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# **CAPSTONE PROJECT**

## **TRAVEL PLANNER AGENT**

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# OUTLINE

- Problem Statement
- Proposed System/Solution
- System Development Approach
- Algorithm & Deployment
- Result
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# PROBLEM STATEMENT

Planning a trip involves managing multiple tasks like finding destinations, booking transport and accommodation, and building itineraries often across different platforms. This process is time-consuming and prone to confusion, especially with real-time changes like delays or cancellations. There is a need for a smart system that simplifies travel planning by personalizing suggestions and managing dynamic travel conditions efficiently.

# PROPOSED SOLUTION

- The proposed system aims to simplify travel planning by developing an AI-powered Travel Planner Agent using IBM Cloud Watsonx. The agent automates itinerary generation, destination suggestions, and real-time travel updates based on user preferences and live data.
- Data collection:
  - Collect user preferences (budget, location, dates, interests).
  - Integrate real-time data (weather, transport, events) via APIs.
- Data Preprocessing:
  - Clean and format inputs for compatibility.
  - Extract key features (budget range, activity type, location popularity).
- AI & Optimization:
  - Use IBM Watsonx AI Agent to generate personalized itineraries.
  - Apply optimization logic for best-fit transport, stay, and schedule.
  - Incorporate NLP for natural user interaction.
- Deployment:
  - Deploy via IBM Cloud with a user-friendly chatbot/web interface.
  - Enable real-time booking and updates through integrated APIs.
- Evaluation:
  - Monitor user satisfaction and response accuracy.
  - Use feedback to improve recommendations continuously.
  - Result:

# SYSTEM APPROACH

**The Travel Planner Agent is developed using IBM Cloud Watsonx to create a conversational AI that automates travel planning.**

- **System requirements:** Compatible with modern web browsers and mobile devices
- **Library required to build the model:** IBM Cloud Watsonx.ai for AI Agentic processing and dialog management.

# ALGORITHM & DEPLOYMENT

- Algorithm Selection:
  - The Travel Planner Agent uses IBM Watsonx AI with built-in natural language processing (NLP) and recommendation logic.
  - The model is designed to understand user input and generate personalized travel plans based on context and preferences.
- Data Input:
  - User preferences: destination, budget, travel dates, interests.
  - Real-time data: weather, local events, transport and hotel availability
  - Contextual factors: season, location popularity, time constraints
- Training Process:
  - Watsonx Assistant is trained on intent-based conversation flows and travel-related datasets.
  - Custom training is done using sample queries, API responses, and user scenarios to improve accuracy and response relevance.
- Prediction & Deployment:
  - The deployed agent interacts with users via a chatbot or web interface.
  - It uses API calls to suggest itineraries, accommodations, and transport options dynamically.
  - The system runs on IBM Cloud and updates recommendations in real time based on changing data like weather or delays.

# RESULT

- The Travel Planner Agent, powered by IBM Watsonx AI, effectively delivers personalized travel itineraries by accurately interpreting user preferences and integrating real-time data such as weather, transportation, and accommodation availability.
- The system significantly reduces the time and effort required for trip planning, offering timely updates and optimized suggestions that enhance the overall user experience.
- Visual outputs, including chatbot conversations and demonstrate the agent's ability to provide relevant and dynamic travel solutions tailored to individual needs.

# RESULT

Deployment spaces / [Travel\\_agent\\_1](#) / watsonx Agent /

watsonx Agent ✓ Deployed Online

API reference Test **Preview**

New chat +

**N** You 08:49 PM  
hi

**watsonx Agent** 08:49 PM  
I didn't quite get that. Could you please provide more details about your travel plans, such as destination, dates, and budget?  
This will help me provide a more tailored response.

**N** You 08:50 PM  
Mumbai, 15th Aug 2025, 30000 make trip plan for 5 days in mumbai

Type something...



# RESULT

Deployment spaces / [Travel\\_agent\\_1](#) / [watsonx Agent](#) /

## watsonx Agent ✓ Deployed Online

[API reference](#) [Test](#) [Preview](#)

[New chat](#) +

You 08:50 PM

Mumbai, 15th Aug 2025, 30000 make trip plan for 5 days in mumbai

watsonx Agent 08:50 PM

Based on the search results, here's a 5-day trip plan for Mumbai with a budget of 30000:

Day 1: Arrival in Mumbai and check-in to a hotel. Visit the Gateway of India, Marine Drive, and Colaba Causeway.

Day 2: Visit the Haji Ali Dargah, Siddhivinayak Temple, and Dhobi Ghat.

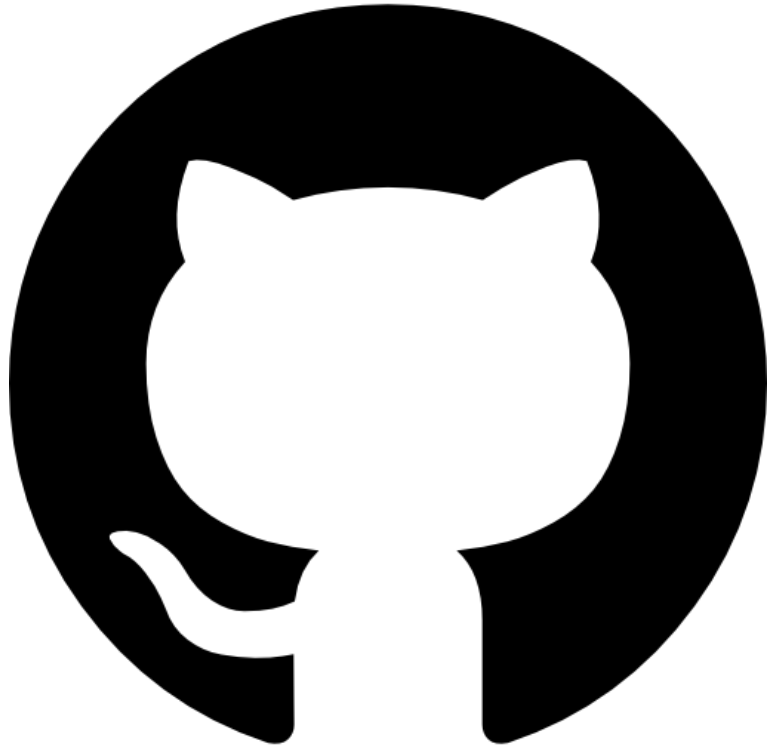
Day 3: Take a day trip to Elephanta Caves and return to Mumbai in the evening.

Day 4: Visit the Chhatrapati Shivaji Maharaj Vastu Sangrahalaya, National Gallery of Modern Art, and the Mumbai Museum.

Type something...

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# PROJECT LINK



<https://github.com/Naveen-2003-Creator/IBM-Project>

# CONCLUSION

- The Travel Planner Agent demonstrates effective use of AI to simplify and personalize travel planning, successfully integrating user preferences and real-time data to generate efficient itineraries.
- The proposed solution proved effective in reducing planning time and enhancing user experience, though challenges such as handling diverse user inputs and ensuring seamless API integration were encountered during development.
- Continuous improvements in natural language understanding and data connectivity will further enhance the system's performance.

# FUTURE SCOPE

- Future enhancements for the Travel Planner Agent include integrating additional data sources such as social media trends and local events to improve recommendation accuracy.
- Optimizing the AI algorithms using advanced machine learning techniques can further personalize travel plans and enhance response speed.
- Expanding the system to support multiple cities and regions will increase its usability for a broader audience.
- Additionally, incorporating emerging technologies like edge computing could enable faster real-time processing and offline functionality, making the travel assistant even more reliable and efficient.

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# REFERENCES

- IBM watsonx.ai Assistant tutorial

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According to the Adobe Learning Manager system of record

**Completion date:** 23 Jul 2025 (GMT)

**Learning hours:** 20 mins





**THANK YOU**