booking management.
- Delivered a user-centric, adaptive, and automated travel experience, transforming complex planning into an effortless process.

FUTURE SCOPE

- **Multi-Modal AI Integration**
  Combine text, voice, and image inputs for richer user interactions.
- **AR/VR Travel Previews**
  Enable virtual tours of destinations before booking.
- **Advanced Personalization**
  Leverage user behavior analytics & AI to provide hyper-personalized itineraries.
- **Dynamic Real-Time Optimization**
  Adjust plans on-the-fly using live traffic, weather, and event data.
- **Global Language Support**
  Expand to multi-lingual and cross-cultural recommendations.
- **Integration with IoT & Smart Devices**
  Smart luggage tracking, hotel room automation, and connected experiences.
- **Blockchain for Secure Payments**
  Ensure transparent, tamper-proof transactions and bookings.

REFERENCES

- IBM Cloud Watsonx AI: https://www.ibm.com/watsonx
- Mistral Large Language Model: https://mistral.ai/
- IBM Cloud Docs – AI and Data Services: https://cloud.ibm.com/docs
- IBM Watsonx.ai Overview: https://www.ibm.com/watsonx/ai
- IBM Developer – AI Agents: https://developer.ibm.com

IBM CERTIFICATIONS

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IBM **SkillsBuild** Completion Certificate

This certificate is presented to

Kiran Kumar

for the completion of

Lab: Retrieval Augmented Generation with LangChain

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 24 Jul 2025 (GMT) **Learning hours:** 20 mins

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THANK YOU

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