CAPSTONE PROJECT

TRAVEL PLANNER AGENT

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PROBLEM STATEMENT

Travel planning today is often tedious and time-consuming. Users spend hours searching for destinations, comparing transport and accommodation options, checking weather conditions, and manually creating itineraries. Managing bookings and dealing with unexpected changes further complicate the process. There is a strong need for an intelligent assistant that can simplify this process by providing quick, personalized, and real-time travel planning support.

- Planning involves multiple platforms (flights, hotels, weather).
- Manual research is time-consuming.
- Adjusting to last-minute changes is difficult.
- A unified, intelligent solution is needed.

PROPOSED SOLUTION

The proposed solution is an AI-powered Travel Planner Agent built on IBM Cloud Lite services and IBM Granite AI. It takes user preferences, budget, and schedule as input and generates personalized travel plans. It suggests destinations, builds day-wise itineraries, recommends transport and accommodation options, and integrates real-time weather updates. The agent also manages alerts for travel changes and optimizes schedules to ensure a smooth travel experience.

- AI-driven travel recommendation using IBM Granite.
- Personalized day-wise itinerary generation.
- Real-time weather and travel alerts.
- Transport and accommodation suggestions.
- Simplified travel planning process.

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SYSTEM APPROACH

The system is designed as a web-based or chatbot-based application using a modern technology stack. The frontend is built using React.js or HTML/CSS/JS, providing a user-friendly interface. The backend is implemented using Python Flask or Node.js for efficient API handling and integration. IBM Granite AI is used to generate intelligent travel recommendations, and IBM Watson Assistant powers chatbot interactions. User preferences and trip history are stored securely in IBM Cloudant, a NoSQL database. External APIs like Google Places and OpenWeatherMap/IBM Weather provide location and weather data. The entire application is deployed on IBM Cloud Lite for easy access and scalability....

Frontend: React.js or HTML, CSS, JS.

Backend: Python Flask or Node.js.AI Model: IBM Granite (travel recommendations).

Chatbot: IBM Watson Assistant.

Database: IBM Cloudant (NoSQL).

APIs: Google Places, OpenWeatherMap/IBM Weather.

Deployment: IBM Cloud Lite.

ALGORITHM & DEPLOYMENT

The Travel Planner Agent works on a simple yet powerful algorithm. It starts by collecting user inputs like destination, travel dates, budget, and personal preferences. Using IBM Granite AI, it generates a personalized itinerary and fetches relevant data such as weather forecasts, transport schedules, and accommodation options using external APIs. The system then integrates this data to produce a complete travel plan and stores user information for future reference. The solution is deployed on IBM Cloud Lite, ensuring accessibility, scalability, and efficient resource utilization.

Algorithm:

- Take user input (destination, date, budget, preferences).
- Generate itinerary using IBM Granite AI.
- Fetch weather, transport, and accommodation data via APIs.
- Integrate all information into a single travel plan.
- Store user data in IBM Cloudant for personalization.
- Display travel plan through chatbot or web interface.

Deployment:

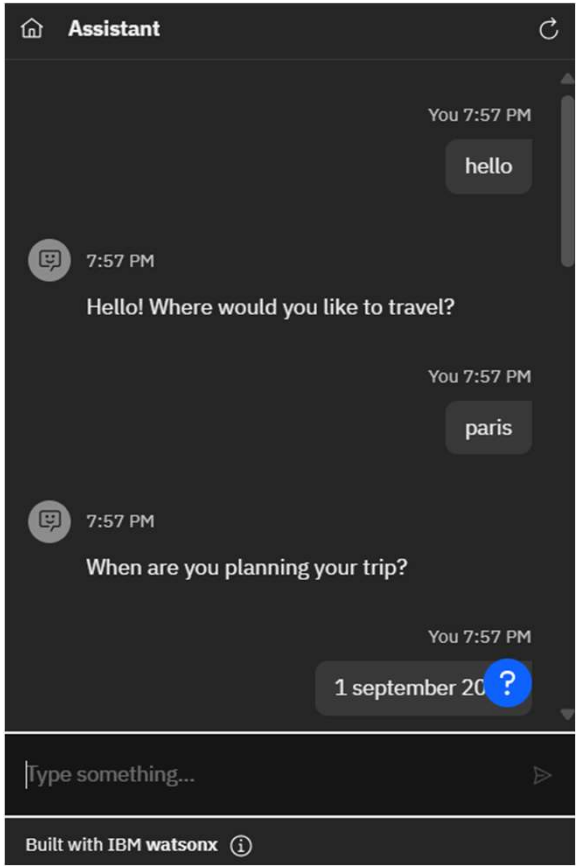
- Hosted on IBM Cloud Lite.AI processing using Granite and Watson Assistant.
- Integrated with external APIs for real-time data.

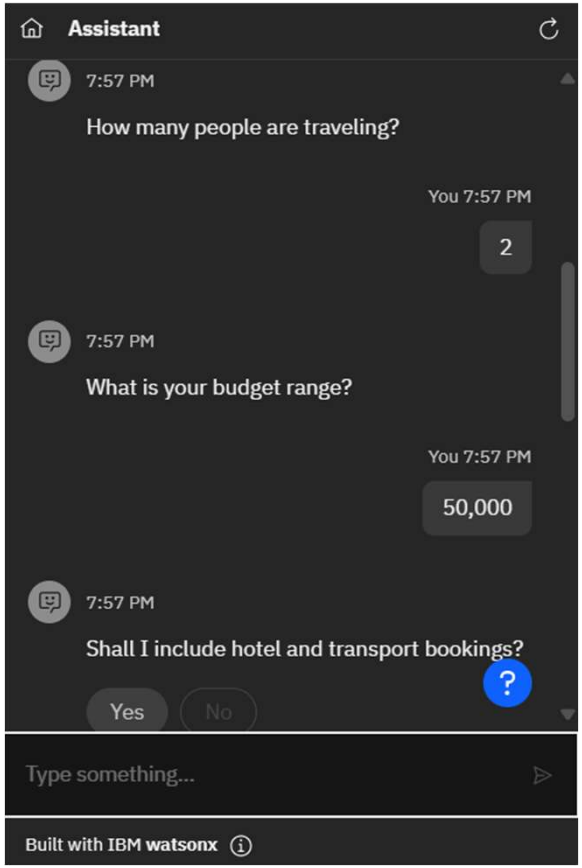
RESULT

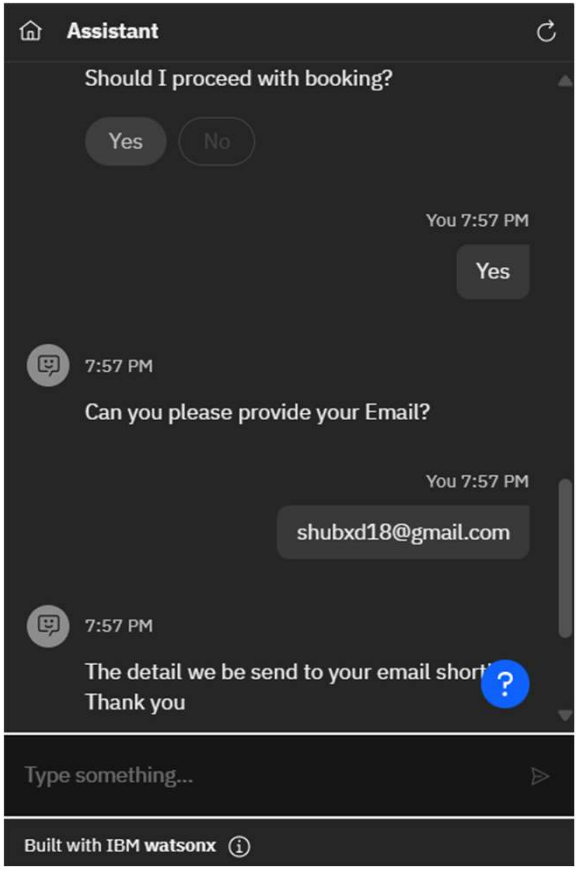
The Travel Planner Agent successfully generates personalized travel itineraries along with accommodation and transport options based on user input. It integrates real-time weather data and provides alerts about any travel changes. The output is displayed in a user-friendly interface, either as a chatbot response or a web dashboard.

- Personalized destination and itinerary suggestions.
- Real-time weather and travel updates.
- Accommodation and transport options.
- Interactive chatbot/web interface.

RESULT







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CONCLUSION

The Travel Planner Agent simplifies the entire travel planning process using AI-based recommendations and real-time data integration. It eliminates the need for manual research and offers a seamless user experience. By integrating transport, accommodation, weather, and itinerary planning in one platform, it saves time and reduces travel planning stress.

- AI-driven travel planning.
- Real-time, personalized recommendations.
- Simplifies decision-making process.
- Enhances user experience and saves time.

FUTURE SCOPE

The Travel Planner Agent can be expanded to include advanced features and integrations in the future. It can support multi-language interactions, enable direct booking and payment integration, and provide voice-based assistance for hands-free planning. Additionally, it can integrate real-time price comparison, predictive travel risk alerts, and AR-based travel experience previews.

- Voice-based assistant integration.
- Real-time flight and hotel price comparison.
- Direct booking and payment support.
- Multi-lingual and global support.
- Predictive travel risk alerts.

REFERENCES

References include official IBM documentation for Granite and Watson Assistant, Google Places API, and OpenWeatherMap API, which provide technical support and data sources for building and deploying the Travel Planner Agent.

- IBM Cloud Documentation: https://cloud.ibm.com
- IBM Granite: https://www.ibm.com/granite
- Google Places API: https://developers.google.com/places
- OpenWeatherMap API: https://openweathermap.org/api

IBM CERTIFICATIONS

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In recognition of the commitment to achieve professional excellence

Journey to Cloud: Envisioning Your Solution

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Has successfully satisfied the requirements for:

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IBM **SkillsBuild** Completion Certificate

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