Travel Copilot: A Generative AI Solution for Gen Z Itinerary Planning

1. Product Requirements Document (PRD)

1.1 The Opportunity: Market and Problem Validation

Area	Current Market Context (Based on 2024–2025 Data)	Problem Statement
Target User	Gen Z (18–27): Takes 3–5 leisure trips annually, prioritizing international travel (up to 79%), authenticity, and sustainability. They are digital natives who use social media (90%) for inspiration.	Gen Z travelers are overwhelmed by the excessive number of destination–specific recommendations (blogs, Instagram, booking platforms) and struggle to intelligently filter and prioritize options within limited trip durations (e.g. 3-day micro-cations). The core challenge is not access to information, but the inability to confidently narrow choices, balance time and budget constraints, and select socially relevant experiences without decision fatigue. The dominant friction is emotional regret, anticipation and fear of choosing the wrong experiences within limited time.
AI Trend	Adoption is Growing: Nearly half of Gen Z either use or plan to use AI for travel planning. They use it for inspiration but are often disappointed by the generic nature or factual errors of current LLM outputs.	Existing AI tools (generic LLMs) fail to meet the high standards of low latency (≤1.5s) and high accuracy (≤2% Hallucination Rate) required for a reliable travel companion.

Competition	The Travel Planner App Market is projected to grow at a CAGR of over 11%. Major competitors (Google Trips, Skyscanner) are integrating AI, but often focus on booking or general search, lacking the hyper-focus on Gen Z's need for authentic, budget-aware, 3-day micro-cations.	The market lacks a highly specialized, fine-tuned AI solution that can deliver unique, non-mainstream itineraries that are inherently cost-effective and socially relevant. While existing AI tools focus primarily on itinerary generation or booking integration, the market lacks a collaborative AI system that first curates and ranks socially relevant experiences before structuring them into a logistically optimized plan. There is a clear gap for a collaborative AI planning system that intelligently filters and structures socially relevant experiences into optimized itineraries while preserving user agency.

Proposed Solution

Build a generative AI-powered “Travel Copilot” mobile application that functions as a collaborative travel intelligence system. Instead of instantly generating a fixed itinerary, the system will:

- Curate and rank socially relevant, budget-aligned experiences within a selected destination.
- Reduce large option sets into a high-confidence shortlist.
- Allow users to co-select preferred activities.
- Structure selected experiences into an optimized, geographically efficient 3-day itinerary.
- Prioritize confidence-first planning by optimizing for realistic pacing and logistical smoothness over maximum activity coverage.
- Maintain low latency (≤1.5s) and high factual accuracy (≤2% Hallucination Rate).

Travel Copilot exists to help travelers collaboratively create structured, optimized multi-day itineraries by intelligently narrowing options and organizing experiences with the user, not for the user.

2. Goals, Metrics, and Guardrails

This section directly outlines how the project's Goal is measured and maintained.

2.1 Success Metrics

Metric	Target	Rationale
Side-by-Side (SxS) Win Rate	≥70%	The primary measure of product quality and user delight. This proves the AI-generated itinerary is superior to a baseline (e.g., a manually planned itinerary or one from a generic LLM), justifying the fine-tuning investment.
Hallucination Rate	≤2%	The critical trust metric. This low threshold minimizes the risk of factual errors (wrong addresses, closed sites), which destroy the user experience and violate the safety guardrail.
Latency (Time to First Token)	≤1.5 seconds	The core UX metric. Gen Z users demand speed. This low-latency target ensures the planning process feels instant and effortless, addressing the overwhelming problem.
Retention	20% returning within 60 days	Measures product stickiness. A high retention rate confirms the itineraries are valuable enough for users to rely on for future trips.
Shortlist Acceptance Rate	≥75%	Measures how often users accept AI-curated recommendations with minimal modification. This validates the quality of ranking and social relevance signals before itinerary structuring. The shortlist includes visible relevance indicators (e.g., trending among similar travelers, budget-fit, geographic efficiency) to reinforce user trust before selection.
First-Place Rating (Trust Anchor Metric)	≥4/5	Measures initial real-world validation of itinerary quality. This is the leading indicator of trust formation and reduced regret anxiety. A strong first experience significantly increases follow-through and long-term confidence.

During-Trip Validation Rate	Track visited & rated items	Measures % of itinerary locations visited and rated positively during the trip, validating real-world execution and pacing quality.

2.2 Guardrails (Responsible AI & Safety)

Safety:
The model will undergo pre and post generation filtering to prevent outputting information related to:

- Dangerous or closed sites (e.g., restricted military zones, abandoned buildings).
- Illegal activities (e.g., drug tourism, prohibited activities in the target country).
- Unsafe logistical advice (e.g., directions through high-crime areas late at night).

Ethical Data Use:
The curated dataset must be strictly audited for bias to ensure recommendations are not skewed towards specific demographics, income levels, or popular tourist sites. The goal is to promote cultural diversity, local businesses, and inclusive travel options.

3. Technical Decisions and Improvement

3.1 Data Strategy & Tokenization

Data Sources:

- **POI/APIs:** Real-time, factual data for accuracy and logistics (addresses, hours, transit links).
- **Niche Travel Blogs/Forums:** Qualitative data for authentic experiences, local culture, and unique perspectives that resonate with Gen Z's preference for off-the-beaten-path travel.
- **User Feedback Loop:** Data generated from corrected 'Thumbs-Down' itineraries and structured skip-reason inputs.
- **Social Relevance Signals:** Trend indicators, engagement frequency, peer similarity scoring, and recency weighting to rank experiences based on cultural relevance and Gen Z preferences.

Data Cleaning:

Rigorous removal of spam, outdated information, and known biased content. Data must be geo-temporal tagged to ensure the model knows if a suggestion is seasonal or year-round.

Tokenization:

Select a tokenizer (e.g., specialized SentencePiece or a custom travel-vocabulary extension) optimized for long-tail travel entities and budget terms ("50K," "hostel," "bleisure") to improve both accuracy and latency.

3.2 Technical Choice

Technical Choice: LoRA (Low-Rank Adaptation)

Justification:

Domain Focus:
A general LLM is a great language model but a poor travel planner. LoRA allows efficient injection of a specialized travel skillset, training the model to master itinerary generation, budget calculation, logical sequencing, relevance ranking, socially informed prioritization, and confidence-first pacing that minimizes logistical friction.

Agility and Iteration:
LoRA reduces training time and GPU requirements by up to 70%, enabling frequent retraining with fresh user feedback and evolving Gen Z trends.

Low Latency Requirement:
Serving lightweight adapter weights significantly improves inference speed, directly supporting the ≤1.5s latency target.

3.3 User Feedback Loop

Implementation:
A persistent Thumbs-Up/Thumbs-Down widget on every generated itinerary.

Additionally, an adaptive end-of-day recap collects lightweight structured feedback on visited and skipped locations. Skip reasons are categorized (e.g., time constraint, distance, preference change) to distinguish between curation flaws, overpacking, and logistical misalignment.

Purpose:
Feedback and structured skip-reason data are prioritized for review to identify ranking flaws, pacing issues, or factual errors. Improved examples are incorporated into future LoRA fine-tuning cycles to enhance both shortlist quality and itinerary structuring performance.

4. Prototyping & UX

The user experience prioritizes minimal design, speed, and shareability, aligning with Gen Z expectations.

4.1 Workflow: User Journey Map

We will use Excalidraw to map this flow:

1. **Input:** User opens app → Quick Chat/Form (Destination + Interests + Budget + Trip Duration).
2. **AI Curation:** AI generates a ranked shortlist of socially relevant, budget-aligned experiences.
3. **Co-Selection:** User selects preferred activities from curated options.
4. **Structured Generation:** AI organizes selected activities into a geographically optimized, confidence-first 3-day itinerary (≤1.5s latency). Day 1 is intentionally sequenced for maximum trust formation through low-friction, high-alignment activities.
5. **Action/Feedback:** User interacts with Map/Budget views, marks visited places, rates experiences, or provides recap feedback.

Final Positioning Summary

Travel Copilot is a collaborative, confidence-first AI planning engine designed to transform regret anxiety into structured certainty — helping users move from overwhelmed decision-makers to confident travelers who trust their choices.