

Gen AI Exchange Hackathon

Team Name : DevelopNators

Team Leader Name : **Mohd. Riyam**

Problem Statement : **Personalized Trip Planner with AI (Phase II)**

Product Summary (What's Live Now)

What does the product do today?

Our platform — **AI-Powered Personalized Trip Planner** — helps users create **intelligent, weather-aware travel itineraries** in seconds.

It combines **AI reasoning (Gemini)** with **real-world data** (Google Maps + OpenStreetMap + Weather APIs) to generate:

Custom day-by-day itineraries

Budget & trip insights

Nearby hotel and restaurant recommendations

Smart adjustments based on live weather or user feedback

All trips are **saved, shareable, and editable in real-time** through Firebase.

Who is it for?

Travelers & backpackers looking for quick personalized trip plans

Solo explorers who want smart AI assistance on the go

Travel companies / planners aiming to automate itinerary creation

Anyone who wants a *personal travel assistant* that adapts to their preferences, budget, and conditions

What is the main outcome for the user?

A **ready-to-use, dynamic itinerary** tailored to their interests, location, and weather.

AI recommendations that evolve in real-time — offering smarter routes, alternative activities, and budget insights.

One-click shareable trips and the ability to **refine plans interactively** using the AI chat assistant.

Innovation, Impact & Alignment

What feels new or clearly better than existing options?

Agentic AI Trip Planner: Combines real-time data (Maps, Weather, Nearby APIs) with **Gemini's reasoning** to create and refine itineraries intelligently — not just static suggestions.

Memory-based Conversational AI: The planner *remembers context* (previous chats, interests, and trip state) to give continuity and personalization like a true travel companion.

Weather-Aware Dynamic Replanning: Automatically suggests alternatives (e.g., indoor activities during rain) — a first step toward *adaptive trip management*.

Hybrid Data Architecture: Seamlessly switches between **Google Maps API** and **Overpass (OpenStreetMap)** when data is unavailable, ensuring consistent functionality even in low-API environments.

How does it directly address the chosen theme?

Aligned with “**AI for Real-World Problem Solving**”, it uses **Gemini intelligence and data fusion** to automate travel planning — reducing manual research and cognitive load with solid prompts behind .

Demonstrates **agentic *behavior, tool orchestration**, showcasing how next-gen AI systems can handle personalized, evolving user needs.

Who benefits, and what positive change will they feel?

Travelers: Save hours of research — receive context-aware itineraries instantly.

Local Businesses: Gain visibility through AI-driven nearby recommendations.

Tour Planners & Agencies: Automate itinerary creation with AI precision.

Everyone: Experiences **AI as a real assistant**, not just a chatbot — one that adapts, plans, and improves decisions.

Working product & demo

DEMO LINK :

https://drive.google.com/file/d/1qnRbV8Eilj9fljwG1um713Ku-ozdc_Ba/view?usp=sharing

LIVE LINK :

<https://travel-assistant-f5cdc.web.app>

GITHUB LINK:

<https://github.com/Ri-yan/Personalized-Trip-Planner-with-AI>

Working product & demo

Delhi Getaway

3 days • Budget ₹8000 • Est. ₹4,500

Back Share

Trip Highlights

This Delhi getaway focuses on cultural exploration and culinary delights. Visit historical sites like Dargah Hazrat Khwaja Mir Dard and Razia Begum's Tomb in the mornings. Indulge in diverse food experiences at Bengali Sweet House, Andhra Bhawan Canteen, and Spice Route, with options for evening nightlife at Connaught Place. The weather in early November is clear and warm, perfect for sightseeing.

Day 1

	Morning • Afternoon • Evening		
Morning	Breakfast at Bengali Sweet House Food • Best: Morning 	Afternoon	Explore Dargah Hazrat Khwaja Mir Dard Culture • Best: Afternoon

Day 2

	Morning • Afternoon • Evening		
Morning	Visit Razia Begum's Tomb Culture • Best: Morning 	Afternoon	Lunch at Andhra Bhawan Canteen Food • Best: Afternoon

AI Trip Assistant

Hi! I'm your travel assistant. Ask me anything about your trip.

Ask about your trip...

AI Trip Planner (Pro) Hi, Mahdi Riyaz

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Afternoon

Afternoon	Explore Dargah Hazrat Khwaja Mir Dard Culture • Best: Afternoon

AI Trip Assistant

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Ask about your trip...

Map Preview

Trip Summary
Days: 3
Est. Cost: ₹4,500

Process Flow — User Journey

1. User Onboarding

User Authentication by login/signup by mail.

The user enters trip details — **destination, days, budget, and persona** (e.g., Heritage Lover, Foodie Explorer).

Value: Instantly personalizes the planning experience — the AI understands *who the traveler is* and what they prefer.

2. AI Trip Generation

The system fetches **real-time coordinates, weather, and nearby places (hotels, restaurants, attractions)** using Google Maps / Overpass APIs.

Gemini AI processes all inputs to create a **personalized, day-wise itinerary**.

Value: The user gets a smart, ready-to-go trip plan — curated uniquely for their goals.

3. Adaptive Refinement

The user can **chat with the AI assistant** or use “Refine with AI” to adjust plans.

AI re-optimizes based on **weather, preferences, or new constraints**.

Example: Rain forecast → AI shifts outdoor events to indoor ones.

Value: Plans adapt in real time — the user never needs to re-plan manually.

4. Interactive Experience

The interface provides:

Weather Dashboard

Trip Insights Panel

Recommendations & Maps

AI Chat for questions or updates

Value: The user stays engaged and informed — all data visualized intuitively.

5. Save, Share, & Continue

The full trip is **auto-saved to Firebase**, accessible anytime.

Users can **share via dynamic links or download as PDF itineraries**.

Value: Seamless sharing, reusability, and continuity — your AI companion remembers every trip

Architecture Diagram

Core Components

1. Frontend (React + Tailwind + Vite)

- Handles user interface, onboarding forms, chat, trip visualization, and map embedding.
- Interacts with AI and Firebase services via secure APIs.

2. AI Layer (Google Gemini)

- Generates and refines itineraries, summaries, and recommendations.
- Powers memory-based chat and weather-aware AI planning.

3. Maps & Location Services (Google Maps / Places APIs)

- Provides geocoding (lat/lng), nearby places, and travel recommendations.
- Used for Trip Map previews and fetching POIs (hotels, restaurants, attractions).

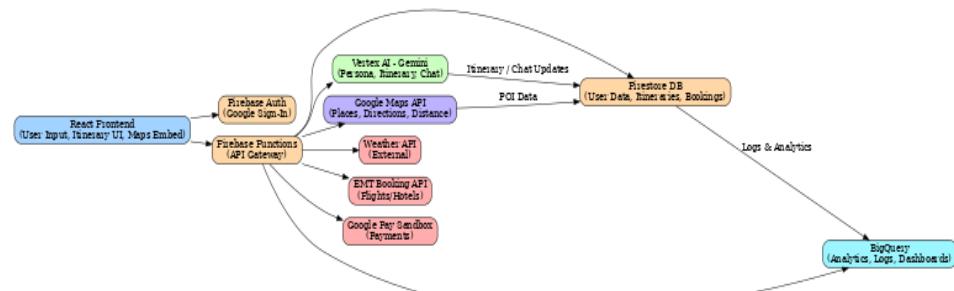
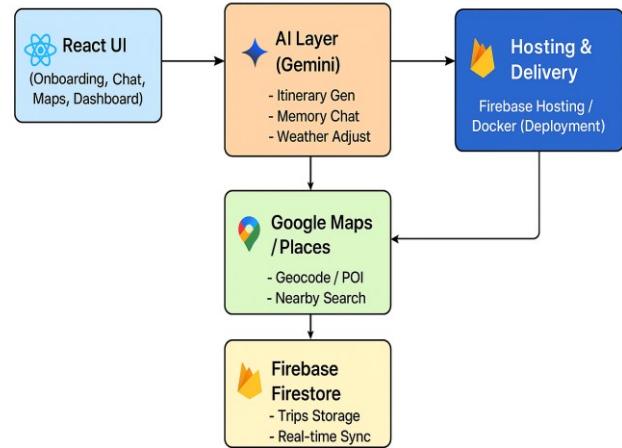
4. Database & Auth (Firebase Firestore + Auth)

- Stores user data, itineraries, preferences, and trip history.
- Syncs trip updates in real time.

5. Hosting & Delivery (Firebase Hosting / Docker-ready)

- Serves the React frontend globally with fast CDN-backed.
- Optionally containerized using Docker for portability.

System Architecture Overview



Google AI Tools Usage (Where & Why)**Gemini API (Generative AI — Vertex AI / AI Studio)****Where used:**To generate **personalized itineraries** based on user persona, location, budget, and duration.To refine trips **dynamically** in response to user feedback or weather updates.

To generate trip summary and weather summary.

To calculate and predict budget and estimation insights.

Powering the **AI Chat Assistant**, enabling natural conversation and context.**Why:**Gemini interprets unstructured trip data (places, interests, weather) and crafts **human-like plans and summaries**.

It helps make every trip unique and contextually relevant — not template-based.

User Value:

Smarter, adaptive itineraries.

Conversational trip planning, not form-filling.

Weather-aware AI decisions.

Google Maps Platform APIs**Where used:****Geocoding API:** Converts user-input destinations into latitude/longitude.**Places API / Overpass Fallback:** Fetches nearby hotels, restaurants, and attractions.**Maps Embeds:** Used to visualize trip routes and attractions.**Why:**

Ensures real-world data accuracy and rich local context.

User Value:

Authentic, real-time place data.

Reliable suggestions with ratings and categories.

Trustworthy visual trip maps.

Firebase (Google Cloud Firestore)**Where used:**

Stores and syncs all user itineraries, preferences, and AI updates.

Real-time subscription to reflect updates instantly across devices.

Why:

Simplifies persistence and collaboration while maintaining scalability.

User Value:

Trips auto-saved securely.

Instant updates and continuity.

Shareable AI-generated trip links.

Tech Stack Overview

Frontend (User Interface)

- **Framework:** React + Vite
- **UI Libraries:** Tailwind CSS, Framer Motion, Recharts (for analytics visuals)
- **Core Responsibilities:**
 - Interactive trip planning forms & itinerary viewer
 - Real-time weather and map visualization
 - Dynamic AI-driven chat and refinement modals

AI & Intelligence Layer

• Gemini API (Google AI Studio / Vertex AI):

- Generates and refines **personalized itineraries** based on user persona, location, and weather.
- Powers **AI conversation assistant** with trip memory and contextual updates.

• Google Maps Platform:

- **Geocoding API:** Converts user destinations into coordinates.
- **Places API:** Fetches nearby hotels, restaurants, attractions.
- **Maps Embed API:** Displays interactive trip routes and highlights.

Backend & Database

• Firebase Fire store (NoSQL Database):

- Stores itineraries, user preferences, and AI recommendations in real time.
- Enables live syncing and collaboration between sessions.

• Firebase Authentication:

- Handles secure login, user sessions, and personalized trip history.

Deployment & Updates

• Hosting: Firebase Hosting

• Continuous Deployment: Firebase redeploy

• Monitoring: Firebase Console & Logs

• Rollout Strategy: Progressive deployment with live sync updates — no downtime.

User Experience

Seamless Onboarding

A **guided trip planner form** helps new users start instantly — just enter destination, days, and budget. Pre-filled sample data (Jaipur demo) lets first-time visitors explore without setup friction.

Effortless Navigation

Single-page layout with contextual sections (planner → itinerary → insights). Consistent design using **Tailwind CSS**, ensuring clarity and visual hierarchy. Smart “Back” and “Refine with AI” actions keep users in control at every step.

Responsive & Accessible

Fully optimized for **mobile, tablet, and desktop**. Tap-friendly cards, scrollable itineraries, and quick-action buttons for travelers on the go. Clear icons and contrast-rich colors improve readability and accessibility.

Guided AI Interaction

Conversational assistant helps users modify trips naturally (“Add a beach visit” → instant plan update). **In-context AI memory** ensures continuity — the system remembers trip context and weather. **Toolips, modals, and feedback alerts** guide users through edits and updates smoothly.

Outcome

Even a **first-time user** can generate, personalize, and visualize a full travel itinerary **within minutes**, comfortably and confidently on any device.

Market & Adoption

Early Users

- **Travel Enthusiasts & Solo Travelers** — people who prefer **customized trips** over pre-packaged tours.
- **Young professionals & students** planning short, spontaneous getaways.
- **Small travel agencies and tour planners** seeking AI-assisted itinerary generation for clients.
- *Our first 1,000 users will likely come from travel subreddits, college tech communities, and early adopters testing AI tools.*

Go-To-Market Plan

Phase 1 (0–30 days) – Try & Test

- Launch beta on **Firebase Hosting** with **Gemini-powered itinerary builder**.
- Gather user feedback via in-app prompts and early signups.
- Promote on travel & tech platforms (Reddit, Product Hunt, LinkedIn).

Phase 2 (30–60 days) – Launch & Grow

- Add **shareable trip links** and **social preview cards** for organic reach.
- Partner with **college travel clubs & content creators** for demo videos.
- Integrate **Google Maps review data** for credibility.

Phase 3 (60–90 days) – Measure & Scale

- Track engagement (trip creations, refinements, and shares).
- Implement **premium AI insights** and **real-time weather re-planning**.
- Explore integration with **Google Travel APIs** and **booking partners**.

Market & Adoption

Service	Monthly Cost	Notes
Firebase Hosting + Firestore	~\$15	Includes real-time DB & auth
Google Maps / Places API	~\$25	Pay-per-use (free quota covers early users)
Gemini AI API	~\$30–40	Depends on prompt volume
Total (MVP Stage)	≈ \$80/month	Very sustainable for early-stage usage

Next 90-Day Roadmap**Phase 1: Try & Validate (Days 0–30)**

- Goal: Validate concept and collect early feedback
- Deploy MVP using **Firebase Hosting + Firestore**
- Integrate **Gemini AI** for itinerary generation
- Use **Google Maps & Places API** for live recommendations
- Launch **Jaipur demo trip** & AI chat-based trip adjustments
- Collect feedback via in-app survey and shareable trip links

Outcome:

Working MVP with real AI-based itinerary generation and user testing insights

Phase 2: Launch & Engage (Days 30–60)

- Goal: Grow adoption and improve personalization
- Add **memory-based AI assistant** for dynamic itinerary refinements
- Implement **weather-aware trip adjustments** using AI
- Enable **Firestore real-time trip sync** with sharing via encrypted URLs
- Introduce **Trip Insights Dashboard** for cost, time, and satisfaction metrics
- Launch beta campaign on social media (Product Hunt, LinkedIn, Reddit)

Outcome:

Engaged early user base with dynamic AI travel experiences

Phase 3: Measure & Scale (Days 60–90)

- Goal: Refine product based on user behavior and scale
- Add **multi-destination support** (e.g., Rajasthan tour)
- Introduce premium “AI Refine” for smart budget/time optimization
- Add **real-time trip collaboration** for friends/family travel planning
- Launch **mobile-friendly PWA version**
- Measure key KPIs — engagement, completion rate, refinement usage

Outcome:

Market-ready AI-powered travel planner with measurable traction and user retention

By Day 90:

- 1,000+ trip plans generated
- 70% itinerary refinement satisfaction
- Sub-5 second average AI response time
- Live product demo ready for investors and travel partners

Gen AI Exchange Hackathon

Thank you